APPLICATION FOR UNITED STATES LETTERS PATENT

Title: SYSTEM, METHOD, AND APPARATUS FOR COMPOSITE MUSIC

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SYSTEM, METHOD, AND APPARATUS FOR COMPOSITE MUSIC

FIELD OF THE INVENTION

[**0001**] The present invention relates generally to music. More particularly, the invention relates to a system, method, and apparatus employed to persist music as modular information to subsequently enumerate infinite variety of composite musical audio output achieving an entirely unprecedented sophistication of perpetual uniqueness and consistent mood.

BACKGROUND

[**0002**] In traditional recorded music, the record dictates exactly what the listener must pay attention to, and when. For the duration of the playback of a record, the attention of the listener is given over to the sole responsibility of the single creator of that record. In contrast, the prime directive of Composite Music is purely to sustain continuous listener satisfaction across time, without drawing too much attention to itself.

[**0003**] Usage of Composite Music includes but is not limited to Advertisement, Amusement, Dining, Elevator, Entertainment, Environment, Gallery, Gaming, Gym & Locker Room, Home, Hospitality, Industrial, Institutional, Interactive, Leisure, Office, Personal, Public, Reception, Recreation, Retail, Sports, Transportation, Vehicle or Workplace.

[**0004**] Composite music is especially useful as background music, and now is an especially opportune moment in the history of that art. Muzak Holdings, *Muzak*, 1954 once dominated the entire planet's supply of background music, and was very profitable from the 1950s through the 1990s. However by 2010 the Muzak era was gone. Today, the vast majority of background music is fulfilled by "Musical Curation" of popular contemporary recordings. However, musical curation is inherently limited to traditional recorded music, and there exists an opportunity to meet the complexity of the upcoming information age with an entirely new background music system.

[**0005**] Traditional music recordings are static and even when cleverly mixed in sequence could never hope to capture the full potential of perpetual uniqueness and consistent mood that is theoretically afforded by modern technology. There exists a direct causation from the static nature of the traditionally available media to the limit of its commercial potential.

[**0006**] From a commercial point of view, music in a particular location will endeavor to elicit a particular mood believed to have commercial benefit, for example the mood to shop. However, according to Hynes and Manson, *The sound of silence: Why music in supermarkets is just a distraction*, 2016, "sound in commercial servicescapes is a holistic mix of music and other aleatory sounds."

[**0007**] Aleatory sound (from the Latin word alea, meaning "dice") is uncertain or random sound, and aleatory music in that in which "some element of the composition is left to chance, and/or some primary element of a composed work's realization is left to the determination of its performer" as described by Griffiths, *Aleatory Music*, 2001 (2nd edition), 1879 (1st edition). There exists an opportunity to explore aleatoric music in the lens of a new system capable of guaranteeing musical integrity in a collaborative composite musical environment.

[**0008**] While fhe findings of the Hynes and Manson study suggest only a "minimal effect of music in a complex supermarket setting" and that the "impact of noise from other shoppers and machinery is more significant than music," the contradictory findings of Dubé, Chebat and Morin, *The effects of background music on consumers' desire to affiliate in buyer-seller interactions*, 1995 demonstrate "independent and interactive effects of music-induced pleasure and arousal on consumers' desire to affiliate."

[**0009**] Furnham and Strbac, *Music is as distracting as noise: the differential distraction of background music and noise on the cognitive test performance of introverts and extraverts*, 2002 confirmed that music could be as distracting as noise when handled improperly. So at least, there is unique value in music which guarantees a consistent mood without risk of alienation.

[**0010**] Available media formats are limited and static. There exists unrealized potential in the field necessitating the invention of an entirely new music system. Such a system would enable environmental design of Composite Music which incorporates the emotive potential of rhythm, tonality and poetics with the continuous aleatoric aspects of natural environmental sound.

[**0011**] Computer-based musical audio fabrication is a brand new field that has only recently come of age. For most of the 20th century, musical audio was fabricated from magnetic media by means of large machines in industrial facilities, as described in Morton, *The History Of Sound Recording*, 2016. Now a simple laptop computer or even a mobile device can perform this task.

[**0012**] The popular software by Apple, *Logic Pro X*, 2002-2016 is an example of computer-based music fabrication, and more specifically the fabrication of finished musical audio from source audio. The essential technique dates back to the very origins of electronic music. U.S. Pat. 6,255,576 by Suzuki, Sakama and Tamura discloses a device and method for forming waveform based on a combination of unit waveforms including loop waveform segments, known in the art as a "sampler." Now in the modern era any computer is capable of implementing the rudimentary function of a sampler. This technique is called sampling and is effective in enabling artists to create very novel music due to the re-assembly of sound, much the way that multiple sounds can be heard at once by the human ear.

[**0013**] There exists a need to re-invent this simple mathematical process from the opposite point of view, in terms of time. In the case of a Composite Music composite wherein the prime directive is filling every second of time with Composite Music, what is needed is a method for sourcing a combination of unit waveforms based on a known waveform necessity.

[**0014**] In the wake of a collapse in profitability of mechanical record replication, there exists a need for a revolutionary new model which creates opportunity for composite musical artists to own their intellectual and artistic product. There exists a need for a system entirely without finished recordings, thus mitigating the risk of media being duplicated without permission. This implies need for a live, real-time, streaming data pipeline of music, which implies the need for the present invention.

[**0015**] "Musical audio" is any audible signal which is musical; although the boundary of musicality is contested by philosophers, the present invention pertains to all musicality, by the faithful representation of musical intention, beginning with a composer or performing artist, carrying through the Fabrication process, and delivering that musicality in the final output audio.

[**0016**] To "enumerate musical choice" is to account for, in order, all the choices made in a piece of music. Viewed from one perspective, any written musical score is an example of the enumeration of musical choice. The present invention pertains to elevating this art to an unprecented level of sophistication.

[**0017**] "Composite Music" is music which is made up of distinct parts or elements, as opposed to traditional recorded music which is only one thing, delivered statically as a "record."

[**0018**] U.S. Pat. 8,487,176 by Wieder discloses a music and sound that varies from one playback to another playback. However, Wieder fails to transcend the deconstruction of 20th century notions of song-based music performance and publication; furthermore, there is no disclosure of a system for the enumeration of music.

[**0019**] U.S. Pat. 6,230,140 by Severson and Quinn discloses a continuous sound by concatenating selected digital sound segments. Severson & Quinn makes no disclosure pertaining to musical audio.

[**0020**] U.S. Pat. 9,304,988 by Terrell, Mansbridge, Reiss and De Man discloses a system and method for performing automatic audio production using semantic data. Terrel, Mansbridge, Reiss & De Man makes no disclosure of any method pertaining to continuous database access. It is purely an exercise in taxonomy, and makes no disclosure of any system for the enumeration of music.

[**0021**] U.S. Pat. 8,357,847 by Huet, Ulrich and Babinet discloses a method and device for the automatic or semi-automatic composition of multimedia sequence. Huet, Ulrich & Babinet makes no disclosure of a system for Composite Music.

[**0022**] U.S. Pat. 8,022,287 by Yamashita, Miajima, Takai, Sako, Terauchi, Sasaki and Sakai discloses a music composition data reconstruction device, music composition data reconstruction method, music content reproduction device, and music content reproduction method. Yamashita, Miajima, Takai, Sako, Terauchi, Sasaki & Sakai makes no disclosure of a system for the enumeration of music.

[**0023**] U.S. Pat. 5,736,663 by Aoki and Sugiura discloses a method and device for automatic music composition employing music template information. Aoki & Sugiura makes no disclosure of any system for the enumeration of music.

[**0024**] U.S. Pat. 7,034,217 by Pachet discloses a automatic music continuation method and device. Pachet is vague, based upon hypothetical advances in machine learning, and certainly makes no disclosure of a system for the enumeration of music.

[**0025**] US Patent 5,726,909 by Krikorian discloses a continuous play background music system. Krikorian makes no disclosure of a system for the enumeration of music.

[**0026**] US Patent 8,819,126 by Krikorian and McCluskey discloses a distributed control for a continuous play background music system. Krikorian and McCluskey makes no disclosure of a system for the enumeration of music.

[**0027**] A powerful new system for Composite Music promises to benefit human well-being, including but not limited to at home, driving, on-the-go, tolerating an ad, watching films or TV shows, visiting installation art, taking an elevator, traversing a hallway, waiting in reception, relaxing in a spa, working in a factory, networking at a co-working space, experiencing art in a gallery, working out at the gym and decompressing in the locker room, marveling at a museum, enjoying a theme park, exploring a resort, watching sports at a stadium, entering different habitats at a zoo, eating at a restaurant, shopping in a store, strolling through a mall, going on an amusement ride, cavorting at a carnival, gambling in a casino, opening before and closing after a concert, transitioning between shows at a festival, dancing in a nightclub, cruising on a boat, boarding and exiting an airplane, waiting in a bus terminal or getting through airport security.

[**0028**] Viewed from one aspect the present invention provides a system for Composite Music, comprising the continuous Fabrication of final output audio by means of recursive enumeration of choices, comprising the information models of: Library (comprised of Idea and Instrument), Idea (comprised of Meme and Phase), Phase (comprised of Voice, Chord and Meme), Voice (comprised of Event), Instrument (comprised of Audio and Meme), Audio (comprised of Waveform, Chord and Event), Chain (comprised of Link), Link (comprised of Choice, Chord and Meme), Choice (comprised of Arrangement), Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

[**0029**] Viewed from another aspect the present invention provides a method for fabricating musical audio, comprising the steps and algorithms of: Begin Fabrication, Scan Library, Create Chain, Macro-Choices (comprised of Macro Idea, Main Ideas and Append Links to Chain), Micro-Choices For Links (comprised of Ideas and Instruments), Compile Links (comprised of Chords, Events, Arrangements), Render Links (Source Audio, Mix Audio, Output Audio), and Continue or End Fabrication.

[**0030**] Viewed from another aspect the present invention provides an apparatus for fabricating musical audio, comprising: means for storage of musical ideas and instrument-audio; means for human adminstrator configuration of a single musical audio composite or a plurality of composite configured for a synchronous plurality of target location; means for operating a computer-based implementation of the Fabrication process, either for a single output on a personal computer or a plurality of output using virtual machines; means for storage of the resulting audio and metadata and means for distributing paired audio and metadata to a plurality of location.

[**0031**] However, the present invention makes no attempt to define all musical possibility. The invention pertains to a complete system and method of continuous Fabrication which takes as input atomic units pre-fabricated entirely for this purpose using the system and method disclosed in the present invention. Therefore, the output is entirely proprietary in form to this particular system and method. It is incomplete by design; according to Gödel's Incompleteness Theorem, paraphrased by Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid*, 1979, "for any record player, there are records which it cannot play because they will cause its indirect self-destruction."

OBJECTS OF THE INVENTION

[**0032**] It is an object of this invention to make available for commercial use the entirely new medium of Composite Music.

[**0033**] It is an object of this invention to deliver entirely original, customized and fully rights-managed musical audio, driven by the passage of time and customizable for many purposes in many locations.

[**0034**] It is an object of this invention to facilitate an autonomous machine to continuously deliver output of a composite musical audio composite fabricated from a musical library of ideas and instrument-audio.

[**0035**] It is an object of this invention to enable musical artists to structure their ideas and instrument-recordings as interoperable modules in a larger aleatoric musical ecosystem which functions as the library for autonomous Fabrication; the artists' original audio are recombined into the largest number of possible varieties which continue to fulfill the axioms they have set forth along with their performances.

[**0036**] Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification and drawings.

SUMMARY OF THE INVENTION

[**0037**] The present invention relates to Composite Music. More particularly, the invention relates to a system that can be employed to persist as information and automatically reproduce music which achieves an entirely new level of perpetual uniqueness and consistent mood. The present invention pertains to the continuous "Fabrication" of audio composited from a library of material; the traditional "record" is re-invented into smaller, more atomic units of musical ideas and instrument-audio. The present invention discloses a complete formal system by which any amount of time can be continuously filled with musical audio.

[**0038**] The invention accordingly comprises a system of information models, the several steps for the implementation of these models and the relation of one or more of such steps to each of the others, and the apparatus embodying features of construction, combinations of elements and arrangement of parts that are adapted to affect such steps. All of those are exemplified in the following detailed disclosure, and the scope of the invention will be indicated in the claims.

[**0039**] The present invention comprises a system for Composite Music, generally consisting of a source library of musical ideas and musical instrument-audio, and a continuous automated implementation of the process. The process begins by reading the library provided by the artist. A new chain is created. A succession of macro-ideas are chosen, the phases of which determine a series of choices of main ideas, the phases of which determine the series of links in the chain. Rhythm and supporting ideas are chosen for each link by their memes. Chords are determined. For all idea voices, instruments are chosen by their descriptions and arrangements, followed by the enumeration of all possible morphs and their points. Picks of final morphs determine exact usage of source audio to fabricate target audio. A plurality of source audio are transformed to a plurality of target pitches, mixed and output as audio. Finally the choices and events of the finished link are output as structured metadata. An infinite number of links can be fabricated continuously, each building and evolving from the preceding links in the chain. The audio signal can be audibly reproduced locally and/or transmitted to a plurality of locations to be audibly reproduced, immediately live-streaming or repeatedly in the future.

BRIEF DESCRIPTION OF THE DRAWINGS

[**0040**] For a more complete understanding of the invention, reference is made to the following description and accompanying drawings, in which some embodiments of the present invention are illustrated as an example and are not limited by the figures of the accompanying drawings, in which like references may indicate similar elements and in which:

Fig. 1 depicts an entity relationship diagram of a Library of content containing Ideas and Instruments to be purpose-made by an artist in advance of the continuous Fabrication process;

Fig. 2 depicts an entity relationship diagram of a single Chain of Links which serves as the backbone for a single Fabrication;

Fig. 3 depicts an entity relationship diagram of the contents of a single musical idea;

Fig. 4 depicts an entity relationship diagram of the contents of a single musical instrument;

Fig. 5 depicts an entity relationship diagram of the contents of a single link in a chain;

Fig. 6 depicts an entity relationship diagram of the contents of a single arrangement;

Fig. 7 depicts a flow diagram of the elements that may comprise a system by which a composite musical audio composite is to be fabricated continuously ("Fabrication") according to various embodiments of the present invention;

Fig. 8 depicts a flow diagram of the process of choosing each successive macro-type idea and determining the final transposed key;

Fig. 9 depicts a flow diagram of the system for determining the key and memes for a succession of multiple links per main-idea per macro-idea; this progression functions as the backbone of a single continuous Fabrication in the context of the present invention;

Fig. 10 depicts a flow diagram of the system by which any process is performed as a layer of work exactly once per Link in the Chain;

Fig. 11 depicts a flow diagram of the process of choosing Ideas for each Link in order to fulfill its Density;

Fig. 12 depicts a flow diagram of the process for matching Instruments to an Idea;

Fig. 13 depicts a flow diagram of the process for determination of the primary chords for a Link;

Fig. 14 depicts a flow diagram of the system by which an Instrument may provide a plurality of comparable recorded Audio of a specified series of inflection and/or pitch type to fulfill a series of Event matching that series of Inflection and/or Pitch;

Fig. 15 depicts a flow diagram of the system by which musical Ideas are cached as musical Arrangements which explore all the possible sub-Morphs of Events in the Ideas;

Fig. 16 depicts a flow diagram of the system by which sub-Morphs in Arrangements are compared to Instrument Audio in order to determine the final Arrangement of source Audio to output;

Fig. 17 depicts a flow diagram of the system by which the final output audio is mixed from source Audio;

Fig. 18 depicts the process by which musical artists take a traditional approach to fabricating music;

Fig. 19 depicts the process by which musical artists take an entirely new approach to fabricating Composite Music;

Fig. 20 depicts an apparatus for the purpose of enumerating Composite Music;

Fig. 21 depicts an apparatus to continuously fabricate a musical audio composite from one or more Libraries of source Ideas and Instrument-Audio;

Fig. 22 depicts an apparatus for the purpose of gathering feedback from listeners and engaging collaborators during the Fabrication process;

Fig. 23 depicts an apparatus for providing an interface by which actors collaborate in the continuous Fabrication of Composite Music;

Fig. 24 depicts an apparatus for continuous Fabrication of a continuous musical audio composite by a single operator in a single location;

Fig. 25 depicts an apparatus for continuous Fabrication of a continuous musical audio composite using virtualized computing for a plurality of operators in a plurality of locations;

Fig. 26 depicts a table of data representing a hypothetical Library example of a grieving macro-type musical Idea;

Fig. 27 depicts a table of data representing a hypothetical Library example of a joyful macro-type musical Idea;

Fig. 28 depicts a table of data representing a hypothetical Library example of a grieving main-type musical Idea;

Fig. 29 depicts a table of data representing a hypothetical Library example of a joyful main-type musical Idea;

Fig. 30 depicts a table of data representing a hypothetical Library example of a grieving rhythm-type musical Idea;

Fig. 31 depicts a table of data representing a hypothetical Library example of a joyful rhythm-type musical Idea;

Fig. 32 depicts a table of data representing a hypothetical Library example of a support-type musical Idea to additionally evoke grief;

Fig. 33 depicts a table of data representing a hypothetical Library example of a lossy support-type musical Idea;

Fig. 34 depicts a table of data representing a hypothetical Library example of a joyful support-type musical Idea;

Fig. 35 depicts a table of data representing a hypothetical Library example of a gritty support-type musical Idea;

Fig. 36 depicts a table of data representing a hypothetical Library example of a grieving percussive-type Instrument;

Fig. 37 depicts a table of data representing a hypothetical Library example of a joyful percussive-type Instrument;

Fig. 38 depicts a table of data representing a hypothetical Library example of a grieving harmonic-type Instrument;

Fig. 39 depicts a table of data representing a hypothetical Library example of a joyful harmonic-type Instrument;

Fig. 40 depicts a table of data representing a hypothetical Library example of a grieving melodic-type Instrument;

Fig. 41 depicts a table of data representing a hypothetical Library example of a joyful melodic-type Instrument;

Fig. 42 depicts a table of data representing a hypothetical example of a Chain of Links (based on the example Library set forth in preceding drawings) during the Fabrication process, and at each sequential Offset the Choices, Type, State, Start, Finish, Key, Tempo, and Memes;

Fig. 43 depicts a preferred embodiment of the method by which source Instrument-Audio is transformed according to Events implied by musical Choices, and finally mixed and output as final audio for the Link;

Fig. 44 depicts a preferred embodiment of the method by which source Instrument-Audio is transformed according to Events implied by musical Choices, and finally mixed and output as final audio for the Link; and

Fig. 45 depicts a preferred embodiment of the method by which source Instrument-Audio is transformed according to events implied by musical Choices, and finally mixed and output as final audio for the Link.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[**0041**] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well as the singular forms, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

[**0042**] Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[**0043**] In describing the invention, it will be understood that a number of techniques and steps are disclosed. Each of these has individual benefit and each can also be used in conjunction with one or more, or in some cases all, of the other disclosed techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specification and claims should be read with the understanding that such combinations are entirely within the scope of the invention and the claims.

[**0044**] New continuous Fabrication systems and apparatuses are discussed herein. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be evident, however, to one skilled in the art that the present invention may be practiced without these specific details.

[**0045**] The present disclosure is to be considered as an exemplification of the invention, and is not intended to limit the invention to the specific embodiments illustrated by the figures or description below.

[**0046**] A plurality of audio can be composited ("mixed") into a singular audio. Audio may be locally audible, or a synchronized plurality of audio may be transmitted to a plurality of remote locations to become audible.

[**0047**] Extend that all claims of the present invention, while described entirely in the paradigm of standard Western popular 12-tone music, the invention, its claims and various embodiments are applicable to other paradigms of tonal music, such as Harry Partch's 43-tone paradigm as proposed in Partch, *Genesis of a Music*, 1974 (2nd edition), 1947.

[**0048**] Subsequent depiction and description of example data are abbreviated for simplicity in service of grasping the overall system and method; all example data are to be understood as incomplete for the purpose of illuminating particular details

[**0049**] The present invention will now be described by referencing the appended figures representing preferred embodiments.

[**0050**] The entity relation diagram depicted in Fig. 1 shows an exemplary preferred embodiment of a Library [1] purpose-made by an artist to fulfill a particular composite musical audio need. A Library contains a plurality of Idea [2] modeling structured information to store a musical effect for Fabrication. A Library contains a plurality of Instrument [3] structuring atomic units of audio to fulfill a plurality of musical events.

[**0051**] The entity relation diagram depicted in Fig. 2 shows an exemplary preferred embodiment of a Chain [6] anchoring the Fabrication of a single composite musical audio composite. A chain contains a plurality of Link [7] scaffolding the choices of each segment of chain. The names "chain" and "link" are names for exemplary embodiment, however the present invention is not bound to these names; the present invention comprises the function of parts comprising a whole (ergo, "composite") musical audio, and the function of enumerating musical choice.

[**0052**] The entity relation diagram depicted in Fig. 3 shows an exemplary model of a preferred embodiment of an Idea [2]. Idea has Idea Name [131] identifying a musical effect for communications relating to a Fabrication project, e.g. `All of Me`. Idea has Idea Credit [132] crediting the artist reponsible for creating the musical idea, e.g. `Simons & Marks`. Idea has Idea Type [133] classifying the Idea s one of: `Rhythm`, `Macro`, `Rhythm` or `Support`. Idea has Idea Density [134] specifying a target ratio to fill sound space available for idea, e.g `0` (silence), `0.12` (quiet), `0.84` (engine room) or `0.97` (explosion). Idea has Idea Key [135] having root and mode, e.g. `C Major`. Idea has Idea Tempo [136] specifying beats per minute, e.g. `128`.

[**0053**] In Fig. 3, an Idea [2] has plurality of Meme [9] identifying themes common and uncommon among entities in the library. Idea Meme has Meme Name [129] naming a proprietary identifiers common and uncommon among the plurality of entities. Idea Meme has Meme Order [130] enumerating a series of Meme, e.g. `0` (first), `1` (second) or `2` (third).

[**0054**] In Fig. 3, an Idea [2] has plurality of Phase [8] evolving in a linear series. Idea Phase has Phase Name [137] identifying a series or idiom for communications relating to a Fabrication project, e.g. `Breakdown` or `Bridge`. Idea Phase has Phase Offset [138] specifying position in a linear series of phases, e.g. `0` (first), `1` (second) or `2` (third). Idea Phase has Phase Total [139] specifying a count of all the beats in a phase, e.g. `64`. Idea Phase has Phase Density [140] specifying a target ratio to fill sound space available for phase, e.g `0` (silence), `0.12` (quiet), `0.84` (engine room) or `0.97` (explosion). Idea Phase has Phase Key [141] specifying root and mode, e.g. `C Major`. Idea Phase has Phase Tempo [142] specifying beats per minute, e.g. `128`.

[**0055**] In Fig. 3, Idea [2] Phase [8] has plurality of Voice [10] embodying a particular role in the instrumentation of audio to fulfill musical ideas. Idea Phase Voice has Voice Type [145] classifying the Voice as one of: `Percussive`, `Harmonic`, `Melodic` or `Vocal`. Idea Phase Voice has Voice Description [146] specifying text used to compare instruments as candidate to fulfill voices (which also have a Description), e.g. `angelic` or `pans`.

[**0056**] In Fig. 3, Idea [2] Phase [8] Voice [10] has plurality of Event [11] specifying time and (optionally) note or inflection in the modeling a meaningful musical idea. Idea Phase Voice Event has Event Velocity [147] specifying a ratio, e.g. `0.05` (very quiet) or `0.94` (very loud). Idea Phase Voice Event has Event Tonality [148] specifying a ratio, e.g. `0.015` (a dissonant cymbal) or `0.96` (a clean tone). Idea Phase Voice Event has Event Inflection [149] specifying text used to compare audio as candidates to fulfill percussive variety or vocal phoneme, e.g. `Staccato` (piano), `Kick` (drum) or `Bam` (vocal). Idea Phase Voice Event has Event Position [150] specifying beats after phase start, e.g. `4.25` or `-0.75` (lead in). Idea Phase Voice Event has Event Duration [151] specifying a number of beats for which to sustain the Event, e.g. `0.5` (an eighth note in a 4/4 meter). Idea Phase Voice Event has Event Note [152] specifying the pitch class, e.g. `C#`.

[**0057**] In Fig. 3, Idea [2] Phase [8] has plurality of Meme [9]. Idea Phase Meme has Meme Name [129]. Idea Phase Meme has Meme Order [130].

[**0058**] In Fig. 3, Idea [2] Phase [8] has plurality of Chord [12] naming a harmonic set of three or more notes that are heard as if sounding simultaneously.. Idea Phase Chord has Chord Name [143] specifying root and form, e.g. `G minor 7`. Idea Phase Chord has Chord Position [144] specifying beats after phase start, e.g. `4.25`.

[**0059**] The support ideas are relied upon for the perpetual uniqueness of the system, and therefore are intended to be more flexibly useful to serve other ideas, than they are specific in themselves. the contents of a supporting idea are highly subject to transposition. all voices in a supporting idea will have all their note choices subject to modification enforced by the chords specified in the main-type idea for the link. support ideas are generally smaller in length than the phases of main ideas, and will be repeated multiple times within the link they are chosen for.

[**0060**] The present invention describes only "supporting ideas" to encompass the vast realm of possibilities that musical artists might create. Actual embodiments of the present invention may elect to implement varieties of supporting idea for more specific musical effect. The present invention pertains to all possible permutations of this category of "supporting ideas" regardless of name. Library Idea examples presented in the drawings are deliberately restricted to the most basic possible implementation of the present invention. However, the present invention pertains to any manner of musical idea structure and naming convention.

[**0061**] The present invention pertains to any combination of voices within supporting ideas, including percussion, harmonic and melodic. the drawings have been restricted to the most basic possible use case, but it is the object of the present invention to enable musical artists to push the boundary ever further by the complexity of creative expression.

[**0062**] The examples depict melodic, harmonic, and percussive instruments as separate "layers" of the final resulting audio; the final resulting audio is the sum of all these layers; instruments use various combinations of notes and inflections to convey musical effect; the present invention comprises an idea-instrument coupling that pertains to any implementation of a musical event, for example lyrical content wherein the inflection is verbal, or any other variation conceived by artists making use of the present invention.

[**0063**] Meme [9] functions in the continuous Fabrication process in a manner analogous to the biological transmission of genes; it is the object of the present invention to be a tool of utmost pliability in the hands of a musical artist, and a proprietary string of characters serves as a universal means to relate entities to each other; entities (including Idea [2], Phase [8], Instrument [3] and Link [7]) that share a Meme are considered to be related.

[**0064**] Phase [8] expresses the contents of N number of consecutive segments, having N different phases in a repeatable order: 0, 1, 2, 3, or beyond; for example, a "House Music" library might specify that all phases be ordered `Arc` (phase 0), `Break` (phase 1), `Climax` (phase 2) then `Drop` (phase 3). Every idea in the library would have one of each of these four phases. If there are multiple phases provided in the library with the same phase, one will be played per unique phase number, selected at random from all available at each phase.

[**0065**] The entity relation diagram depicted in Fig. 4 shows an exemplary preferred embodiment of an Instrument [3]. Instrument has Instrument Type [153] classifying the Instrument as one of: `Percussive`, `Harmonic`, `Melodic` or `Vocal`. Instrument has Instrument Description [154] specifying text used to compare instruments as candidates to fulfill voices (which also have Description), e.g. `angelic` or `pots & pans`. Instrument has Instrument Credit [155] crediting the artist reponsible for creating the musical instrument, e.g. `Roland Corporation`. Instrument has Instrument Density [156] specifying a target ratio to fill sound space available for phase, e.g `0` (silence), `0.12` (quiet), `0.84` (engine room) or `0.97` (explosion).

[**0066**] In Fig. 4, Instrument [3] has plurality of Meme [9]. Instrument Meme has Meme Name [129]. Instrument Meme has Meme Order [130].

[**0067**] In Fig. 4, Instrument [3] has plurality of Audio [14] being the audible part of a signal, sampling audible sound in order to store it as information; the present invention comprises a novel system, method and appratus to store atomic units of instrument-audio in order to fulfill a plurality of events. Instrument Audio has Audio Waveform [157] containing data representing audio sampled at a known rate, e.g. `Stereo PCM 64-bit floating point sampled at 48,000Hz` binary data. Instrument Audio has Audio Length [158] specifying the number of seconds of the duration of the Audio Waveform, e.g. `10.73`. Instrument Audio has Audio Start [159] specifying the number of seconds of preamble after start before the Waveform is considered to have its moment of initial impact a.k.a. "Hit", e.g. `0.0275` very close to the beginning of the Waveform. Instrument Audio has Audio Tempo [160] specifying beats per minute of performance sampled in waveform, e.g. `105.36`. Instrument Audio has Audio Pitch [161] specifying root pitch in Hz of performance sampled in waveform, e.g. `2037`.

[**0068**] In Fig. 4, Instrument [3] Audio [14] has optional plurality of Event [11]. Instrument Audio Event has Event Velocity [147]. Instrument Audio Event has Event Tonality [148]. Instrument Audio Event has Event Inflection [149]. Instrument Audio Event has Event Position [150]. Instrument Audio Event has Event Duration [151]. Instrument Audio Event has Event Note [152].

[**0069**] In Fig. 4, Instrument [3] Audio [14] has optional plurality of Chord [12]. Instrument Audio Chord has Chord Name [143]. Instrument Audio Chord has Chord Position [144].

[**0070**] Audio Pitch [161] is measured in Hertz, notated as Hz, e.g. 432Hz, being the mean dominant pitch used for math transmogrifying source audio to final playback audio; an Instrument Audio Waveform [157] may contain a rendering of a plurality of musical events, in which case there will also exist a plurality of Audio Event [11]; playback of such a full performance will be time-fixed pitch-shifted to the target key based on the root pitch Hz, which is presumably the key in which the music has been performed in the original audio recording.

[**0071**] The entity relation diagram depicted in Fig. 5 shows an exemplary preferred embodiment of a Link [7]. A Link has Link Offset [172] enumerating the Links in the Chain, each link numbered in chronological order, e.g. `0` (first), `1` (second). A Link has Link State [173] specifying the state of current Link as one of: one of: `New`, `Choices`, `Events`, `Audio` or `Done`. A Link has Link Start [174] specifying the number of seconds which the start of this Link is offset from the start of the Chain, e.g. `110.82`. A Link has Link Finish [175] specifying the number of seconds which the end of this Link is offset from the start of the Chain, e.g. `143.16`. A Link has Link Total [176] specifying the count of all beats in the Link from start to finish, e.g. `16` (4 measures at 4/4 meter). A Link has Link Density [177] specifying a target ratio to fill sound space available for link, e.g `0` (silence), `0.12` (quiet), `0.84` (engine room) or `0.97` (explosion). A Link has Link Key [178] specifying the root note and mode, e.g. `F major`. A Link has Link Tempo [179] specifying a target beats per minute for this Link, e.g. `128`.

[**0072**] In Fig. 5, A Link [7] has plurality of Meme [9]. A Link Meme has Meme Name [129]. A Link Meme has Meme Order [130].

[**0073**] In Fig. 5, A Link [7] has plurality of Chord [12]. A Link Chord has Chord Name [143]. A Link Chord has Chord Position [144].

[**0074**] In Fig. 5, A Link [7] has plurality of Choice [15] determining the use of a particular idea and/or instrument in a link in a chain of a particular continuous composite. A Link Choice has Choice Type [180] classifying the Choice as one of: `Macro`, `Primary`, `Rhythm`, `Addition`. A Link Choice has Choice Idea [181] referencing an Idea in the Library. A Link Choice has Choice Transpose [182] specifying how many semitones to transpose this Idea into its actual use in this Link, e.g. `-3` or `+5`. A Link Choice has Choice Phase [183] enumerating the succeeding Links in which this Idea is included in a Choice in this Chain. A Link Choice has plurality of Arrangement [16] determining the use of a plurality of source audio playback to fulfill the final continuous composite.

[**0075**] In Fig. 5, A Link [7] has plurality of Feedback [4] enabling the implementation of machine learning in order to enhance the performance of the system based on feedback from listeners. A Link Feedback has Feedback Rating [185] measuring the overall quality, a value between `0` and `1`. A Link Feedback has Feedback Credit [184] crediting the listener reponsible for contributing the feedback, e.g. `User 974634723`. A Link Feedback has Feedback Detail [186] adding any manner of further information about a particular listener's response to this Link [7].

[**0076**] Link State [173] is used by an apparatus to keep track of the various states of forward progress of Fabrication of links in the chain.

[**0077**] Link Tempo [179] will always measure the exact beats-per-minute velocity of the musical audio rendered at the end of the Link; however, if the preceding Link has a different Tempo, the actual velocity of musical audio will steadily increase or decrease in order to reach the Link's specified Tempo exactly at the end of that Link.

[**0078**] Choice Phase [183] determines whether to continue an Idea that was chosen for the immediately preceding Link; if so, its Phase will be increased from the Phase of the Idea choice in the immediately preceding Link; for example, if a new Idea is chosen, one that has not been chosen for the Link immediately preceding this Link, then the phase of that Idea choice is 0; for example, if an Idea choice has a phase of 0 for Link at Offset 3, then the same Idea chosen will have a Phase of 1 for Link at Offset 4, or a phase of 2 for Link at Offset 5.

[**0079**] The entity relation diagram depicted in Fig. 6 shows an exemplary preferred embodiment of an Arrangement [16]. Arrangement references a single Voice [10]. Arrangement references a single Instrument [3].

[**0080**] In Fig. 6, Arrangement Voice has plurality of Event [11]. Arrangement Instrument has plurality of Audio [14]. Arrangement Instrument Audio has plurality of Event [11].

[**0081**] In Fig. 6, Arrangement has plurality of Morph [17] enumerating all possible subgraph of musical events that could be fulfilled by an audio in a musical instrument; an information structure used in the determination of final instrument audio picks. Arrangement Morph has Morph Position [162] specifying how many beats offset is the beginning of this Morph from the start of the parent Link, e.g. `0`, `-0.5` (lead-in) or `4`. Arrangement Morph has Morph Note [163] specifying how many semitones' pitch class offset is the beginning of this Morph from the parent link, e.g. `+5` or `-3`. Arrangement Morph has Morph Duration [164] specifying how many beats the Points of this Morph span in entirety, e.g. `4`.

[**0082**] In Fig. 6, Arrangement Morph has plurality of Point [18] specifying a particular feature in time and tone relative to the root of a morph; an information structure used in the determination of final instrument audio picks. Arrangement Morph Point has Point Position Δ [165] specifying offset beats from beginning of morph, e.g. `4` (one measure in 4/4 meter) or `-1` (quarter note lead-in in 4/4 meter). Arrangement Morph Point has Point Note Δ [166] specifying how many semitones' pitch class offset is this Point from the parent Morph, e.g. `-2` or `+4`. Arrangement Morph Point has Point Duration [167] specifying how many beats this Point spans (in time, the 4th dimension), e.g. `3`.

[**0083**] In Fig. 6, Arrangement has plurality of Pick [19] determining the final use of a single atomic piece of recorded audio to fulfill a morph of events in a musical idea in a link in a chain of a composite musical audio composite. Arrangement Pick has Pick Start [168] specifying how many beats offset is this Point from the start of the parent Morph, e.g. 4.72 seconds. Arrangement Pick has Pick Amplitude [169] specifying a ratio, e.g. `0.12` (very quiet), `0.56` (medium volume) or `0.94` (very loud). Arrangement Pick has Pick Pitch [170] specifying a target pitch for playback of final audio in Hz, e.g. `4273`. Arrangement Pick has Pick Length [171] specifying a target length to time-aware-pitch-shift final audio in seconds, e.g. `2.315`.

[**0084**] In Fig. 6, Arrangement Morph Point references a single Arrangement Voice Event. Arrangement Pick references a single Arrangement Instrument Audio. Arrangement Pick references a single Arrangement Morph.

[**0085**] The flow diagram depicted in Fig. 7 shows an exemplary embodiment of the preferred method to continuous Fabrication of a musical audio composite. Begin Fabrication [33] initiates production of a single audio output. Scanning the Library [34] reads source ideas and source instrument metadata from the Library [1] (containing a plurality of Idea [2] and Instrument [3]) specified for the Fabrication of this Chain. Create Chain [35] instantiates a Chain, the backbone for a single Fabrication. Ready for Next Links [36] checks and waits for clearance of any impedance to adding more links to the chain, e.g. time-resource limitations or human operator input.

[**0086**] In Fig. 7, Macro Choices for Links [37] determines the highest-level choice of key progression then determines the transposed ideas to fulfill those key progressions. Choose Macro Idea [38] determines a series of macro-ideas to flow in continuous succession. Choose Series of Main Ideas and Append Links To Chain [39] determines per macro-phase a series of main ideas, and appends per main-phase a corresponding Link in the Chain.

[**0087**] In Fig. 7, Choices for Links [41] determines choices of ideas to fulfill the macro-choices of the links. Choose Link Ideas [42] determines choices of ideas to fulfill the macro-choices of each link. Choose Instruments for Link [44] determines choices of instruments to fulfill the macro-choices of each link while rendering the events of ideas of each link.

[**0088**] In Fig. 7, Compile Links [45] compiles (from probabalistic notation) the events and final source audio mixed to fabricate the continuous audio composite. Compile Link Chords [46] compiles the final plurality of tones comprising exactly one primary chord at any given moment within the continuous audio represented by this link. Compile Link Events [47] compiles the final plurality of events comprising all musical ideas within the continuous audio represented by this link. Compile Link Arrangements [48] compiles the final plurality of picks of source audio.

[**0089**] In Fig. 7, Render Links [49] renders the continuous audio output based on all determinations for the links. Render Links [49]. Source Audio [50] secures the resources required for the final mix. Mix Audio [51] performs math transmogrifying source audio to final playback audio output for a single Fabrication process. Output Audio [52] writes audio data to target deliverables.

[**0090**] In Fig. 7, If Fabrication Continues [54] determines that the output audio ought to continue to greater length? Then Ready for Next Links [36]. Else End Fabrication [55] concludes all audio and metadata output responsibility.

[**0091**] Macro Choices for Links [37] is analogous to the role of the Disc Jockey.

[**0092**] Compile Link Events [47] implements probabalistic musical event notation such as implied by Griffiths, *Aleatory Music*, 2001 (2nd edition), 1879 (1st edition); one potential implementation of this might interpret the notation `OneOf(...)` as transcribing into one of the potential events within the `...`; in such an implementation, the notation `OneOf(C D E)` might result in an event of `C`, `D` or `E` at random; one widely available notation framework that could implement this functionality is Walshaw, *ABC notation*, 1996.

[**0093**] Compile Link Arrangements [48] considers all potential sub-morphs of events of chosen ideas; the internal Morph [17] model is designed for like-morph searchability, similar to Parsons, *Parsons Code for Melodic Contours (The Directory of Tunes and Musical Themes)*, 1975.

[**0094**] The flow diagram depicted in Fig. 8 shows an exemplary embodiment of the preferred method to Choose Macro Idea [38]. The method is precipitated by Ready for Next Links [36].

[**0095**] In Fig. 8, If Prior Macro [61] finds that a prior Macro-type idea has been determined in this Chain then Search for Competent Macro [63] locates a new Macro-type Idea (from the Library) capable of succeeding the prior Macro-type Idea. Else if no Prior Macro [61] then Search for Random Macro [65] selects an Macro-type Idea from the library at random.

[**0096**] In Fig. 8, Append Macro [64] appends the new Macro-type Idea [2] to the Chain [6]. The method is followed by Choose Series of Main Ideas and Append Links To Chain [39].

[**0097**] Prior Macro [61] will be `false` only once, at its very first call at the beginning of a new Chain; it will be `true` thereafter.

[**0098**] Search for Competent Macro [63] transposes the first Phase [8] of each Macro-type Idea [2] to replace the last Phase of the Macro-type Idea being succeeded; the last Phase of all Macro-Ideas is overlapped, replaced by the first Phase of the following Macro-Idea, which has been transposed such that its first Phase is in the same Key as the last Phase of the Macro-Idea it succeeds; Key will never be transposed from major-to-minor, or minor-to-major; a Macro-idea is required to have a minimum of 2 Phases; there is no upper limit to the number of Phases an artist may choose to include in a Macro-Idea.

[**0099**] Append Macro [64] "appends" the new Macro-type Idea [2] to the Chain [6], insofar as (in Fig.) this new Macro will serve as the basis for the determination of a series of Main-type Ideas which will in turn serve as the basis of determination of a plurality of Link [7] whose Link Offset [172] are sequentially numbered beginning with the first available offset after the last existing Link in the Chain [6].

[**0100**] The flow diagram depicted in Fig. 9 shows an exemplary embodiment of the preferred method to Choose Series of Main Ideas and Append Links To Chain [39]. The method is precipitated by Choose Macro Idea [38]. Per Macro-Phase [56] iterates through all of the Phases of the Macro-type Idea, of which there must be at least 2. Choose Main Idea [57] determines the Main-type Idea to be used for the next series of Links. Per Main-Phase [58] iterates through all of the Phases of the Main-type Idea; Create Link In Chain [40] advances by one unit forward in time the available scaffold upon which the current product is being fabricated.

[**0101**] In Fig. 9, If Next Main-Phase [59] determines there remain Phases of the Main-type idea to process then repeat Per Main-Phase [58]. Else continue and Next Macro-Phase.

[**0102**] In Fig. 9, If Next Macro-Phase [60] determines there remain Phases of the Macro-type idea to process then repeat Per Macro-Phase [56]. Else the process is finished; continue and Choose Link Ideas [42].

[**0103**] Next Macro-Phase [60] has a special case for the last Phase [8] of each Macro-type Idea [2]; if the Fabrication Continues [54], the final Phase of this Macro-type idea will not be added to the chain, and instead will be replaced by the first Phase of the next Macro-idea; Else if the Fabrication will not continue No, the final Phase of this Macro-type idea will be used to conclude the Chain.

[**0104**] Create Link In Chain [40] determines the final attributes of the new link using the following algorithm:

CreateLink(Chain, Offset, MainIdea, MainPhase, Transpose):
output: Link

$LastLink \leftarrow Link\{Chain\}\{Offset - 1\};$

$LastLength \leftarrow Finish\{LastLink\} - Start\{LastLink\};$

$$Link \leftarrow \begin{bmatrix} Chain & \leftarrow & Chain \\ Offset & \leftarrow & Offset \\ Key & \leftarrow & Key\{MainIdea, MainPhase\} + Transpose \\ Tempo & \leftarrow & Tempo\{Phase\{MainIdea, MainPhase\}\} \\ Total & \leftarrow & Total\{Phase\{MainIdea, MainPhase\}\} \\ Density & \leftarrow & Density\{Phase\{MainIdea, MainPhase\}\} \\ Start & \leftarrow & Finish\{LastLink\} \\ Finish & \leftarrow & Start + \dfrac{LastLength + \dfrac{Total \times 60}{Tempo}}{2} \end{bmatrix};$$

.

[**0105**] The flow diagram depicted in Fig. 10 shows an exemplary embodiment of the preferred method by which a Layer Of Per-Link Work [116] performs a layer of work exactly once per each Link [7] in the Chain [6]. The method is precipitated when a Layer Begin [115] begins a layer of work. Per-Link Work [117] iterates through all Link [7]. If Next Link [118] determines if there remain Link [7] to be processed then repeat Per-Link Work [117]. Else continue and Per Link Layer End [119] ends a layer of work to be performed once per each Link [7] in the Chain [6].

[**0106**] Per-Link Work [117] is configurable to perform any subprocess "Per Link", meaning the process is performed exactly once per Link [7] in the current Chain [6]; Examples of layers of work are Choices for Links [41], (Choose Link Ideas [42] and Choose Instruments for Link [44]) Compile Links [45] (Compile Link Chords [46], Compile Link Events [47] and Compile Link Arrangements [48]) and Render Links [49] (Source Audio [50], Mix Audio [51], Output Audio [52] and Output Metadata [53] renders metadata representing the determinations made in the output audio) .

[**0107**] It is to be appreciated that in a preferred embodiment of an apparatus to implement this method, the Chain [6] is potentially infinite in length, and layers of work may be performed asychronously in parallel to fabricate the multiple layers of a single audio composite. Thus, the work is not done so long as the Chain [6] has no end. As Link [7] are added, there is infinitely more work to be performed, in layers, Per-Link Work [117].

[**0108**] The flow diagram depicted in Fig. 11 shows an exemplary embodiment of the preferred method to Choose Link Ideas [42] as a Layer Of Per-Link Work [116]. The method is precipitated by Choose Series of Main Ideas and Append Links To Chain [39]. Candidate Ideas [66] determines the ideas from which final selections will be made in order to fulfill the macro-ideas of the current link. Per Candidate Idea [67] determines the ideas from which final selections will be made in order to fulfill the macro-ideas of the current Link; any ideas already chosen for this Link (in a previous entrance to this step) will not be re-entered as candidates for the same Link; ergo, the pool of candidates decreases in size by 1 for each time an idea is chosen for the Link, possibly resulting in a repeat of this step; Qualify Idea [68] qualifies the Candidate Idea [2] in terms of its success fulfilling the macro-choices of the Link [7].

[**0109**] In Fig. 11, if Next Idea [69] determines that there are more Candidate Ideas [66] left to qualify then repeat Per Candidate Idea [67]. Else continue and Choose Most Qualified Idea [81] create a Choice [15] connecting this Link [7] to the candidate Idea [2] having the highest quality score; if an Idea has already been chosen for this Link, the choice will default to the highest quality score of a non-chosen Idea.

[**0110**] In Fig. 11, if More Link Density [71] determines that more density is required to fulfill the macro-choices of the Link; if there are no remaining un-chosen candidate ideas for this Link, this step must proceed as false then repeat Per Candidate Idea [67]. Else the process is finished; continue and Choose Instruments for Link [44].

[**0111**] Candidate Ideas [66] may implement ingenuity in determining candidate musical ideas to fulfill the link's macro-choices; for example, support-type musical ideas could be selected based on having isometry to melodic and harmonic elements in rhythm music ideas; the amount of ideas required varies based on the Idea Density [134], Phase Density [140] and Link Density [177].

[**0112**] Qualify Idea [68] may implement any degree of ingenuity in determining isomorphism of candidate musical ideas to fulfill the link's macro-choices using iterative repetition of a process such that after each choice, all remaining candidates are compared to the latest entire set of choices before making the next choice.

[**0113**] Candidate Ideas [66] can be embodied with support ideas being considered candidates for Links using the following algorithm:

CandidateIdeas(Link, Library, β***)***:

output: $CandidateIdea_1 ... CandidateIdea_n$

$d \leftarrow n \leftarrow 0$;

for *Idea in Library* **do**

  if $d < Density(Link) \times \beta$ **then**

    if $Common(Memes(Idea), Memes(Link)) > 0$ **then**

      $CandidateIdea_n \leftarrow Idea$;

      $d \leftarrow d + Density(CandidateIdea_n)$;

      $n \leftarrow n + 1$;

    end

  else

    Return $CandidateIdea_1 ... CandidateIdea_n$;

  end

end

[**0114**] Qualify Idea [68] may implement any degree of ingenuity in determining isomorphism of candidate musical ideas to fulfill the link's macro-choices; as a baseline, the present invention may be embodied using the following algorithm:

Qualify(Link, CandidateIdea):
output: QualifiedIdea

$q \leftarrow 0$;

for $ChosenIdea_f(Link)$ **do**

$q \leftarrow q + Isomorphism(CandidateIdea, ChosenIdea_f)$;

end

$QualifiedIdea \leftarrow CandidateIdea \times q$;

Return $QualifiedIdea$;

[**0115**] The flow diagram depicted in Fig. 12 shows an exemplary embodiment of the preferred method for Choose Instruments for Link [44] as a Layer Of Per-Link Work [116] The method is precipitated by Choose Link Ideas [42]. Per Choice [72] iterates through all Choices in the current Link. Per Voice [73] iterates through all Voices in the current Link Choice Idea. Search for Candidate Instruments [75] searches for a plurality of Instrument [3] having potential of fulfilling the ideas chosen for the current Link [7].

[**0116**] In Fig. 12, Per Event Sub-Morph [74] iterates through all possible continuous subsets of the full series of Δ persisted by the Arrangement Morph Points corresponding to the Events in the current Link Choice Idea Voice. Qualify Instruments [76] qualifies each candidate Instrument [3] based on how accurately it fulfills the Arrangement [16] Morph [17] Meme [9] and Point [18]

[**0117**] In Fig. 12, If Next Morph [77] determines there remain Morph [17] to be processed then repeat Per Event Sub-Morph [74]. Else continue and Select Instrument [78] select instrument.

[**0118**] In Fig. 12, If Next Voice [79] determines there remain Voice [10] to be processed then repeat Per Voice [73]. Else continue and Next Choice [80] determines there remain Choice [15] to be processed.

[**0119**] In Fig. 12, If Next Choice [80] then repeat Per Choice [72]. Else the process is finished; continue and Compile Link Chords [46].

[**0120**] Select Instrument [78] relies entirely on the material provided in the library by musical artist(s); the present invention never pertains to howsoever the axioms provided it in the form of information structures (Idea [2] and Instrument [3] sharing Meme [9]) may translate into musicality; that is a subject known only to the musical artist creating the Library [1]; simply by providing these axioms as ideas in a Library for Fabrication, the resulting continuous composite of Audio [14] will only combine Ideas when the combination of their respective Memes is isomorphic to one or more of the original axioms.

[**0121**] The flow diagram depicted in Fig. 13 shows an exemplary embodiment of the preferred method for Compile Link Chords [46] as a Layer Of Per-Link Work [116]. The method is precipitated by Choose Instruments for Link [44]. Per Main-Chord [87] iterates all Chord [12] in the current Main-type Idea [2]. Transpose to Link Key [88] determines the actual Chord [12] Root and Tones in the Key of the current Link [7], transposed from the original Idea [2]. Create Next Chord In Link [89] persists the transposed Chord [12] in the current Link [7].

[**0122**] In Fig. 13, If Next Main Chord [90] determines there remain Chord [12] to be processed then repeat Per Main-Chord [87]. Else process is finished; continue and Compile Link Events [47].

[**0123**] The flow diagram depicted in Fig. 14 shows an exemplary embodiment of the preferred method for Compile Link Arrangements [48] as a Layer Of Per-Link Work [116]. The method is precipitated by Compile Link Events [47]. Per Choice [72]. Per Voice [73].

[**0124**] In Fig. 14, Prepare Arrangements in Link [91] determines a set of all possible sets of complete fulfillment of the Event [11] of the Idea [2] in the Link [7]; Fulfill Arrangements in Link [92] determines the final set of Pick [19] of Audio [14] in order to fullfil all Event [11] of the Idea [2] in the Link [7].

[**0125**] In Fig. 14, If Next Voice [79] then repeat Per Voice [73]. Else continue and Next Choice [80].

[**0126**] In Fig. 14, If Next Choice [80] then repeat Per Choice [72]. Else process is finished; continue and Source Audio [50].

[**0127**] The flow diagram depicted in Fig. 15 shows an exemplary embodiment of the preferred method for Prepare Arrangements in Link [91]. The method is precipitated by Per Voice [73] as a Layer Of Per-Link Work [116]. Total Quantity of Events For Voice [101] determines the upper limit of Morph [17] length based on the total quantity of Event [11] in the Voice [10] in the Idea [2] in the Choice [15] in the Link [7] in the Chain [6]. Per Length [102] iterates each possible length of Morph [17]. Per Offset [103] iterates each possible offset of the current Morph [17] relative to total quantity of Event [11] for this Voice [10], such that the offset plus the length of the current Morph [17] does not exceed the number of available Event [11] upon which to base the Point [18]. CreateMorph [104] persists the Morph [17] in the current Arrangement [16].

[**0128**] In Fig. 15, If Next Offset [105] determines if there remain possible offset of the current Morph [17] to process then repeat Per Offset [103]. Else continue and Is Next Length [106] determines there are more possible Pick Length [171] for the current Morph [17].

[**0129**] In Fig. 15, If Is Next Length [106] then repeat Per Length [102]. Else process is finished; continue and Fulfill Arrangements in Link [92].

[**0130**] The flow diagram depicted in Fig. 16 shows an exemplary embodiment of the preferred method for Compile Link Arrangements [48]. The method is precipitated by Prepare Arrangements in Link [91] as a Layer Of Per-Link Work [116]. Per Morph In Arrangement [107] iterates each Morph [17] of the current Arrangement [16].

[**0131**] In Fig. 16, If Already Picked [108] determines that this Morph [17] has already been picked for this Arrangement [16] then No Pick In Arrangement [112] determines there will be no further Pick [19] for the current Arrangement [16]; continue and Next Morph In Arrangement [114] determines there remain Morph [17] to process for the current Arrangement [16]. Else continue and process each Audio of the Instrument.

[**0132**] In Fig. 16, Per Audio Of Instrument [109] iterates each Audio [14] of the current Instrument [3]. If Events Match Morph [110] determines if the Morph Points match the events in the recorded Audio then Create Pick In Arrangement [113] is the final determination of the output of the process; during Fabrication, abstract Event [11] in Voice [10] originating from musical Idea [2] (see Fig. 3) serve as input, and the process output includes discrete Event [11] in Voice [10] in Arrangement [16] and finally discrere Pick [19] of Audio [14] (see Fig. 6); The final output is this determination of a plurality of Pick of Audio in the Arrangement for each Link in the Chain; continue and Next Morph In Arrangement [114]. Else continue and process the next Audio of the Instrument.

[**0133**] In Fig. 16, If Next Audio Of Instrument [111] determines there remain Audio [14] to process for the current Instrument [3] then repeat Per Audio Of Instrument [109]. Else continue and No Pick In Arrangement [112].

[**0134**] In Fig. 16, If Next Morph In Arrangement [114] then repeat Per Morph In Arrangement [107]. Else the process is finished; continue and Next Voice [79].

[**0135**] Already Picked [108] considers a Morph [17] to be picked when all its Points are contained by any single Morph that has already been picked for this Arrangement [16]; a Morph is considered "picked" for the current Arrangement when there exists a Pick [19] connecting the Morph with the current Arrangement.

[**0136**] Events Match Morph [110] compares a plurality of comparable recorded Audio [14] of a specified series of inflection and/or pitch type, one of which will be selected per fulfillment of a series of Morph [17] Point [18] matching that series of inflection and/or pitch type.

[**0137**] The flow diagram depicted in Fig. 17 shows an exemplary embodiment of the preferred method for Mix Audio [51]. The method is precipitated by Source Audio [50] as a Layer Of Per-Link Work [116]. Per Sample of Output [93] iterates an enumerated set of all output samples required to satisfy the passage of Output Audio [52]. Per Audio Of Output [94] iterates on all Audio [14] which are audible during the current output sample. Current Sample of Audio [95] determines the current input sample during this Audio [14] for the current output sample. Sum of Audio Samples [96] determines the sum value of all samples audible during the current output sample.

[**0138**] In Fig. 17, If Next Audio Of Output [97] determines there remain Audio [14] audible during the current output sample then repeat Per Audio Of Output [94]. Else continue and Logarithmic Dynamic Range Compression.

[**0139**] In Fig. 17, Logarithmic Dynamic Range Compression [98] enables the final output mix to have mathematically dependable "Clip" prevention and normallization. Append Sample To Output [99] delivers the computed final sample to the latest in a potentially infinite enumerated series of samples of Output Audio [52].

[**0140**] In Fig. 17, If Next Sample [100] determines there remain more samples to be output then repeat Per Sample of Output [93]. Else the process is finished; continue and Output Audio [52].

[**0141**] Logarithmic Dynamic Range Compression [98] ensures an input sample value of 1.0 translates to an output sample value of 0.61803; an input sample value of 1,000,000,000,000 translates to an output sample value of 0.99999; the asymptotic limits of the sample values are -1 and +1.

[**0142**] The diagram depicted in Fig. 18 shows an exemplary embodiment of the usage of ordinary apparatuses for the Fabrication of pre-recorded Composite Music.

[**0143**] Fig. 18, Commission of Musical Purpose [277] is the act of committing, doing, or perpetrating toward a particular musical purpose. Musicians [278] are persons who "play a musical instrument or are musically talented; examples of a musician's possible skills include performing, conducting, singing, composing, arranging, and the orchestration of music," Wikipedia, *Musician*, 2016. Musical Ideas [279] may be "salient recurring figures, musical fragments or successions of notes that have some special importance" or "used to construct complete melodies, themes and pieces," Wikipedia, *Motif (Music)*, 2016. Musical Instruments [282] are "instruments created or adapted to make musical sounds; any object that produces sound can be a musical instrument—it is through purpose that the object becomes a musical instrument; the history of musical instruments dates to the beginnings of human culture, and musical instruments evolve in step with changing applications," Wikipedia, *Musical Instrument*, 2016.

[**0144**] Fig. 18, Recording Studio [280] is a "facility for sound recording and mixing; ideally both the recording and monitoring spaces are specially designed by an acoustician to achieve optimum acoustic properties (acoustic isolation or diffusion or absorption of reflected sound that could otherwise interfere with the sound heard by the listener)," Wikipedia, *Recording Studio*, 2016. Recording Musical Audio [281] employs "electrical, mechanical, electronic, or digital inscription and re-creation of sound waves, such as spoken voice, singing, instrumental music, or sound effects," Wikipedia, *Sound Recording And Reproduction*, 2016 in the rendering of Musical Ideas [279].

[**0145**] Fig. 18, Finished Records [283] are units of audio intended to reproduced in their entirety; "the final mix is transferred to a data storage device (the master), the source from which all copies will be produced," Wikipedia, *Audio Mastering*, 2016. Ordinary Playback [284] comprises "electrical, mechanical, electronic, or digital re-creation of sound waves," Wikipedia, *Sound Recording And Reproduction*, 2016, wherein the Finished Records [283] are intended to be reproduced, one following another. Delivery of Audio as Static Data [285] comprises the fulfillment of the original Commission of Musical Purpose [277] by ordinary means, for example the delivery of pre-recorded Composite Music for a particular location; alternatively, a Disc Jockey (DJ) may smoothly transition from record to record, a practice which requires "some technical skills, but not many," Broughton and Brewster, *How to DJ Right: The Art and Science of Playing Records*, 2007.

[**0146**] The diagram depicted in Fig. 19 shows an exemplary embodiment of the usage of the present invention, comprising a new system, method and apparatus for the continuous Fabrication of perpetually new musical audio.

[**0147**] Fig. 19, Commission of Musical Purpose [277]. Musicians [278]. Musical Ideas [279]. Musical Instruments [282].

[**0148**] Fig. 19, Recording Studio [280]. Design Musical Ideas [289] construct complete melodies, themes and pieces, delivering axioms that organize a plurality of musical events to fulfill composite musical purpose. Recording Musical Audio [281].

[**0149**] Fig. 19, Finished Library of Ideas and Instrument-Audio [288] purpose-made by an artist to fulfill a particular composite musical audio need, modeling structured information to store a musical effect for Fabrication and structuring atomic units of audio to fulfill a plurality of musical events. continuous Fabrication [287] comprises "electrical, mechanical, electronic, or digital re-creation of sound waves," Wikipedia, *Sound Recording And Reproduction*, 2016, wherein the Finished Library of Ideas and Instrument-Audio [288] is intended to be reproduced by a completely new apparatus described by the present invention, wherein a perpetually unique series of musical choices are recursively enumerated is continuously delivered for a particular musical purpose. Delivery of Audio as Non-stop Stream Data [286] comprises the fulfillment of the original Commission of Musical Purpose [277] by a completely new apparatus described by the present invention, wherein a perpetually unique stream of musical audio data is continuously delivered for a particular musical purpose.

[**0150**] The diagram depicted in Fig. 20 shows an exemplary embodiment of the preferred apparatus for enumerating musical audio.

[**0151**] Fig. 20, Chain [6] is any chain being actively operated on by the apparatus. Link [7] depicts the lifecycle of a Link, a feature of the present invention which enables chain-work to be distributed across any number of machines.

[**0152**] Fig. 20, Planning Buffer [334] is the amount of time into the future at which, for any Chain requiring it, the Link Planner will plan the next new Link in the Chain. When ready, Link Planner [322] is the software module responsible for creating new links when necessitated by Passage of Time [309] determines what Chain [6] are active and exactly when and how many Link [7] will be created, in all active Chains plans the Link. Link Planner creates Links [323] when the current time determines that any Chain [6] does not have enough Link [7]. Planned State [337] is entered after the Link has been successfully planned.

[**0153**] Fig. 20, Crafting Buffer [335] is the amount of time into the future at which, for any Chain requiring it, the Link Chooser will craft the next Link in the Chain. When ready, Link Chooser [326] is the software module responsible for Choice in each Link, including Ideas, Instruments, and final choice of arrangement of Audio to fulfill events crafts the Link. Link Chooser makes Choices for each Link [328] successively in each chain. Chosen State [338] is entered after the Link has been successfully chosen.

[**0154**] Fig. 20, Mixing Buffer [336] is the amount of time into the future at which, for any Chain requiring it, the Link Mixer will mix the next Link in the Chain. When ready, Link Mixer [333] is the software module responsible for mixing the final audio output of each Link, based on the chosen arrangement of source audio mixes the Link. Link Mixer outputs final Audio [331] based on final choices and source audio files. Mixed State [339] is entered after the Link has been successfully mixed.

[**0155**] Fig. 20, Links are output as Audio files [332] listenable in unbroken sequence for the perfect illusion of continuous audio for the specified output Chain [6]. Chain Rendered as Audio [290] comprises of the final output of the process, a Chain [6] rendered as final output audio.

[**0156**] The diagram depicted in Fig. 21 shows an exemplary embodiment of the preferred apparatus to continuously fabricate a musical audio composite from one or more libraries of source ideas and instrument-audio.

[**0157**] Fig. 21, Performers [300] play physical instruments and/or create sound with their bodies, record these sounds and provide the result as structured data and audio. Performers upload Audio Files via User Interface [303] persisting the events within the audio as addition meta-information in the Instruments [312] structuring atomic units of audio to fulfill a plurality of musical events. Performers Create Instruments via User Interface [304] persisting musical instruments as information.

[**0158**] Fig. 21, Composers [301] determine musical ideas appropriate for the goals of the library and encode their ideas as information. Composers Create Ideas via User Interface [305] persisting musical ideas as information in the.

[**0159**] Fig. 21, Engineers [302] control the allocation of production resources towards output chains. Engineers Create Chains via User Interface [306] committing live production resources to the Fabrication of specific musical audio composites based on specific combinations of libraries.

[**0160**] Fig. 21, User Interface [298] allows human operators to manipulate entities persisted as information by any means, such as a filesystem, or a database, by any software implementation of any step, combination of steps, or superset of steps of the system and method of the present invention.

[**0161**] Fig. 21, Library [1]. Instruments [312]. Instruments have many Audio files [317] expressing their events. Audio files [316] sound sampled and stored in any filesystem. Ideas [314] modeling structured information to store a musical effect for Fabrication.

[**0162**] Fig. 21, Production [308] allocates live resources to operate any software implementation of the present invention to fabricate deliverable utput audio. Chains [315] anchoring the Fabrication of a single composite musical audio composite.

[**0163**] Fig. 21, Passage of Time [309]. Active Chains [321] are chains wherein the current time is between the start of the Chain [6] and its optional end; if the chain has no end it remains active indefinitely. Chains have many Links [320] spanning Time from the start of the chain to its optional end. Link Planner [322]. Link Planner creates Links [323].

[**0164**] Fig. 21, LinkChoice [310] determines the ideas, then instruments, then final audio arrangements for each link in each chain. Links have many Choices [324] expressing fully detailed arrangements of instrument-audio to fulfill ideas for each Link [7]. Link Chooser [326]. Links inform Choice [325] insofar as each Link [7] is based entirely on the previous Link in the Chain [6], advancing the Phase [8] of each Idea [2], progressing to the next Idea, or simply selecting a random idea to begin a new Chain. Ideas are chosen [318] at a macro-level to fulfill links, then at a detailed level to fulfill the macro-ideas. Instruments are chosen [319] to fulfill the events of the chosen Ideas. Link Chooser makes Choices for each Link [328]. Choices have many Audio files [327] in order to complete the Fabrication process, arranging exact final audio files to fulfill events in the chosen ideas.

[**0165**] Fig. 21, Output [311] is the final deliverable audio that results from any implementation of the present invention. Choices determine final Audio [329] informing the mixer exactly which audio file to mix, at what time and other properties. Link Mixer loads Audio files [330] in order to perform the final audio mix. Link Mixer outputs final Audio [331]. Links are output as Audio files [332]. Audio Interface [299] allows listeners to consume (as audible sound) the final continuous output of the system, method, and apparatus of the present invention. Link Audio Files are concatenated [292] in order to be heard as one continuous Audio. Listeners [307] in any context.

[**0166**] The diagram depicted in Fig. 22 shows an exemplary embodiment of the preferred apparatus for the purpose of gathering feedback from listeners and engaging collaborators during the Fabrication process.

[**0167**] Fig. 22, Chain [6] is any chain being actively operated on by the apparatus. Chain has many Planned Links [350] determining the upcoming choice criteria. Chain has many Chosen Links [349] determining the upcoming audio mix. Chain has many Mixed Links [348] comprising the finished continuously-listenable musical audio.

[**0168**] Fig. 22, The Past [360] represents audio already delivered, and feedback about that audio. The Future [361] represents audio that will be fabricated, but is in now in any pre-final stage. Production [308] is the continuous Fabrication process.

[**0169**] Fig. 22, Feedback [4] is read [354] by Link Planner [322]. Link Planner plans Link [356] and persists it in the chain future. Planned Link in Chain [347] is ready for collaboration pre-modification and/or choosing.

[**0170**] Fig. 22, Planned Link is read [357] by Link Chooser [326] in order to determine the choice criteria. Link Chooser chooses next Link [358] in order to determine its final outcomes, pending collaborator modification. Chosen Link in Chain [346] is ready for final collaborator modification and/or mixing.

[**0171**] Fig. 22, Chosen Link is read [359] by Link Mixer [333]. Link Mixer mixes Link [355] and outputs final audio. Mixed Link in Chain [345] is ready for listening.

[**0172**] Fig. 22, Interactive Listening Context [293] is any physical or virtual context in which Listeners [307] simultaneously consume output audio and give feedback pertaining to each Link for the purpose of improving the rest of the Chain or future Chains; feedback includes but is not limited to soliciting customer opinions in-person, mechanically or virtually, or collaborating online. Listenable Output [351] is delivered by any physical or virtual means. Listeners [307] comprise an audience in any context. Listener Feedback Input [352] is gathered by any physical or virtual means. Each Link has many [353] Feedback [4].

[**0173**] Fig. 22, Interactive Collaboration Context [294] is any physical or virtual context in which Collaborators [340] actively participate in the Fabrication process, bringing live human ingenuity to the otherwise automatic tonal success enabled by the present invention (who may simultaneously be Listeners [307]) participate in the Fabrication production process for the purpose of improving outcomes; collaboration includes but is not limited to Observing Link Feedback [341] in order to guide the Chain towards the desires of the Listeners, Modifying Planned Link [342] in order to affect the plan of the Chain, Configuring Link Chooser [343] in order to affect the choices made automatically by a software implementation of the method of the present invention, Modifying Chosen Link [344] in order to guarantee final outcomes. Collaborators [340]. Observing Link Feedback [341]. Modifying Planned Link [342]. Configuring Link Chooser [343]. Modifying Chosen Link [344].

[**0174**] The diagram depicted in Fig. 23 shows an exemplary embodiment of the preferred apparatus for providing an interface by which actors collaborate in the continuous Fabrication of Composite Music.

[**0175**] In Fig. 23, Human-Machine Interaction [362] utilizes instruments of any variety, including but not limited to a desktop computer, mobile device, holographic lens, or any representation of information for the purpose of interaction. Chain Interface [363] represents a Chain [6] for the purpose of providing an interface by which Listeners [307] and Collaborators [340] interact with a Chain.

[**0176**] In Fig. 23, Link in Planning state [364] is farthest into the future, wherein a plan is determined for the Link. Link Planning Interface [370] is any means of human-machine interaction enabling Collaborators [340] to modify choices in the Link, and view and modify the information persisted in the Link exposed by the Chain Interface [363]. Macro Idea [374] is chosen by automatic means, then reviewed by Collaborators [340]; this includes but is not limited to any manner of competition of candidate ideas; credit is given via the Idea Credit [132]. Main Idea [368] is chosen by automatic means, then reviewed by Collaborators [340]; this includes but is not limited to any manner of competition of candidate ideas; credit is given via the Idea Credit [132].

[**0177**] In Fig. 23, Link in Idea-choosing state [365] is in the future, before any Link in Planning state [364]. Link Additional-Idea-Choice Interface [376] is any means of human-machine interaction enabling Collaborators [340] to modify additional ideas chosen for the Link, and view and modify the information persisted in the Link exposed by the Chain Interface [363]. Link Additional Ideas [379] is chosen by automatic means, then reviewed by Collaborators [340]; this includes but is not limited to any manner of competition of candidate ideas; credit is given via the Idea Credit [132].

[**0178**] In Fig. 23, Link in Instrument-choosing state [366] is in the future, before any Link in Idea-choosing state [365]. Link Event Interface [372] is any means of human-machine interaction enabling Collaborators [340] to view the events in the Link in the Chain (e.g. a score of musical note event data across time) implied by the final chosen ideas, and view and modify the information persisted in the Link exposed by the Chain Interface [363]. Link Instrument-Choice Interface [377] is any means of human-machine interaction enabling Collaborators [340] to modify instruments chosen for the Link, and view and modify the information persisted in the Link exposed by the Chain Interface [363]. Link Instruments [380] are chosen by automatic means, then reviewed by Collaborators [340]; this includes but is not limited to any manner of competition of candidate instruments; credit is given via the Instrument Credit [155].

[**0179**] In Fig. 23, Link in Mixed state [367] is ready for listening now or in the immediate future, before any Link in Instrument-choosing state [366]. Link Mix Output Waveform [373] is any means of human-machine interaction enabling Listeners [307] to listen to Listenable Output [351], or view any other representation of the final audible output.

[**0180**] In Fig. 23, Link Mix Choices Interface [378] is any means of human-machine interaction enabling Listeners [307] to view ideas and instruments chosen for the Link, and view the information persisted in the Link exposed by the Chain Interface [363]. Link Mix Ideas [381] are chosen by automatic means, then reviewed by Collaborators [340]; this extends to any manner of competition of candidate ideas; credit is given via the Idea Credit [132]. Link Mix Instruments [382] are chosen by automatic means, then reviewed by Collaborators [340]; this extends to any manner of competition of candidate instruments; credit is given via the Instrument Credit [155].

[**0181**] In Fig. 23, Link Mix Feedback Input Interface [383] is any means of human-machine interaction enabling Listeners [307] to send their Listener Feedback Input [352] pertaining to a particular Link exposed by the Chain Interface [363]. Link Mix Feedback [384] enables the enhancement of the performance of the system, including but not limited to the capability of powering machine learning. Feedback Credit [184].

[**0182**] In Fig. 23, Collaborators [340] are Observing Link Feedback [341], Modifying Planned Link [342], Configuring Link Chooser [343], and Modifying Chosen Link [344].

[**0183**] The diagram depicted in Fig. 24 shows an exemplary embodiment of the preferred apparatus for continuously fabricating a musical audio composite by a single operator in a single location. Legend [267] assists in understanding the inputs and outputs of the apparatus.

[**0184**] Fig. 24, Input Bus [265] transfers end-user input and stored data to the the computer. Input Control Signals [258] are used to configure the location of source data and target storage; control signals start, pause or stop the Fabrication apparatus. Storage Data Library Of Musical Ideas And Instruments [257] persists the library of musical ideas and instruments.

[**0185**] Fig. 24, Electrical Power [259] is commercially available. Personal Computer [260] is a general-purpose computer whose size, capabilities, and price make it feasible for individual use. Internal Bus [264] comprises of the internal components of the computer itself, wherein software is executed by a CPU. Software Implementation of System [261] implements the preferred embodiment of the process of the present invention.

[**0186**] Fig. 24, Output Bus [266] transfers output data and metadata from the computer to stored data and metadata output. Storage Data Final Output Audio [262] persists finished musical audio-data ready to be transmitted and/or audibly reproduced. Debugging Output Metadata [263] displays meta-data documenting all choices made during the Fabrication process.

[**0187**] Input Bus [265] relates to all related hardware components (wire, optical fiber, etc.) and software, including communication protocols.

[**0188**] Input Control Signals [258] specify any sub-set of the Storage Data Library Of Musical Ideas And Instruments [257]; the Library [1] can be designed such that it is persisted in a filesystem with folders and sub-folders, such that by specifying a sub-folder in the Library [1] or a sub-folder of a sub-folder, the contents of a large Library may provide material made for many different purposes; a single audio composite is fabricated based on some finite subset of the Library; ergo, a single Library may provide material for a plurality of possible fabrications.

[**0189**] Storage Data Library Of Musical Ideas And Instruments [257] is purpose-made by artists in advance of operating the Fabrication process, consisting of musical idea data, musical instrument data and musical instrument audio-data.

[**0190**] Personal Computer [260] is intended to be operated directly by an end-user to produce a single output from a given input.

[**0191**] Output Bus [266] relates to all related hardware components (wire, optical fiber, etc.) and software, including communication protocols.

[**0192**] The diagram depicted in Fig. 25 shows an exemplary embodiment of the preferred apparatus for continuously fabricating a musical audio composite using virtualized computing for a plurality of operators in a plurality of locations. Legend [267].

[**0193**] In Fig. 25, Internal Network Bus [275] comprises of a network bus and firewall to protect the property of a business performing Musical-Audio-Fabrication-as-a-Service to a Client. Administrator [270] configures the system and supervises Fabrication. Storage Data Library Of Musical Ideas And Instruments [257].

[**0194**] In Fig. 25, Plurality of Configuration [271] unused. Cloud Computing Implementation of System [269] implements the preferred embodiment of the process of the present invention using virtualized machines a.k.a. Cloud Computing in order to fabricate an unlimited plurality of musical audio composite simultaneously.

[**0195**] In Fig. 25, Cloud Storage Data Final Output Audio [268] persists a plurality of finished musical audio-data ready to be transmitted and/or audibly reproduced at a plurality of location.Plurality of Metadata [272] delivers 3 continuous composites.

[**0196**] In Fig. 25, Secure Delivery Bus [276] comprises of a secure encrypted communication channel to protect the property of the Client taking delivery of musical audio. Plurality of Location [273] receive audio data and metadata. Plurality of Public Audio [274] makes a plurality of signal audible to be heard by all persons at each of a plurality of Location.

[**0197**] Administrator [270] represents the interests of the business or persons benefitting from the musical audio being fabricated; in the depicted case there are 3 separate locations requiring sychronous musical audio; once Fabrication begins, the Administrator takes a supervisory role as a plurality of audio is delivered to these locations in parallel, continuously; operates the Software Implementation of System [261] locally on a Personal Computer [260] in order to configure the system in parity to the Cloud Computing Implementation of System [269].

[**0198**] Plurality of Configuration [271] configures 3 continuous composites, C_1, C_2 and C_3; each can specify separate options proprietary to the implementation of the process; each can specify a subset of the Library [1] in order to sculpt many of possibilities out of a single set of source content.

[**0199**] Cloud Computing Implementation of System [269] implements an embodiment isomorphic to Software Implementation of System [261] such as a Personal Computer [260] used to embody the process of the present invention.

[**0200**] Cloud Storage Data Final Output Audio [268] persists 3 composite musical audio, A_1, A_2 and A_3.

[**0201**] Plurality of Metadata [272] delivers 3 continuous composites, M_1, M_2 and M_3; each corresponds to a composite musical audio data persisted in Cloud Storage Data Final Output Audio [268].

[**0202**] Location [273] receive audio data and metadata at L_1, L_2 and L_3; playback requires access to musical audio data persisted in Cloud Storage Data Final Output Audio [268] and a Plurality of Metadata [272].

[**0203**] Public Audio [274] pertains to the fundamental basis of the present invention, wherein hypothetically new continuous Fabrication systems and apparatuses achieve a significant leap forward in the ability for public musical audio to benefit human well-being.

[**0204**] Note that in any figure depicting a "example," all musical chords and events will be expressed in a monospaced typeface to distinguish the data from the form; where data is depicted, within indented links, wherein text appearing below and more-indented is intended to be understood as belonging to what is immediately above and less-indented

[**0205**] Fig. 26 depicts an example Grieving Macro-Type Idea [200] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133] and a plurality of Phase [8] having Phase Key [141], Phase Density [140] and Phase Tempo [142] and a plurality of Meme [9]. This macro-type Idea has a meme of `Grief`; when chosen, the overall feeling of the musical audio will move towards Grief..

[**0206**] Fig. 27 depicts an example Joyful Macro-Type Idea [201] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133] and a plurality of Phase [8] having Phase Key [141], Phase Density [140] and Phase Tempo [142] and a plurality of Meme [9]. This macro-type Idea has a meme of `Joy`; when chosen, the overall feeling of the musical audio will move towards Joy..

[**0207**] Fig. 28 depicts an example Grieving Main-Type Idea [202] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133] and a plurality of Phase [8] having Phase Key [141], Phase Density [140] and Phase Tempo [142] and a plurality of Meme [9]. This main-type Idea is an adaptation of Young, Lewis, Meyer and Grant, *Cry Baby Blues*, 1921 and it has a meme of `Grief`; when chosen, the overall musical structure of a series of links will embody Grief. Special note is made of Harmonic Events [231] which subsequently appear in Fig. 44.

[**0208**] Fig. 29 depicts an example Joyful Main-Type Idea [203] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133] and a plurality of Phase [8] having Phase Key [141], Phase Density [140] and Phase Tempo [142] and a plurality of Meme [9]. This main-type Idea is an adaptation of Pike and Ordway, *Happy Are We Tonight*, 1850 and it has a meme of `Joy`; when chosen, the overall musical structure of a series of links will embody Joy. Special note is made of Melodic Events [236] which subsequently appear in Fig. 45.

[**0209**] Fig. 30 depicts an example Grieving Rhythm-Type Idea [204] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This rhythm-type Idea has a meme of `Grief`; when chosen, the rhythm will embody Grief.

[**0210**] Fig. 31 depicts an example Joyful Rhythm-Type Idea [205] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This rhythm-type Idea has a meme of `Joy`; when chosen, the rhythm will embody Joy. Special note is made of Percussive Events [226] which subsequently appear in Fig. 43.

[**0211**] Fig. 32 depicts an example Grieving Support-Type Idea [206] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This support-type Idea has a meme of `Grief`; when chosen for a Link, the events of this idea will embody additional Grief.

[**0212**] Fig. 33 depicts an example Lossy Support-Type Idea [219] an Idea having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This support-type Idea has a meme of `Loss`; when chosen for a Link, the events of this idea will embody additional Loss.

[**0213**] Fig. 34 depicts an example Joyful Support-Type Idea [207] an Idea [2] having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This support-type Idea has a meme of `Joy`; when chosen for a Link, the events of this idea will embody additional Joy.

[**0214**] Fig. 35 depicts an example Gritty Support-Type Idea [220] an Idea having Idea Name [131], Idea Credit [132], Idea Type [133], Idea Density [134], Idea Key [135], Idea Tempo [136], and a plurality of Meme [9] and Phase [8]. This support-type Idea has a meme of `Grit`; when chosen for a Link, the events of this idea will embody additional Grit.

[**0215**] Fig. 36 depicts an example Grieving Percussive-Type Instrument [208] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8].

[**0216**] Fig. 37 depicts an example Soyful Percussive-Type Instrument [209] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8]. Special note is made of Percussive Audio Kick [227] which subsequently appears in Fig. 43. Special note is made of Percussive Audio Snare [228] which subsequently appears in Fig. 43. Special note is made of Percussive Audio Hat [229] which subsequently appears in Fig. 43.

[**0217**] Fig. 38 depicts an example Grieving Harmonic-Type Instrument [210] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8]. Special note is made of Harmonic Audio "D" Chord [233] which subsequently appears in Fig. 44. Special note is made of Harmonic Audio "F minor 9" Chord [234] which subsequently appears in Fig. 44.

[**0218**] Fig. 39 depicts an example Soyful Harmonic-Type Instrument [211] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8].

[**0219**] Fig. 40 depicts an example Grieving Melodic-Type Instrument [212] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8].

[**0220**] Fig. 41 depicts an example Soyful Melodic-Type Instrument [214] an Instrument [3] having Instrument Type [153], Instrument Description [154], Instrument Credit [155] and a plurality of Meme [9] and Phase [8]. Special note is made of Melodic Audio "C5 C5 C5 C5" [238] which subsequently appears in Fig. 45. Special note is made of Melodic Audio "D6" [239] which subsequently appears in Fig. 45. Special note is made of Melodic Audio "E6 A5" [240] which subsequently appears in Fig. 45.

[**0221**] The data table depicted in Fig. 42 shows a possible outcome of one Fabrication process; there is an enumerated series of Link [7] in the Chain [6]; each Link has a Link Offset [172], Link State [173], Link Start [174], Link Finish [175], Link Total [176], Link Density [177], Link Key [178], and Link Tempo [179].

[**0222**] In Fig. 42, each Link Macro Idea [215] is the master template for selecting and transposing the Main-type Idea for each Link [7]; each Link Main Idea [216] dictates the master melody and chords for the Link [7]; each Link Rhythm Idea [217] dictates the master rhythm, comprising the percussive events for the Link [7]; each Link Support Ideas [218] build additional musical events onto the Link [7] in order to fulfill the Density and Memes implied by the macro- and main-type Ideas;.

[**0223**] In Fig. 42, Link at Offset 0 [221] is the very first link in the chain so the choice of Grieving Macro-Type Idea [200] is random; the first phase of that grieving macro-idea has a Meme of `Joy` so the main choice is Joyful Main-Type Idea [203] transposed `-4` to match the key of the first phase of the macro-idea; the rhythm choice is Joyful Rhythm-Type Idea [205] transposed `+3` to match the key of the transposed main-idea; finally, the supporting choice is Joyful Support-Type Idea [207] transposed `+3` to match the key of the transposed main-idea.

[**0224**] In Fig. 42, Link at Offset 1 [222] bases its choices on those of the preceding Link at Offset 0 [221]; the same Grieving Macro-Type Idea [200] continues; the same Joyful Main-Type Idea [203] advances to phase 1, which has Memes of both `Joy` and `Grit`; the same rhythm choice Joyful Rhythm-Type Idea [205] advances to phase 1; two supporting ideas are chosen, one for each Meme, Joyful Support-Type Idea [207], and Gritty Support-Type Idea [220] transposed `+3` to match the key of the transposed main-idea;

[**0225**] In Fig. 42, Link at Offset 2 [223] bases its choices on those of the preceding Link at Offset 1 [222]; the macro-idea from the previous link advances to its next phase, but because that is its final phase, and the next Joyful Macro-Type Idea [201] is chosen, yet transposed `-5` to match what the final phase of the previous macro-idea would have been; the main choice is Grieving Main-Type Idea [202] transposed `+2` to match the key of the transposed macro-idea, and its first phase has the Meme `Loss`; the rhythm choice is Grieving Rhythm-Type Idea [204] transposed `+2` to match the key of the transposed main-idea; finally, the supporting choice is Lossy Support-Type Idea [219] transposed `+2` to match the key of the transposed main-idea;

[**0226**] In Fig. 42, Link at Offset 3 [224] bases its choices on those of the preceding Link at Offset 2 [223]; the same Joyful Macro-Type Idea [201] continues; the same Grieving Main-Type Idea [202] advances to phase 1, which has the Meme `Grief`; the same rhythm choice Grieving Rhythm-Type Idea [204] advances to phase 1; the supporting choice is Grieving Support-Type Idea [206] transposed `+2` to match the key of the transposed main-idea;

[**0227**] In Fig. 42, Link at Offset 4 [225] bases its choices on those of the preceding Link at Offset 3 [224]; the same Joyful Macro-Type Idea [201] advances to phase 1, which has the Meme `Joy`; the main choice is Joyful Main-Type Idea [203] which does not need to be transposed because the original idea coincidentally matches the key of the transposed macro-idea; the rhythm choice is Joyful Rhythm-Type Idea [205] transposed `-5` to match the key of the main-idea; the supporting choice is Joyful Support-Type Idea [207] transposed `+3` to match the key of the main-idea.

[**0228**] The data and method depicted in Fig. 43 is an excerpt of the data comprising the preceding example Library of Ideas and Instruments, showing only the main percussive layer of the resulting final mixed audio outcome of the Fabrication process.

[**0229**] In Fig. 43, Percussive Events [226] (from Fig. 31) determine the percussive events requiring instrument-audio fulfillment in the Link.

[**0230**] In Fig. 43, Percussive Audio Kick [227] (from Fig. 37) is pitch-adjusted and time-scaled to fulfill the chosen percussive events for the Link.

[**0231**] In Fig. 43, Percussive Audio Snare [228] (from Fig. 37) is pitch-adjusted and time-scaled to fulfill the chosen percussive events for the Link.

[**0232**] In Fig. 43, Percussive Audio Hat [229] (from Fig. 37) is pitch-adjusted and time-scaled to fulfill the chosen percussive events for the Link.

[**0233**] In Fig. 43, Link Percussive Audio Final Mix [230] is the result of summing the particular chosen instrument-audio at the time, pitch, and scale corresponding to the chosen events, for the duration of the Link.

[**0234**] The data and depicted in Fig. 44 is an excerpt of the data comprising the preceding example Library of Ideas and Instruments, showing only the main harmonic layer of the resulting final mixed audio outcome of the Fabrication process.

[**0235**] In Fig. 44, Transposed Harmonic Events [232] are transposed `-5` semitones, according to the main-type Idea chosen at Link at Offset 3 [224] (from Fig. 28) determine the harmonic events requiring instrument-audio fulfillment in the Link.

[**0236**] In Fig. 44, Harmonic Audio "D" Chord [233] (from Fig. 38) is pitch-adjusted and time-scaled to fulfill the chosen harmonic events for the Link.

[**0237**] In Fig. 44, Harmonic Audio "F minor 9" Chord [234] (from Fig. 38) is pitch-adjusted and time-scaled to fulfill the chosen harmonic events for the Link.

[**0238**] In Fig. 44, Link Harmonic Audio Final Mix [235] is the result of summing the particular chosen instrument-audio at the time, pitch, and scale corresponding to the chosen events, for the duration of the Link.

[**0239**] The data and depicted in Fig. 45 is an excerpt of the data comprising the preceding example Library of Ideas and Instruments, showing only the main melodic layer of the resulting final mixed audio outcome of the Fabrication process.

[**0240**] In Fig. 45, Transposed Melodic Events [237] are identical to the original melodic events, according to the main-type Idea chosen at Link at Offset 0 [221], which is not transposed (from Fig. 29) determine the melodic events requiring instrument-audio fulfillment in the Link. Note that the rests indicated by » in the source instrument are significant, insofar as they align with the rests indicated in the source main-type idea, and the present invention comprises the system and method by which to successfully select instrument-audio to match musical ideas based on their isomorphism to the source events.

[**0241**] In Fig. 45, Melodic Audio "C5 C5 C5 C5" [238] (from Fig. 41) is pitch-adjusted and time-scaled to fulfill the chosen melodic events for the Link.

[**0242**] In Fig. 45, Melodic Audio "D6" [239] (from Fig. 41) is pitch-adjusted and time-scaled to fulfill the chosen melodic events for the Link.

[**0243**] In Fig. 45, Melodic Audio "E6 A5" [240] (from Fig. 41) is pitch-adjusted and time-scaled to fulfill the chosen melodic events for the Link.

[**0244**] In Fig. 45, Link Melodic Audio Final Mix [241] is the result of summing the particular chosen instrument-audio at the time, pitch, and scale corresponding to the chosen events, for the duration of the Link.

[**0245**] Although most of the depicted examples are "mono" (having one audio channel), the present invention pertains to any combination of number of input and output channels.

[**0246**] It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, because certain changes may be made in carrying out the above method and in the construction(s) set forth without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description and shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

[**0247**] It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall between.

CLAIMS OF THE INVENTION

What is claimed:

1. System for the continuous Fabrication of a musical audio composite by recursive enumeration of musical choice, comprising the information models of: Library (comprised of Idea and Instrument), Idea (comprised of Meme and Phase), Phase (comprised of Voice, Chord and Meme), Voice (comprised of Event), Instrument (comprised of Audio and Meme), Audio (comprised of Waveform, Chord and Event), Chain (comprised of Link), Link (comprised of Choice, Chord and Meme), Choice (comprised of Arrangement), Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

2. System for the storage of information pertaining to a particular musical purpose requiring the continuous Fabrication of a musical audio composite, comprising the information models: Library (comprised of Idea and Instrument), Idea (comprised of Meme and Phase), Phase (comprised of Voice, Chord and Meme), Voice (comprised of Event), Instrument (comprised of Audio and Meme), and Audio (comprised of Waveform, Chord and Event).

3. System for the storage of information pertaining to musical recurring figures, musical fragments or successions of notes that have some special importance, or used to construct complete melodies, themes and pieces, comprising the information models: Idea (comprised of Meme and Phase), Phase (comprised of Voice, Chord and Meme), and Voice (comprised of Event).

4. System for the storage of information pertaining to phases of musical recurring figures, musical fragments or successions of notes that have some special importance, or used to construct complete melodies, themes and pieces, comprising the information models: Phase (comprised of Voice, Chord and Meme), and Voice (comprised of Event).

5. System for the storage of information pertaining to a single voice of musical recurring figures, musical fragments or successions of notes that have some special importance, or used to construct complete melodies, themes and pieces, comprising the information models: Voice (comprised of Event).

6. System for the storage of information pertaining to re-creation of sound waves, such as spoken voice, singing, instrumental music, or sound effects, towards particular audible renderings of musical ideas, comprising the information models: Instrument (comprised of Audio and Meme), and Audio (comprised of Waveform, Chord and Event).

7. System for the storage of information pertaining to re-creation of sound waves, such as spoken voice, singing, instrumental music, or sound effects, towards particular audible renderings of musical ideas, comprising the information models: Audio (comprised of Waveform, Chord and Event).

8. System for the organization of information pertaining to the continuous Fabrication of a musical audio composite, comprising the information models: Chain (comprised of Link), Link (comprised of Choice, Chord and Meme), Choice (comprised of Arrangement), Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

9. System for the organization of information pertaining to a single span of time within a composite musical audio composite, comprising the information models: Link (comprised of Choice, Chord and Meme), Choice (comprised of Arrangement), Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

10. System for the organization of information pertaining to musical choice within a composite musical audio composite, comprising the information models: Choice (comprised of Arrangement), Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

11. System for the organization of information pertaining to the audible fulfillment of musical choice yielding surprising arrangements from a library of pre-fabricated atomic units of recorded musical audio, comprising the information models: Arrangement (comprised of Instrument, Voice, Morph and Pick), Morph (comprised of Point), and Pick (comprised of Morph and Audio).

12. System for the organization of information pertaining to metadata required for source instrument-audio in order to fabricate a musical audio composite from a library of pre-fabricated atomic units of recorded musical audio, comprising the information model: Morph (comprised of Point).

13. System for the organization of information pertaining to metadata required for selection of instrument-audio to fulfill the Fabrication of a musical audio composite from a library of pre-fabricated atomic units of recorded musical audio, comprising the information models: Pick (comprised of Morph and Audio).

14. System of claim 1 wherein the final output is fabricated from purpose-made pre-fabricated musical ideas and intrument-audio.

15. System of claim 1 wherein unified structure enables musical artists to craft ideas and instrument-recordings as interoperable modules in a larger aleatoric musical ecosystem which functions as the library for autonomous Fabrication.

16. System and utility of claim 15 wherein the artists' original audio are recombined into the largest number of possible varieties which continue to fulfill the axioms they have set forth along with their performances.

17. System, utility and transparency of claim 16 wherein the choices of musical audio also fulfill strategic objectives configured by human administrators.

18. System of claim 1 wherein the ecosystem evolves in service of the ultimate directive, being the passage of time for a purpose in a location.

19. System of claim 1 which facilitates the mechanical Fabrication of new musical possibility.

20. System of claim 1 which facilitates rights management in order to support a platform which creates opportunity for composite musical artists to own their intellectual and artistic product.

21. System of claim 1 which transcends the 20th century notion of song-based musical publishing, thus eliminating the risk of media being copied and re-distributed for free.

22. System of claim 1 which facilitates a live, real-time, streaming data pipeline of musical audio data that is consistent in mood and perpetually unique.

23. Method implementing the system of claim 1 and further comprising the steps and algorithms of: Begin Fabrication, Scan Library, Create Chain, Macro-Choices (comprised of Macro Idea, Main Ideas and Append Links to Chain), Micro-Choices For Links (comprised of Ideas and Instruments), Compile Links (comprised of Chords, Events, Arrangements), Render Links (Source Audio, Mix Audio, Output Audio), and Continue or End Fabrication.

24. Method for sourcing a combination of unit waveforms based on a known waveform necessity.

25. Method to begin Fabrication of a musical audio composite and further comprising the steps and algorithms of: Begin Fabrication, Scan Library, and Create Chain.

26. Method to recursively account for, in order, all the choices made in a piece of music from a macro-perspective and further comprising the steps and algorithms of: Macro-Choices (comprised of Macro Idea, Main Ideas and Append Links to Chain).

27. Method to recursively account for, in order, all the choices made in a piece of music from a micro-perspective and further comprising the steps and algorithms of: Micro-Choices For Links (comprised of Ideas and Instruments).

28. Method to recursively account for, in order, all the choices made in a piece of music, including aleatoric potential and further comprising the steps and algorithms of: Compile Links (comprised of Chords, Events, Arrangements).

29. Method to render continuous audio output and further comprising the steps and algorithms of: Compile Links (comprised of Chords, Events, Arrangements).

30. Method of claim 23 wherein β has a value equal to the multiplier of candidate ideas to actual necessity idea density for any given Link, as configured by a human administrator.

31. Method of claim 23 wherein θ has a value equal to the multiplier of chosen qualified ideas to actual necessity idea density for any given Link, as configured by a human administrator.

32. Method of claim 23 wherein the final output is fabricated from purpose-made pre-fabricated pieces.

33. Method of claim 23 generally consisting of the recursive enumeration of musical choice.

34. Method of claim 33 wherein the choices initiate the macro-scaffold for a complete set of ideas, instruments, chords and events for each link in a chain.

35. Method of claim 34 wherein the instrument voices are used as the basis for arrangements comprising of morphs, further comprising of points.

36. Method of claim 35 wherein the arrangement morphs are used as the basis of picks comprising of a morph and an instrument-audio.

37. Method of claim 23 generally requiring only the input of a source library of musical ideas and musical instrument-audio.

38. Method of claim 23 capable of being computer-implemented as a continuous autonomous process.

39. Method of claim 23 wherein any manner of deliberate mutation is introduced into the otherwise mechanical recursive enumeration of a series of choices, chords and events.

40. Method of claim 39 wherein mutation is introduced to the process of choice, which would otherwise be purely deterministic for any given library and configuration, and therefore less interesting than possible with some mutation.

41. Method of claim 23 wherein any form of machine learning is introduced to the process of choice, which would otherwise be purely deterministic for any given library and configuration, and therefore less interesting than possible with some optimization of future choices based upon human feedback regarding past choices.

42. Method of claim 23 wherein (as opposed to the traditional concept of a sampler) sourcing a combination of unit waveforms is based on a known output necessity.

43. Method of claim 23 wherein the only input received is configuration input from a human administrator.

44. Method of claim 23 wherein (after administrator configuration) a database is continually accessed in order to procure all source musical ideas and instrument-audio.

45. Method of claim 23 wherein the composite is continuous and theoretically never-ending, which embodies the nature of musical audio playing in a public space.

46. Method of claim 23 which facilitates rights management in order to support a platform which creates opportunity for composite musical artists to earn a living.

47. Method of claim 23 which transcends the 20th century notion of song-based musical publishing, thus eliminating the risk of media being copied and re-distributed for free.

48. Method of claim 23 which facilitates a live, real-time, streaming data pipeline of musical audio data that is consistent in mood and perpetually unique.

49. Apparatus for fabricating musical audio, operating the method of claim 23 and further comprising: means for storage of musical ideas and instrument-audio; means for human adminstrator configuration of a single musical audio composite or a plurality of composite configured for a synchronous plurality of target location; means for operating a computer-based implementation of the Fabrication process, either for a single output on a personal computer or a plurality of output using virtual machines; means for storage of the resulting audio and metadata and means for distributing paired audio and metadata to a plurality of location.

50. Apparatus for fabricating musical audio, comprising means for storage of musical ideas and instrument-audio.

51. Apparatus for fabricating musical audio, comprising means for human adminstrator configuration of a single musical audio composite or a plurality of composite configured for a synchronous plurality of target location.

52. Apparatus for fabricating musical audio, comprising means for operating a computer-based implementation of the Fabrication process, either for a single output on a personal computer or a plurality of output using virtual machines.

53. Apparatus for fabricating musical audio, comprising means for storage of the resulting audio and metadata and means for distributing paired audio and metadata to a plurality of location.

54. Apparatus of claim 49 wherein the final output is fabricated from purpose-made pre-fabricated pieces.

55. The apparatus of claim 49 operated for continuous delivery of a composite musical audio composite fabricated from a musical library of ideas and instrument-audio.

56. The apparatus of claim 49 wherein the process is driven by the passage of time at a single particular location.

57. The apparatus of claim 49 wherein the primary directive is consistent listener satisfaction.

58. The apparatus of claim 49 wherein the process is configured by a human operator to fulfill particular strategic objectives of the musical audio for a single particular location.

59. The apparatus of claim 49 wherein the process is driven by the passage of time at a plurality of location.

60. The apparatus of claim 49 wherein a plurality of concurrent process are configured by a human operator to fulfill particular strategic objectives of the musical audio for a plurality of location.

61. The apparatus of claim 49 for which the output is used in any type of home.

62. The apparatus of claim 49 for which the output is used in any type of vehicle.

63. The apparatus of claim 49 for which the output is used on-the-go.

64. The apparatus of claim 49 for which the output is used in an any type of advertisement.

65. The apparatus of claim 49 for which the output is used in or during any type of entertainment.

66. The apparatus of claim 49 for which the output is used in or during any type of films or TV shows.

67. The apparatus of claim 49 for which the output is used in any type of installation art.

68. The apparatus of claim 49 for which the output is used in any type of elevator.

69. The apparatus of claim 49 for which the output is used in any type of hallway.

70. The apparatus of claim 49 for which the output is used in any type of reception or waiting area.

71. The apparatus of claim 49 for which the output is used in any type of spa.

72. The apparatus of claim 49 for which the output is used in any type of factory.

73. The apparatus of claim 49 for which the output is used at any type of co-working space.

74. The apparatus of claim 49 for which the output is used in any type of designed environment.

75. The apparatus of claim 49 for which the output is used in any type of industrial business, such as a factory.

76. The apparatus of claim 49 for which the output is used in any type of institutional setting, such as a university or zoo.

77. The apparatus of claim 49 for which the output is used in any type of interactive implementation, such as a museum exhibit or web site.

78. The apparatus of claim 49 for which the output is used in any type of leisure business, such as a cruise ship or spa.

79. The apparatus of claim 49 for which the output is used in any type of gallery.

80. The apparatus of claim 49 for which the output is used at any type of gaming venue or remotely, such as over the internet.

81. The apparatus of claim 49 for which the output is used in any type of gym or decompressing in any type of locker room.

82. The apparatus of claim 49 for which the output is used at any type of museum.

83. The apparatus of claim 49 for which the output is used in any type of theme park.

84. The apparatus of claim 49 for which the output is used in any type of hospitality business.

85. The apparatus of claim 49 for which the output is used in any type of resort.

86. The apparatus of claim 49 for which the output is used in or during any type of sports.

87. The apparatus of claim 49 for which the output is used at any type of zoo.

88. The apparatus of claim 49 for which the output is used in or during any type of dining.

89. The apparatus of claim 49 for which the output is used in any type of store.

90. The apparatus of claim 49 for which the output is used in any type of mall.

91. The apparatus of claim 49 for which the output is used in any type of amusement business.

92. The apparatus of claim 49 for which the output is used at any type of carnival or fair.

93. The apparatus of claim 49 for which the output is used in any type of casino.

94. The apparatus of claim 49 for which the output is used in any type of concert.

95. The apparatus of claim 49 for which the output is used at any type of festival.

96. The apparatus of claim 49 for which the output is used in any type of dancing.

97. The apparatus of claim 49 for which the output is used in any type of club, such as a nightclub, pool or yacht club.

98. The apparatus of claim 49 for which the output is used in any type of office.

99. The apparatus of claim 49 for any type of personal use or consumption.

100. The apparatus of claim 49 for any type of public use or consumption.

101. The apparatus of claim 49 for which the output is used in any type of retail business.

102. The apparatus of claim 49 for which the output is used in any type of boat.

103. The apparatus of claim 49 for which the output is used in or during any security procedure or checkpoint.

104. The apparatus of claim 49 for which the output is used in or during the boarding or exiting of any type of airplane, bus, ferry or any other type of transportation.

105. The apparatus of claim 49 for which the output is used in or during any type of transportation, or in any type of transportation hub.

106. The apparatus of claim 49 which facilitates rights management in order to support a platform which creates opportunity for composite musical artists to earn a living.

107. The apparatus of claim 49 which transcends the 20th century notion of song-based musical publishing, thus eliminating the risk of media being copied and re-distributed for free.

108. The apparatus of claim 49 which facilitates a live, real-time, streaming data pipeline of musical audio data that is consistent in mood and perpetually unique.

ABSTRACT

[**0248**] The present invention relates to Composite Music. More particularly, the invention relates to a system that can be employed to persist as information and automatically reproduce music which achieves an entirely new level of perpetual uniqueness and consistent mood. The present invention pertains to the continuous "Fabrication" of audio composited from a library of material; the traditional "record" is re-invented into smaller, more atomic units of musical ideas and instrument-audio. The present invention discloses a complete formal system by which any amount of time can be continuously filled with musical audio.

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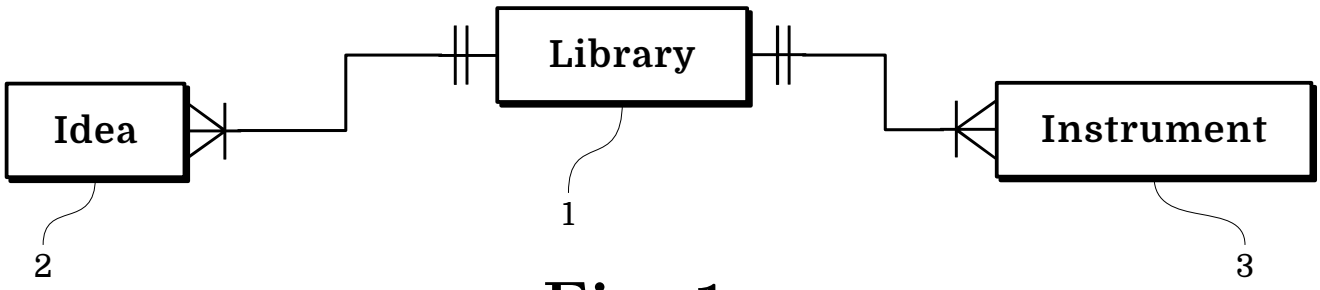


Fig. 1

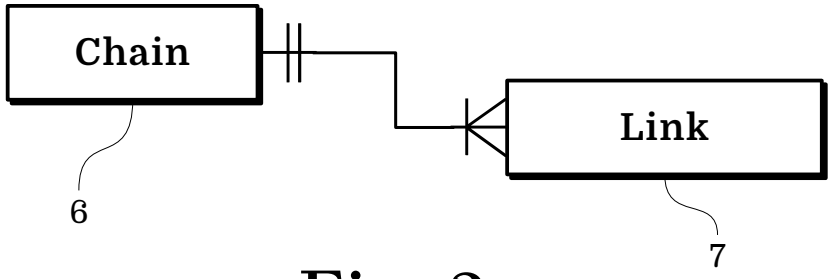
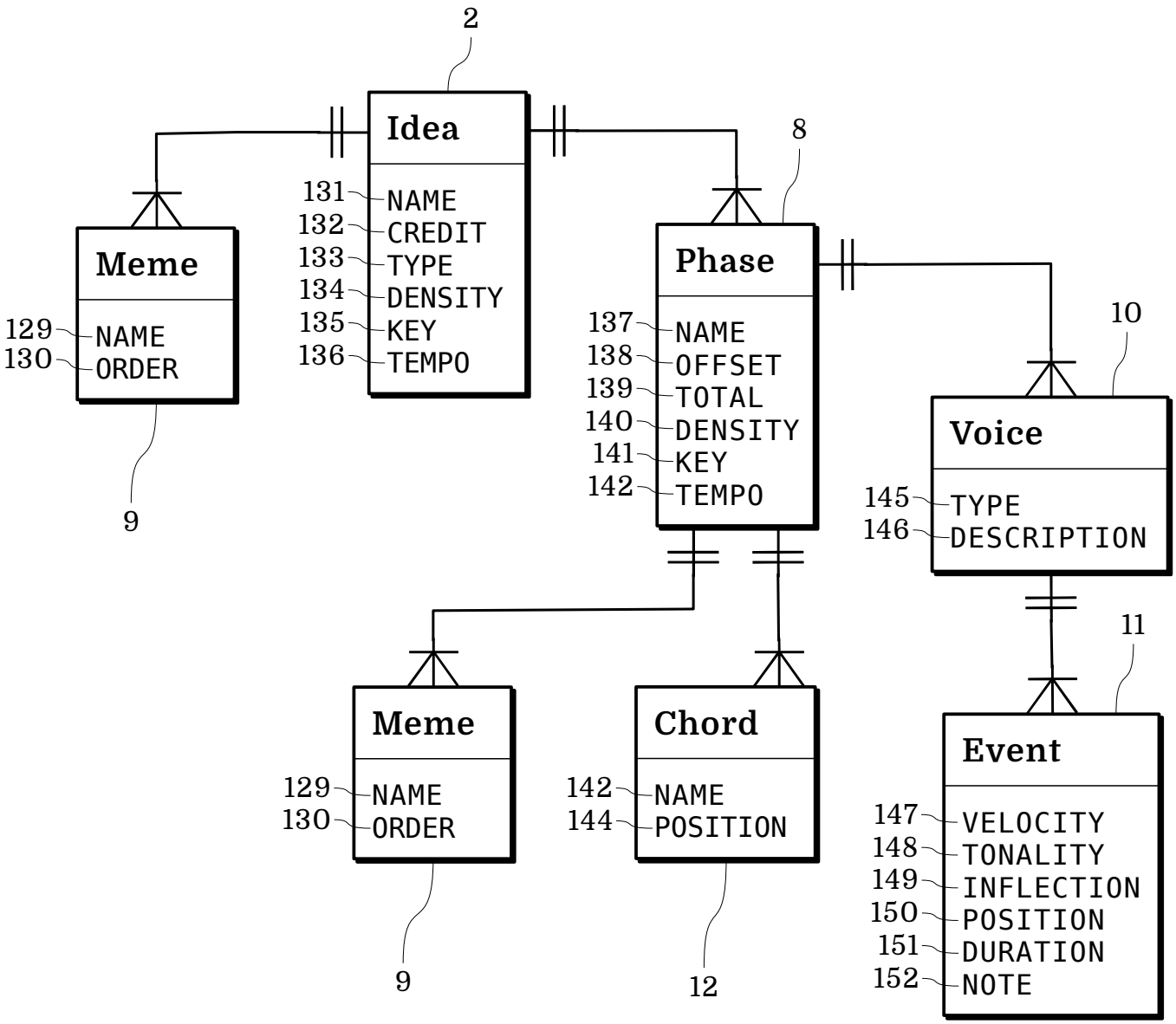


Fig. 2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8
Meme
129 NAME
130 ORDER
9
Phase
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138 OFFSET
139 TOTAL
140 DENSITY
141 KEY
142 TEMPO
10
Voice
145 TYPE
146 DESCRIPTION
11
Meme
129 NAME
130 ORDER
9
Chord
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Event
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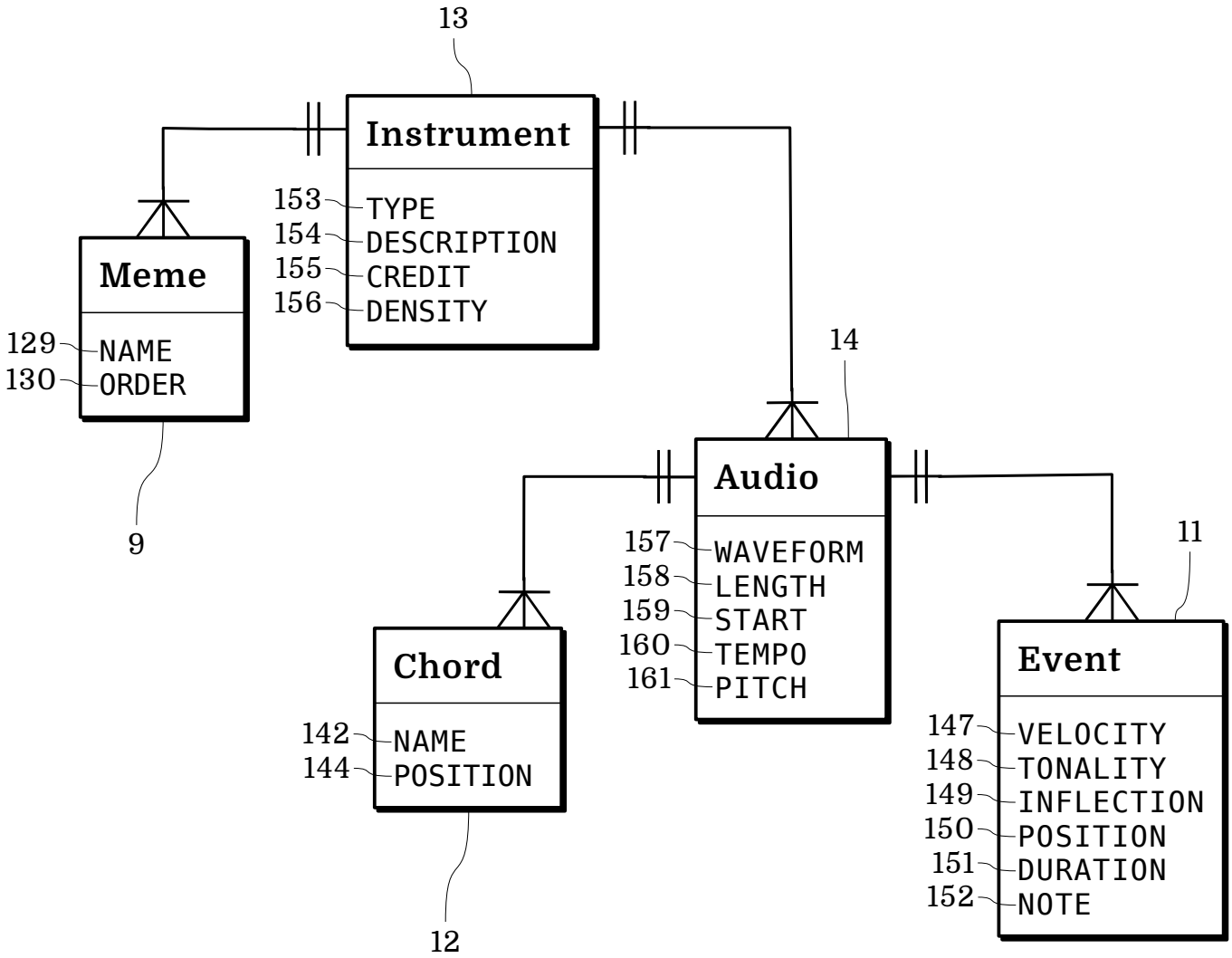
149 INFLECTION
150 POSITION
151 DURATION
152 NOTE

Fig. 3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Instrument
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TYPE
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DESCRIPTION
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CREDIT
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DENSITY
Meme
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NAME
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ORDER
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14
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WAVEFORM
158
LENGTH
159
START
160
TEMPO
161
PITCH
11
Event
147
VELOCITY
148
TONALITY
149
INFLECTION
150
POSITION
151
DURATION
152
NOTE
Chord
142
NAME
144
POSITION
12

Fig. 4

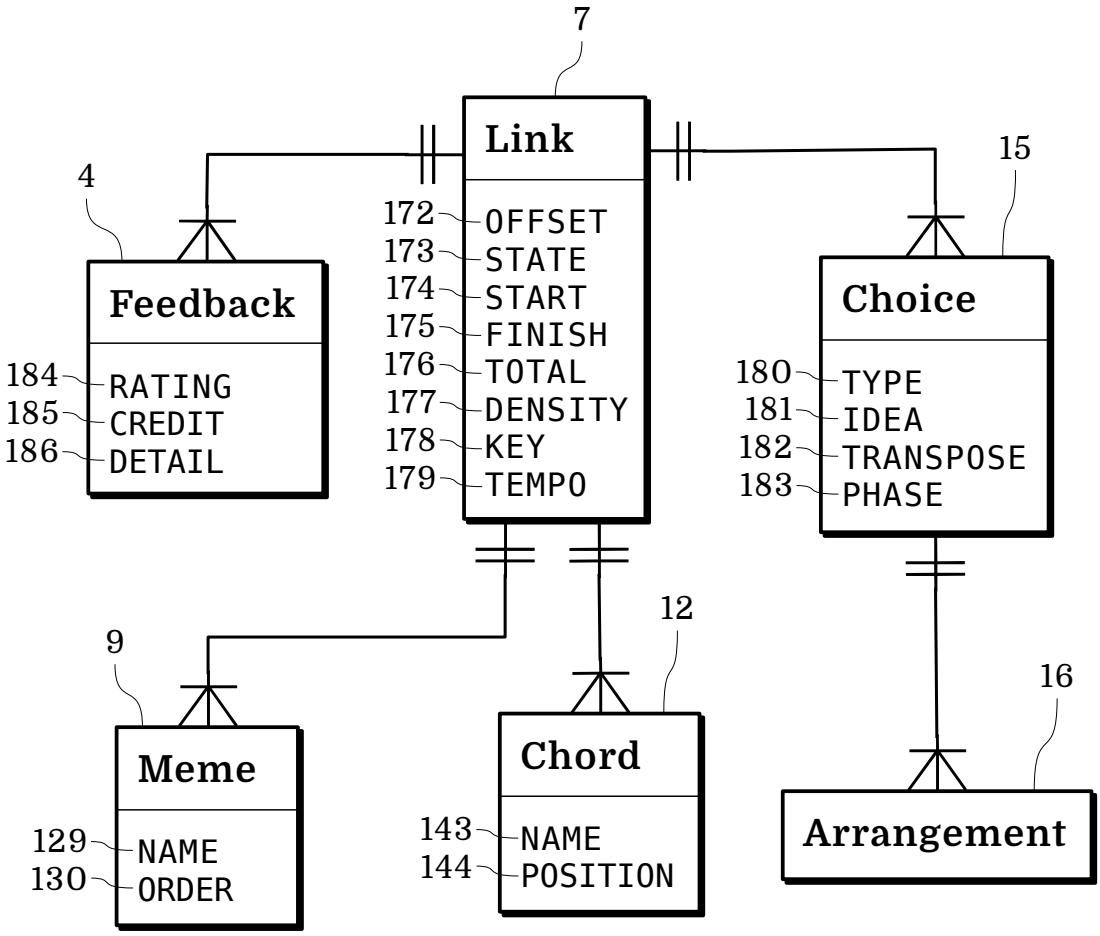

7
Link
172 OFFSET
173 STATE
174 START
175 FINISH
176 TOTAL
177 DENSITY
178 KEY
179 TEMPO
4
Feedback
184 RATING
185 CREDIT
186 DETAIL
15
Choice
180 TYPE
181 IDEA
182 TRANSPOSE
183 PHASE
9
Meme
129 NAME
130 ORDER
12
Chord
143 NAME
144 POSITION
16
Arrangement

Fig. 5

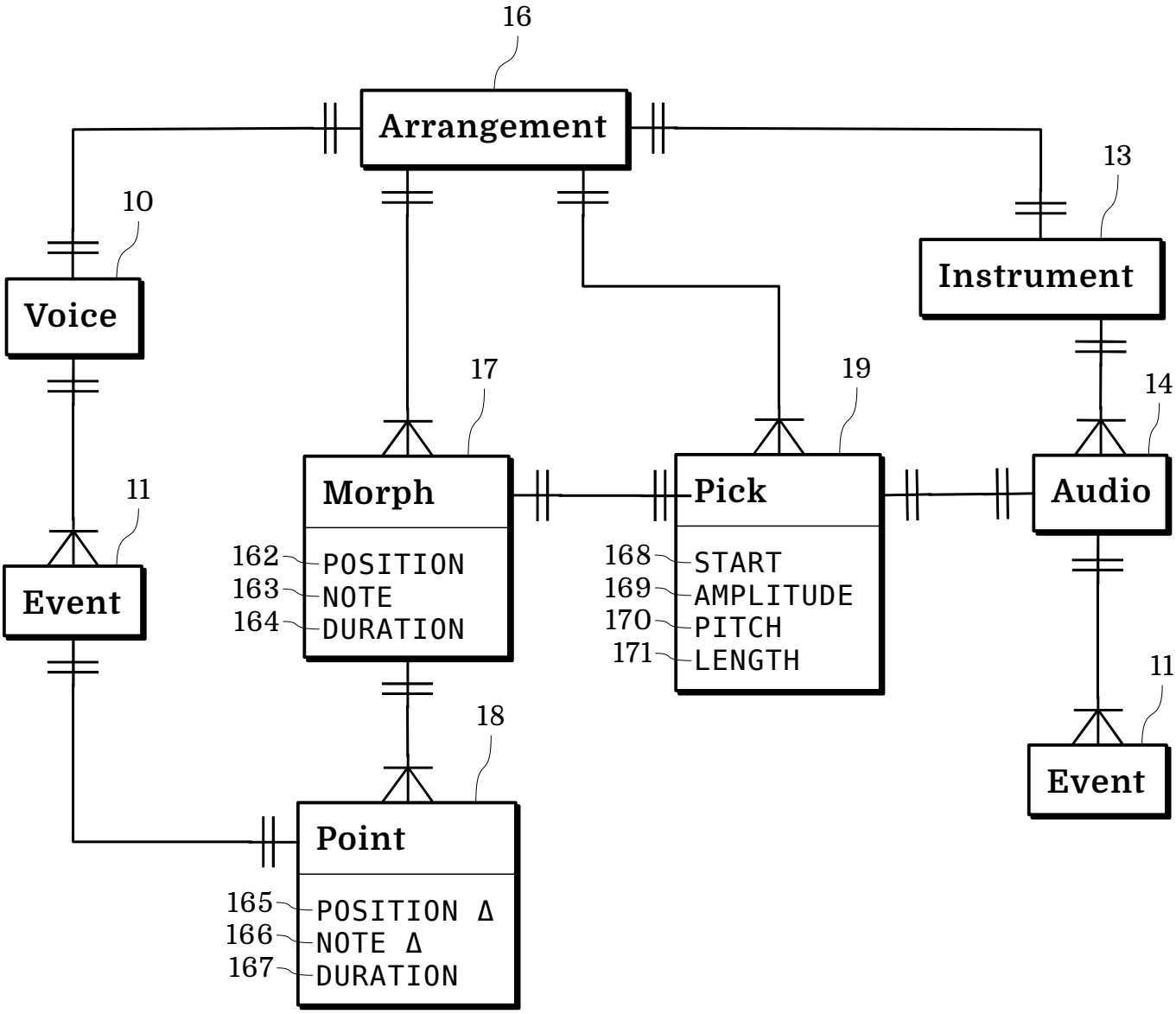

16
Arrangement
13
10
Voice
Instrument
17
19
14
11
Morph
Pick
Audio
162
POSITION
163
NOTE
164
DURATION
168
START
169
AMPLITUDE
170
PITCH
171
LENGTH
Event
11
Event
18
Point
165
POSITION Δ
166
NOTE Δ
167
DURATION

Fig. 6

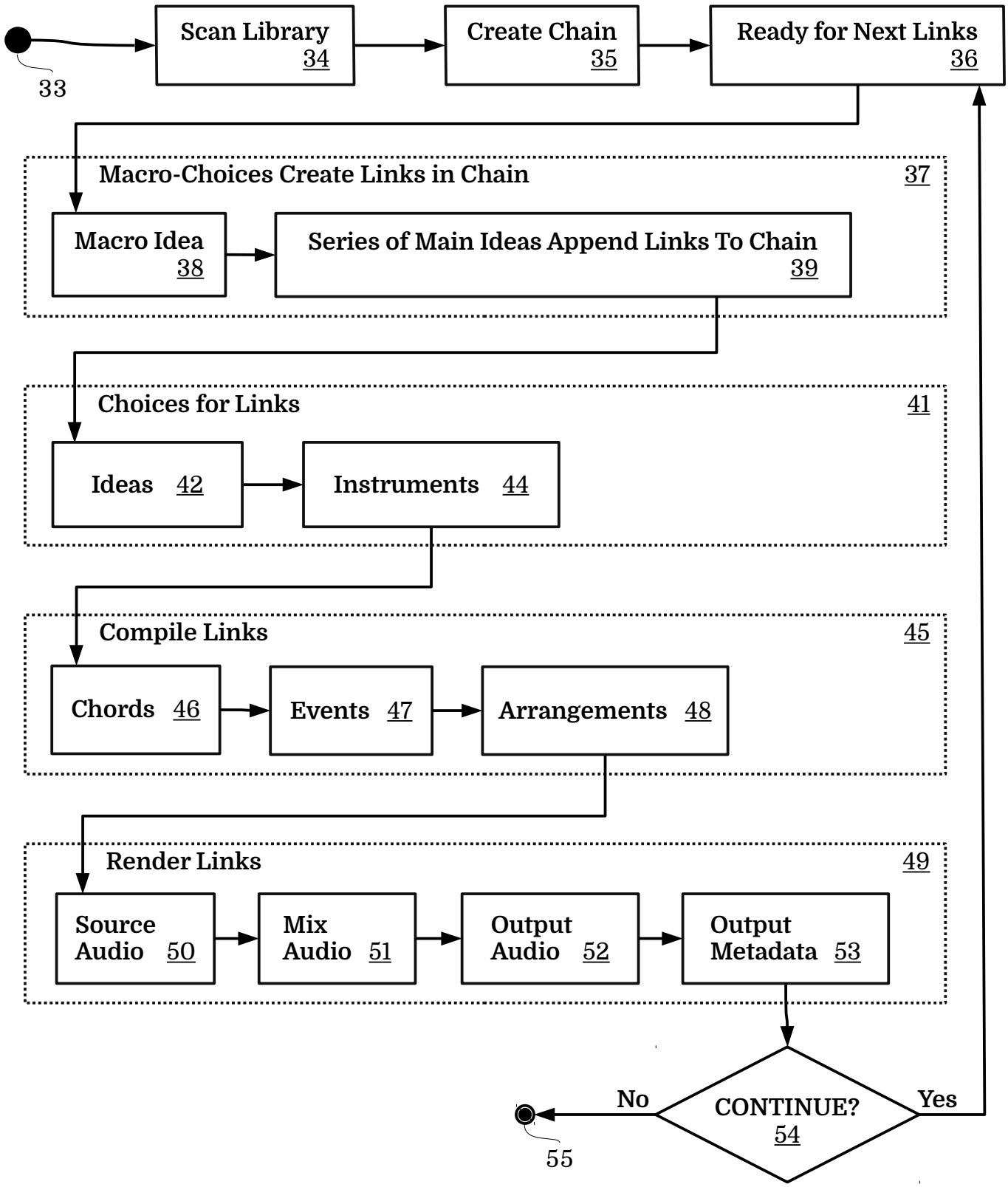

33
Scan Library 34
Create Chain 35
Ready for Next Links 36
Macro-Choices Create Links in Chain 37
Macro Idea 38
Series of Main Ideas Append Links To Chain 39
Choices for Links 41
Ideas 42
Instruments 44
Compile Links 45
Chords 46
Events 47
Arrangements 48
Render Links 49
Source Audio 50
Mix Audio 51
Output Audio 52
Output Metadata 53
CONTINUE? 54
No
Yes
55

Fig. 7

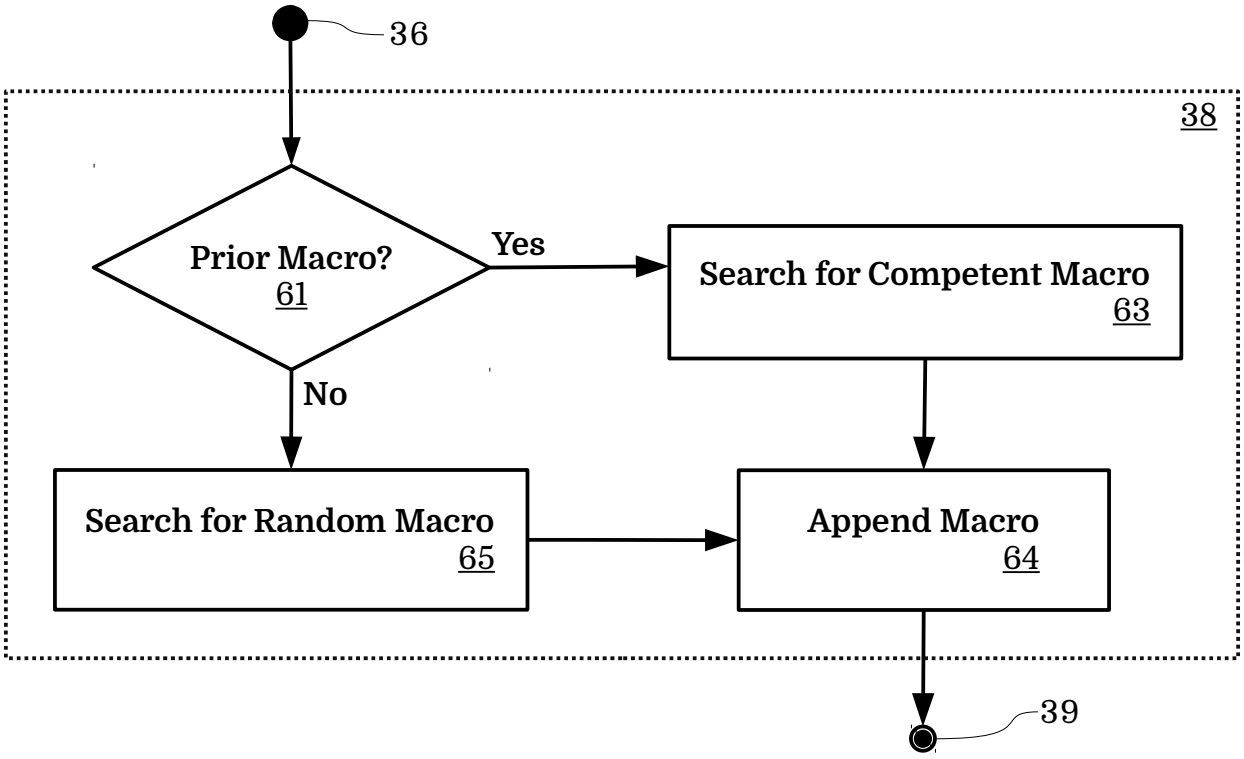

36
38
Prior Macro?
61
Yes
Search for Competent Macro
63
No
Search for Random Macro
65
Append Macro
64
39

Fig. 8

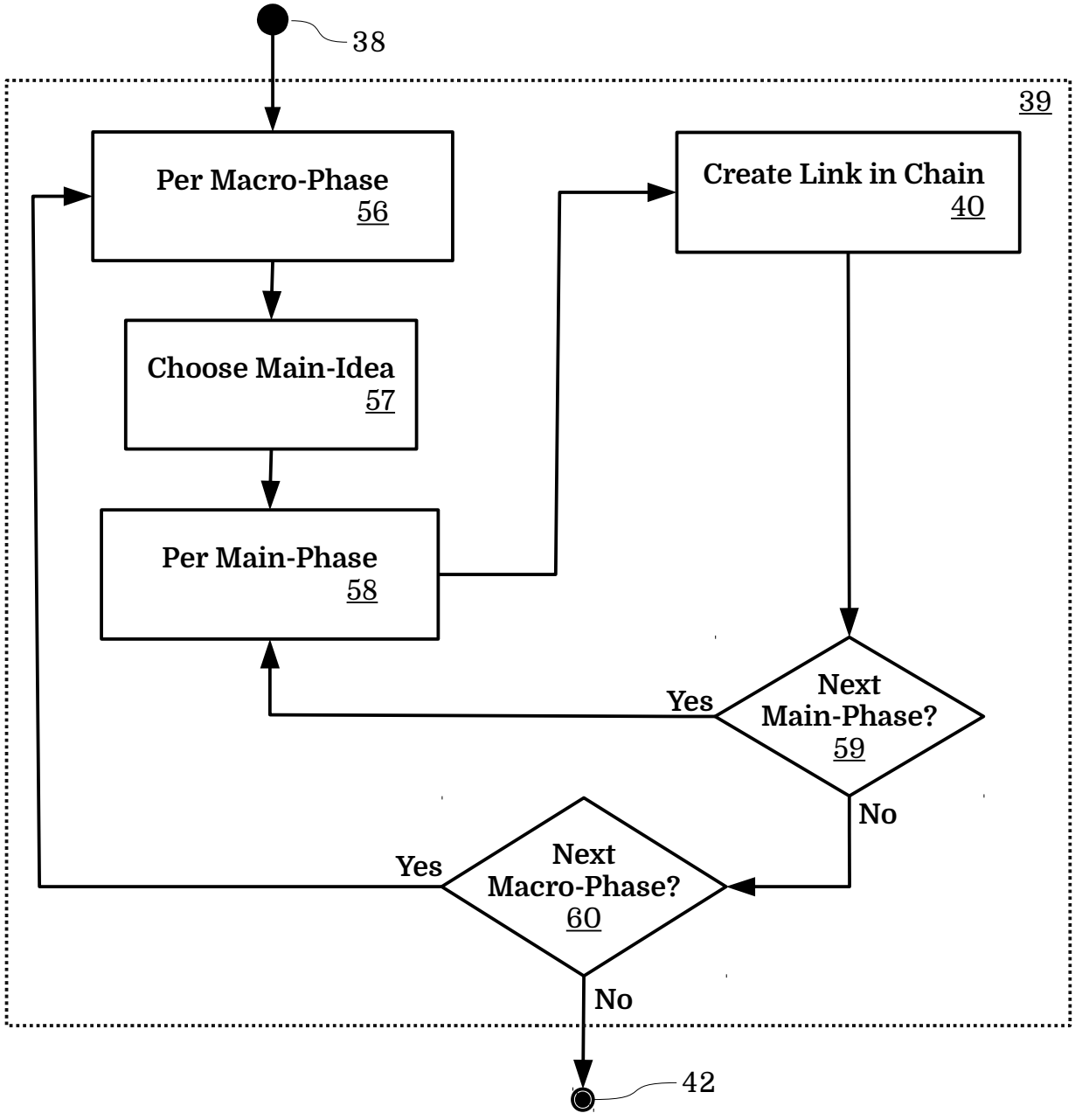

38
39
Per Macro-Phase
56
Choose Main-Idea
57
Per Main-Phase
58
Create Link in Chain
40
Next
Main-Phase?
59
Yes
No
Next
Macro-Phase?
60
Yes
No
42

Fig. 9

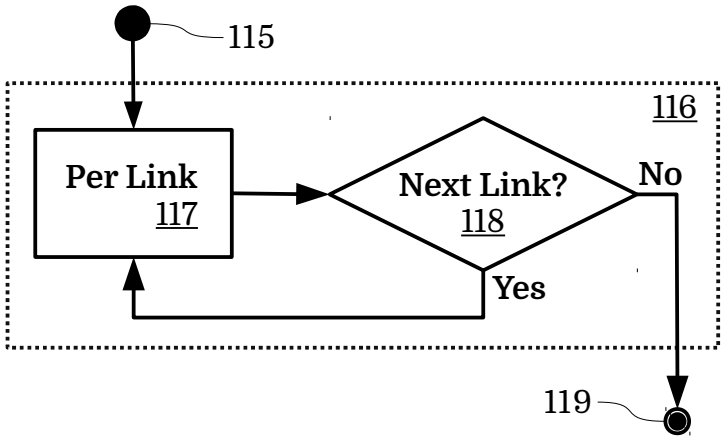


Fig. 10

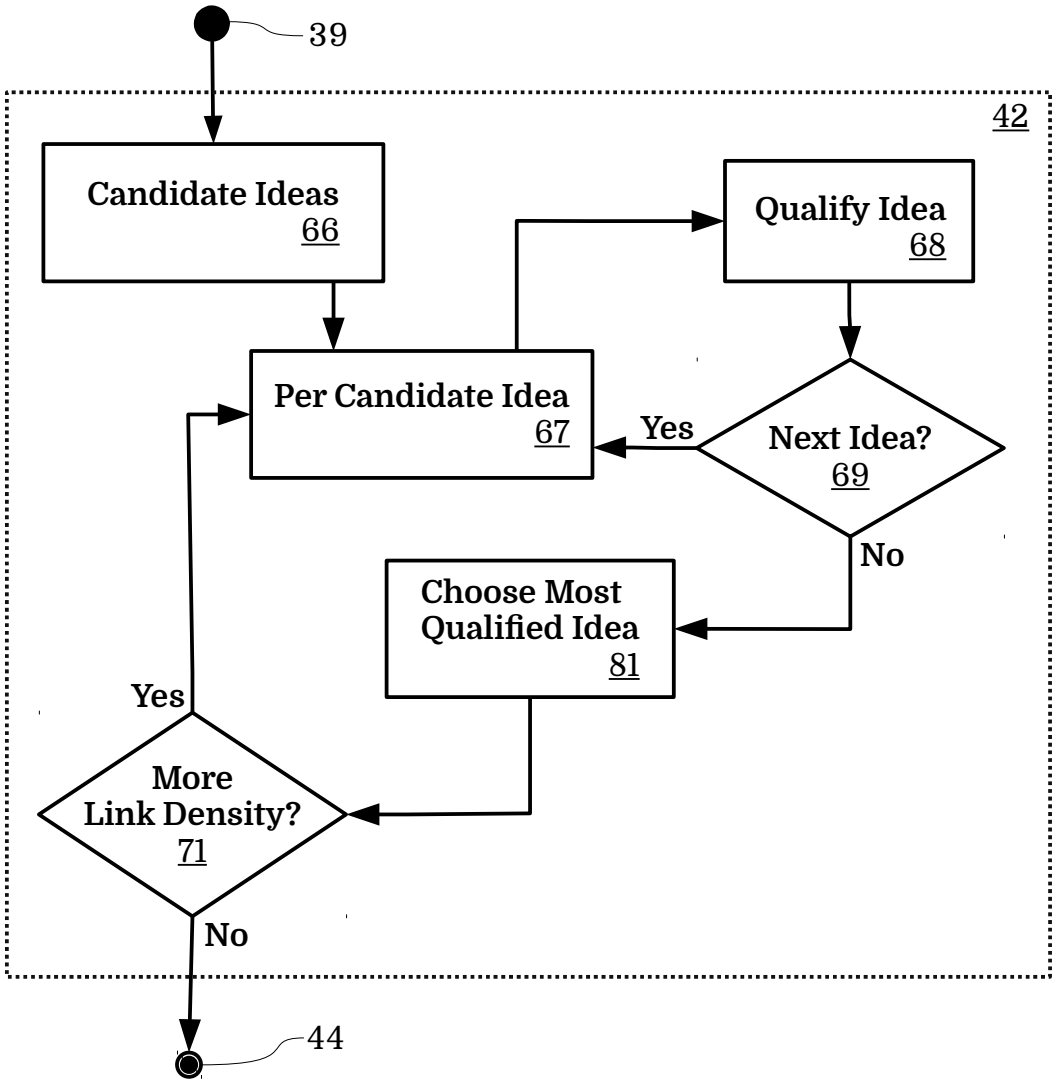

39
42
Candidate Ideas
66
Qualify Idea
68
Per Candidate Idea
67
Yes
Next Idea?
69
No
Choose Most
Qualified Idea
81
Yes
More
Link Density?
71
No
44

Fig. 11

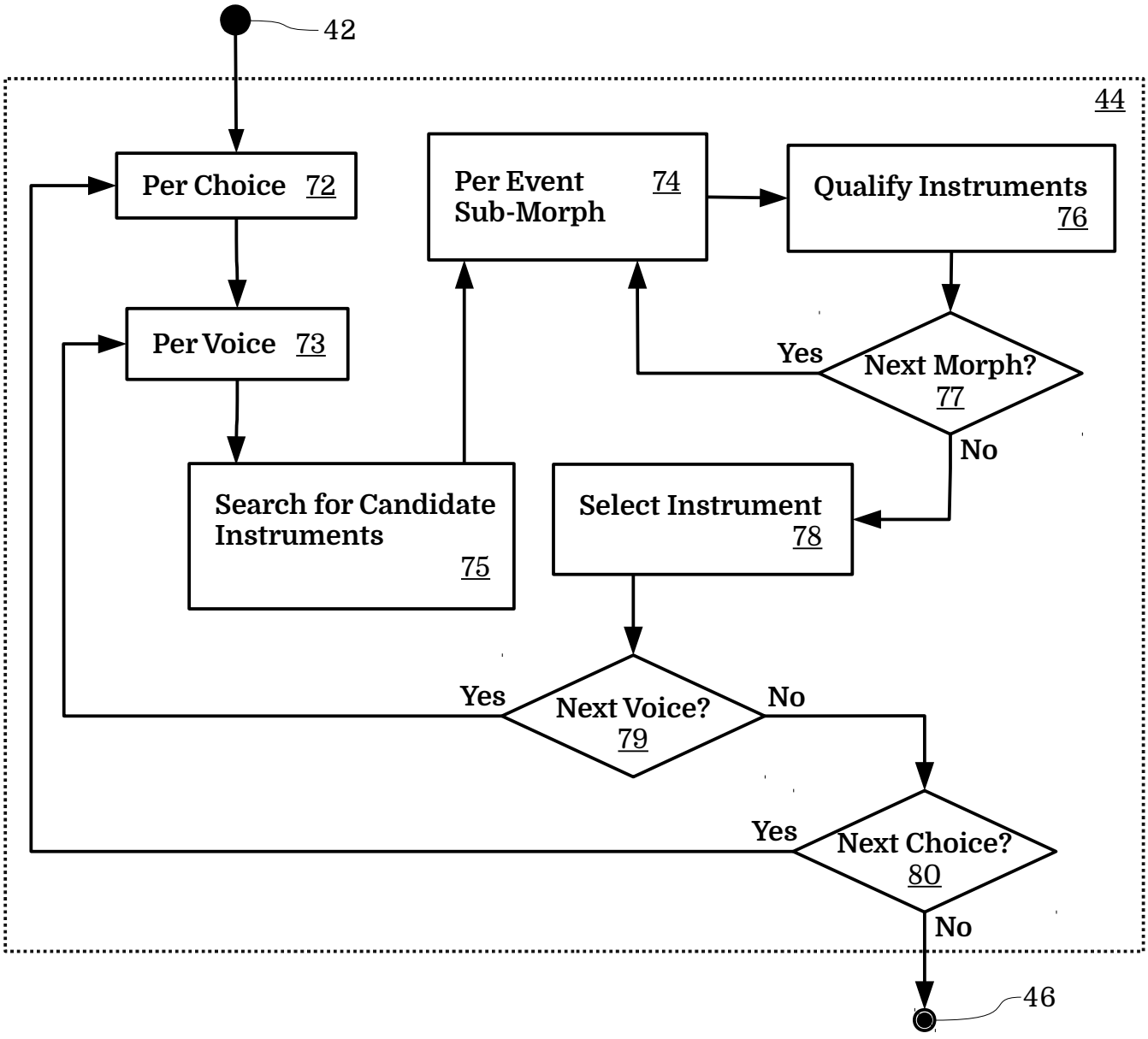

42
44
Per Choice 72
Per Voice 73
Search for Candidate Instruments 75
Per Event Sub-Morph 74
Qualify Instruments 76
Yes
Next Morph? 77
No
Select Instrument 78
Yes
Next Voice? 79
No
Yes
Next Choice? 80
No
46

Fig. 12

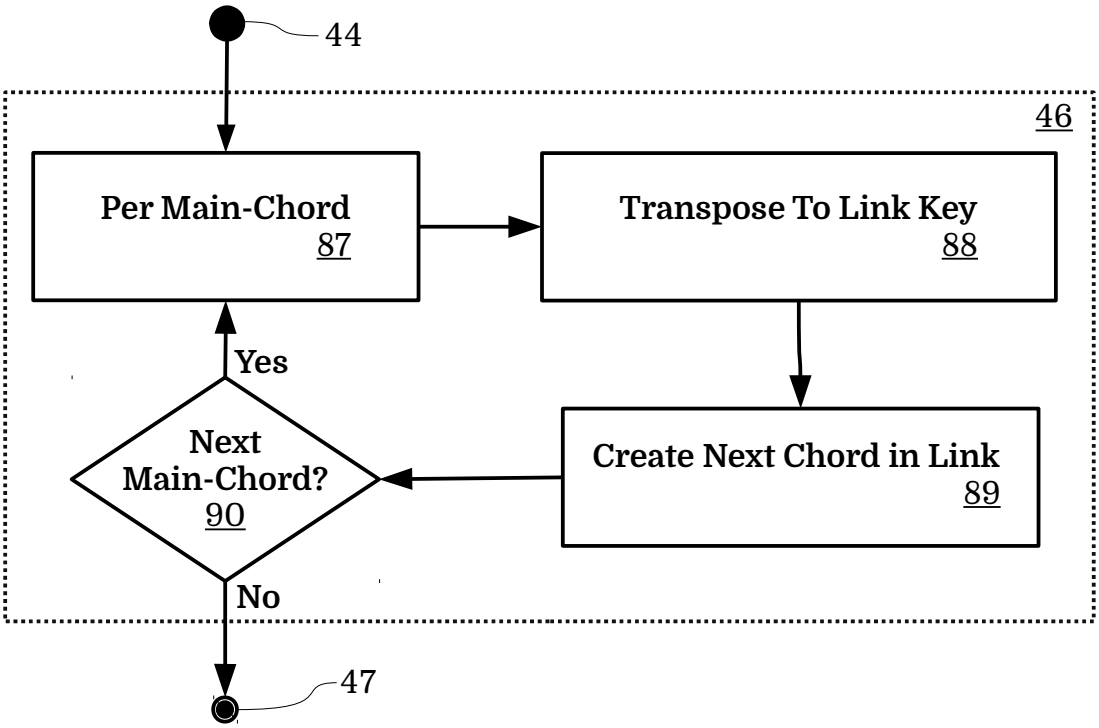

44
46
Per Main-Chord
87
Transpose To Link Key
88
Yes
Next
Main-Chord?
90
Create Next Chord in Link
89
No
47

Fig. 13

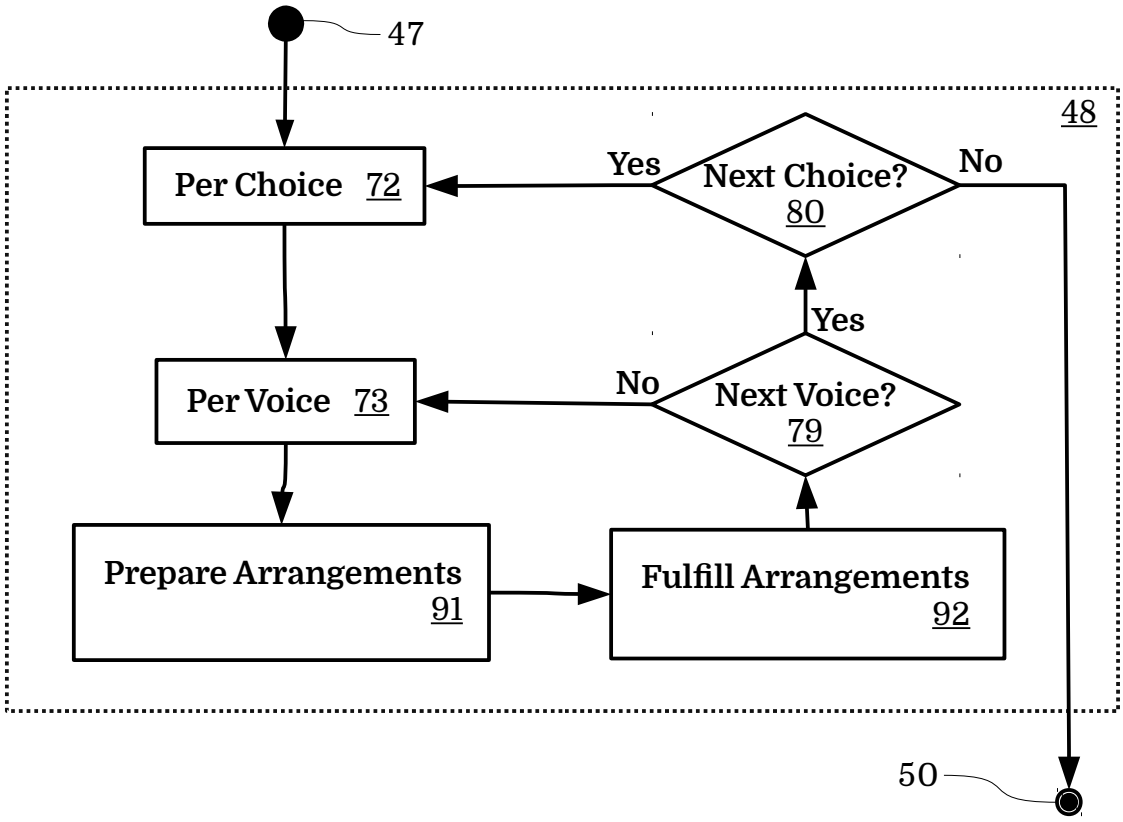

47
48
Per Choice 72
Yes
Next Choice?
80
No
Yes
Per Voice 73
No
Next Voice?
79
Prepare Arrangements
91
Fulfill Arrangements
92
50

Fig. 14

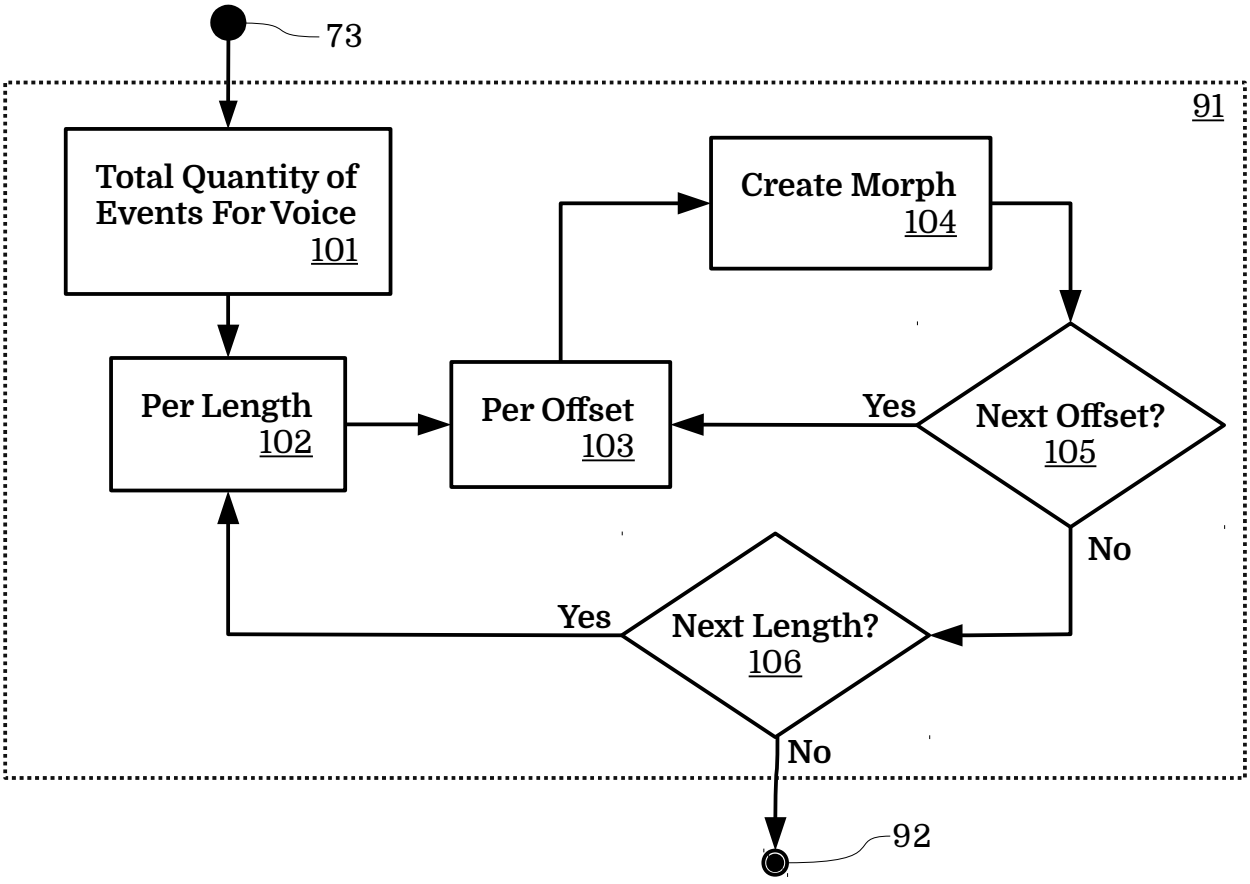

73
91
Total Quantity of Events For Voice 101
Per Length 102
Per Offset 103
Create Morph 104
Next Offset? 105
Yes
No
Next Length? 106
Yes
No
92

Fig. 15

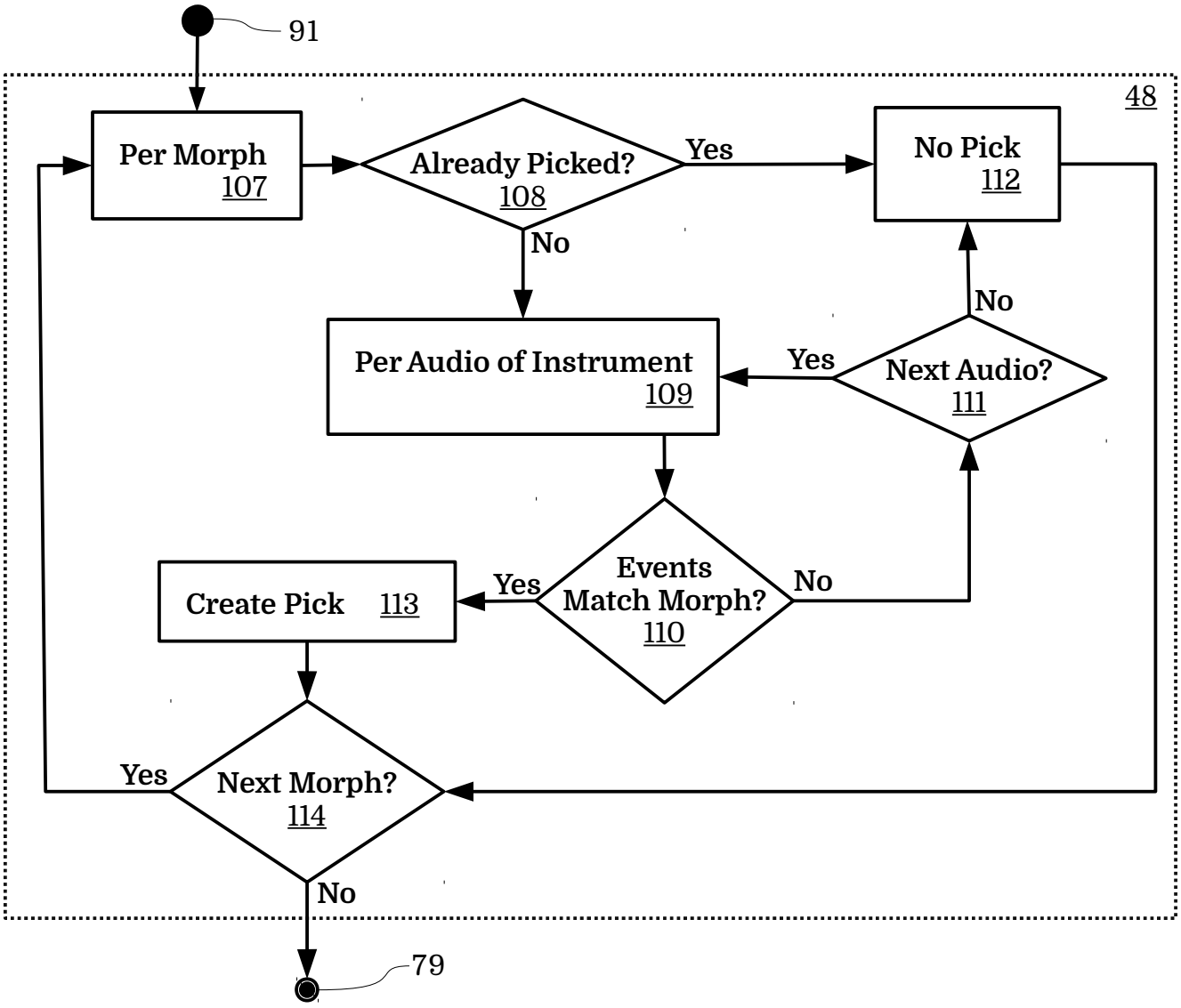

91
48
Per Morph
107
Already Picked?
108
Yes
No Pick
112
No
Per Audio of Instrument
109
Yes
Next Audio?
111
No
Events
Match Morph?
110
Yes
No
Create Pick
113
Yes
Next Morph?
114
No
79

Fig. 16

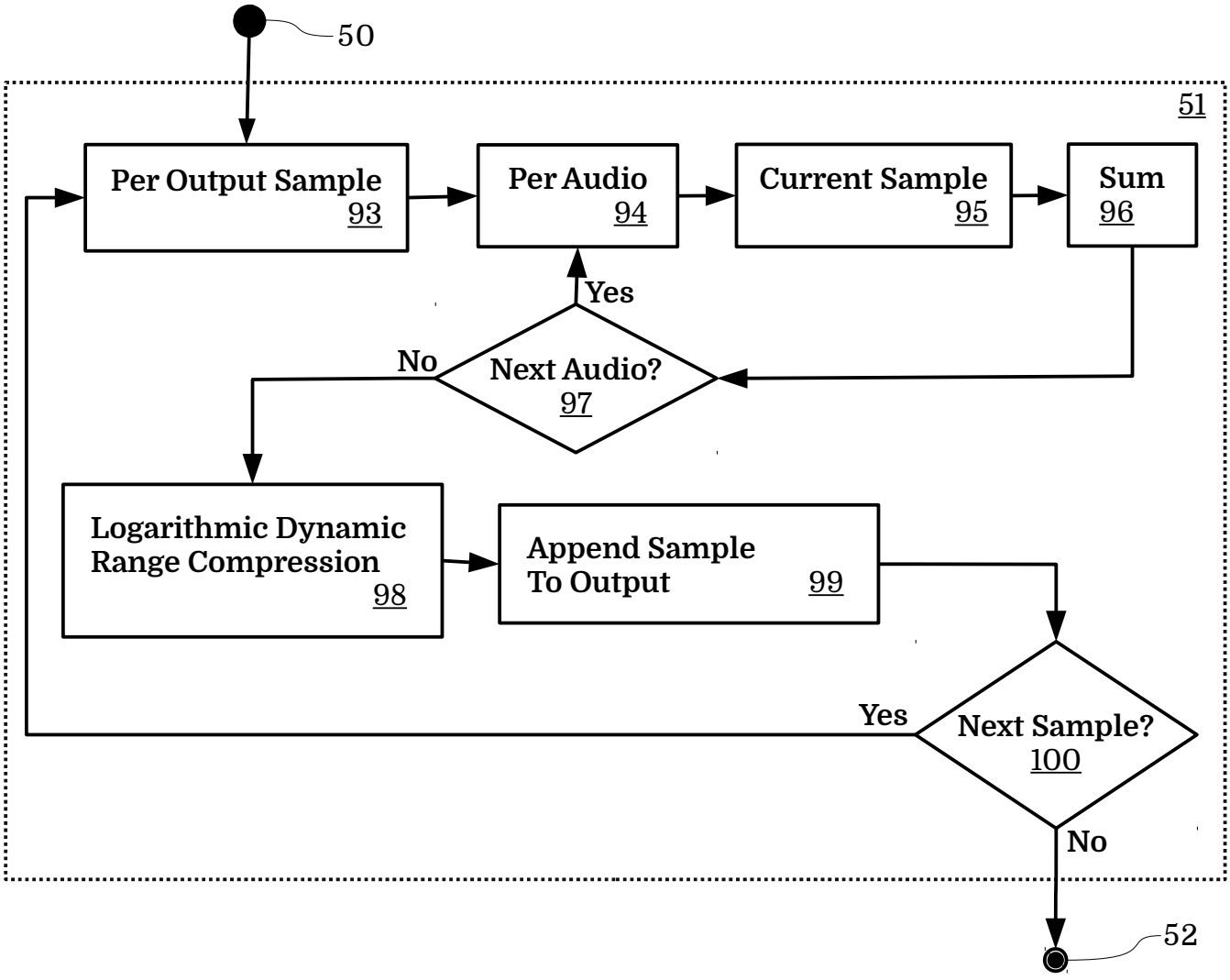

50
51
Per Output Sample
93
Per Audio
94
Current Sample
95
Sum
96
Yes
No
Next Audio?
97
Logarithmic Dynamic
Range Compression
98
Append Sample
To Output
99
Yes
Next Sample?
100
No
52

Fig. 17

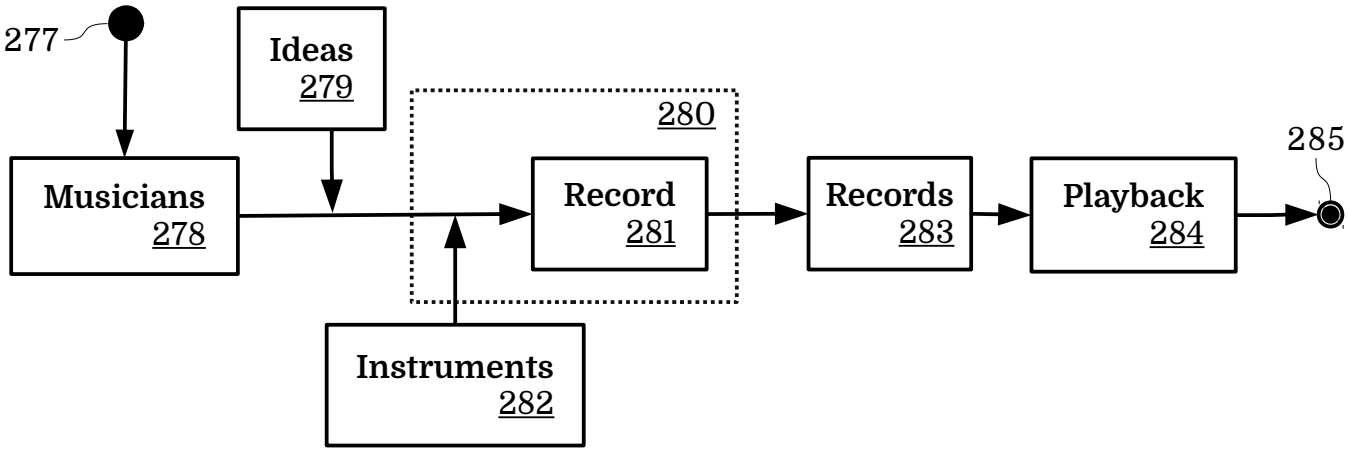

277
Ideas
279
280
285
Musicians
278
Record
281
Records
283
Playback
284
Instruments
282

Fig. 18

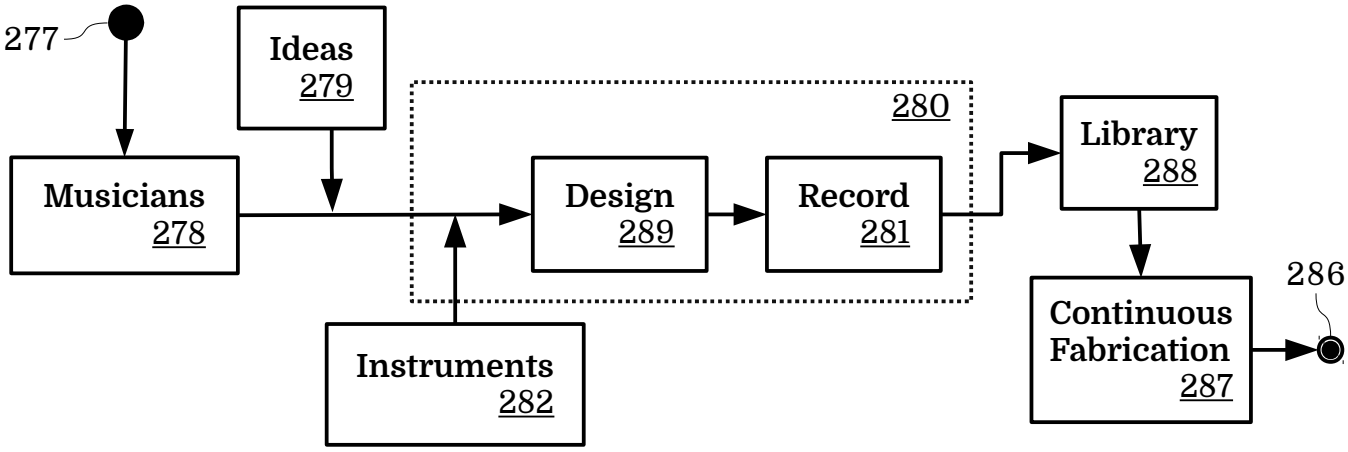

277
Ideas
279
280
Library
288
Musicians
278
Design
289
Record
281
286
Continuous
Fabrication
287
Instruments
282

Fig. 19

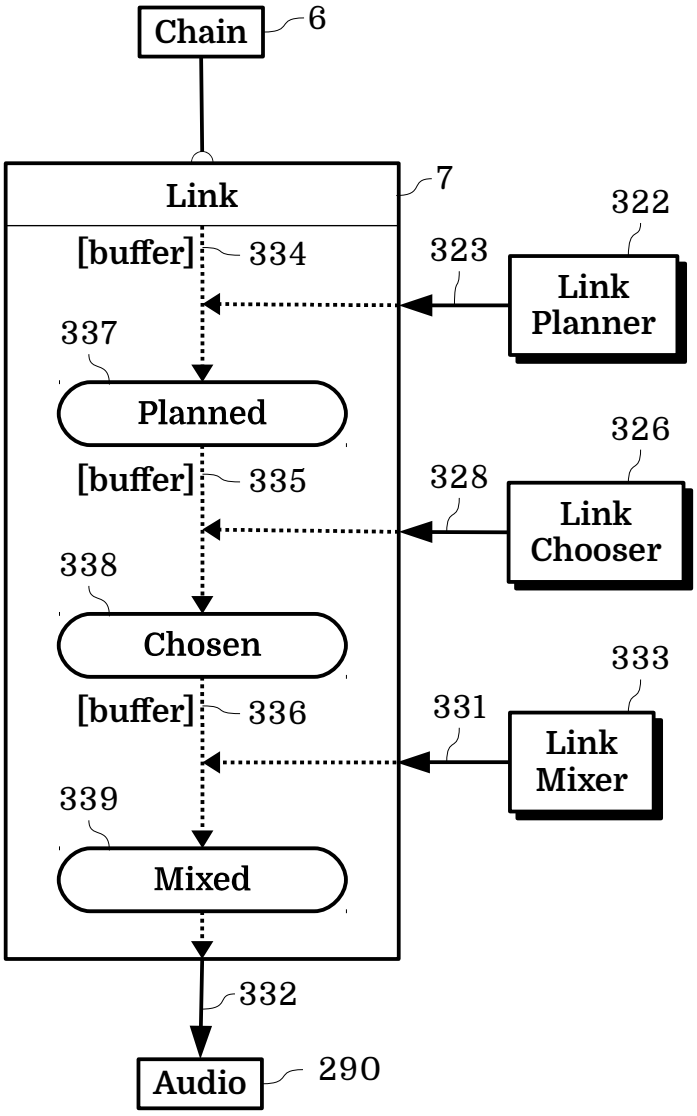

Chain
6
Link
7
[buffer]
334
322
323
Link Planner
337
Planned
[buffer]
335
326
328
Link Chooser
338
Chosen
[buffer]
336
333
331
Link Mixer
339
Mixed
332
Audio
290

Fig. 20

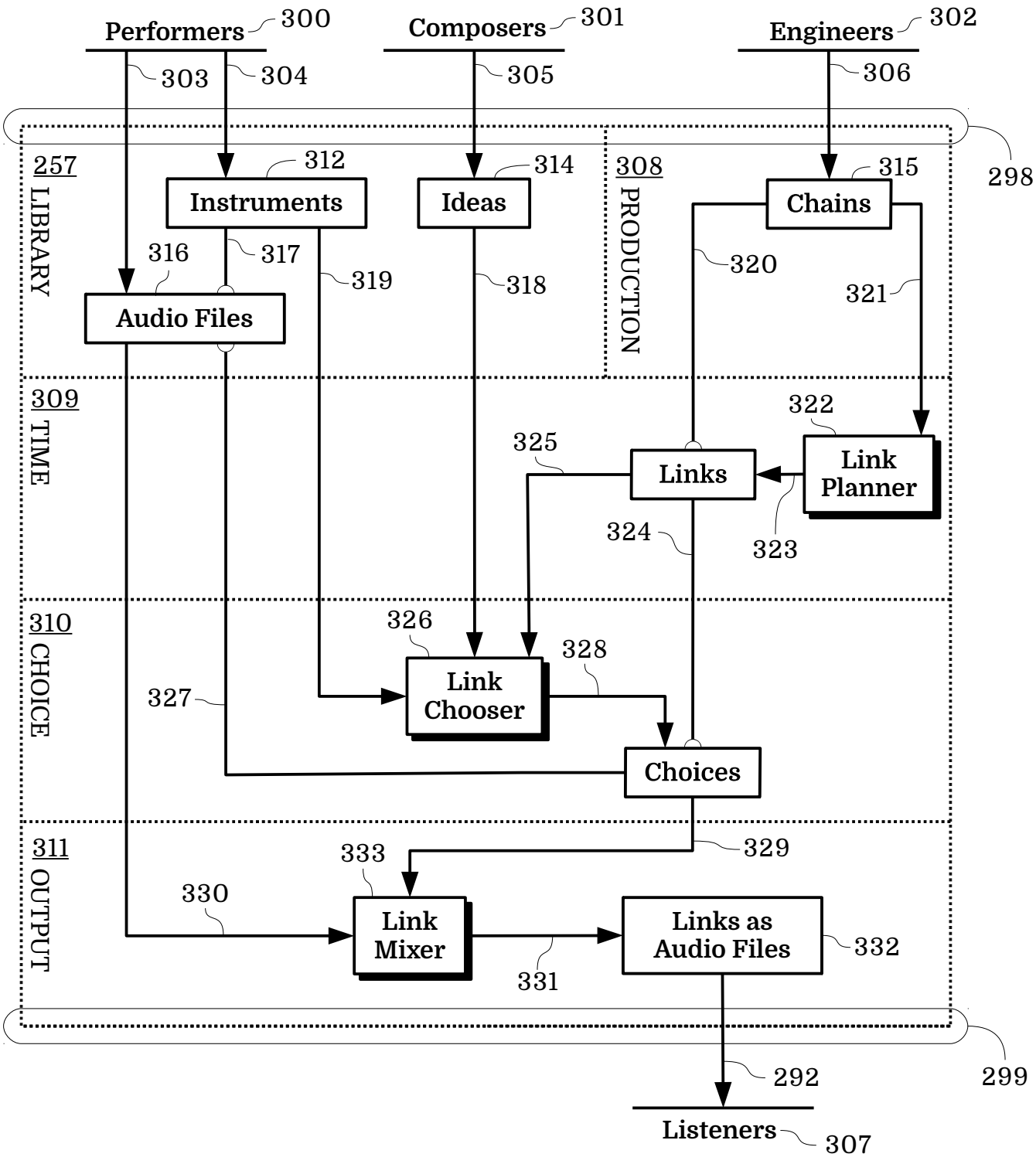

Performers
300
Composers
301
Engineers
302
303
304
305
306
298
257
LIBRARY
312
Instruments
314
Ideas
308
PRODUCTION
315
Chains
316
317
319
318
320
321
Audio Files
309
TIME
322
325
Links
Link
Planner
324
323
310
CHOICE
326
328
327
Link
Chooser
Choices
311
OUTPUT
333
329
330
Link
Mixer
Links as
Audio Files
332
331
299
292
Listeners
307

Fig. 21

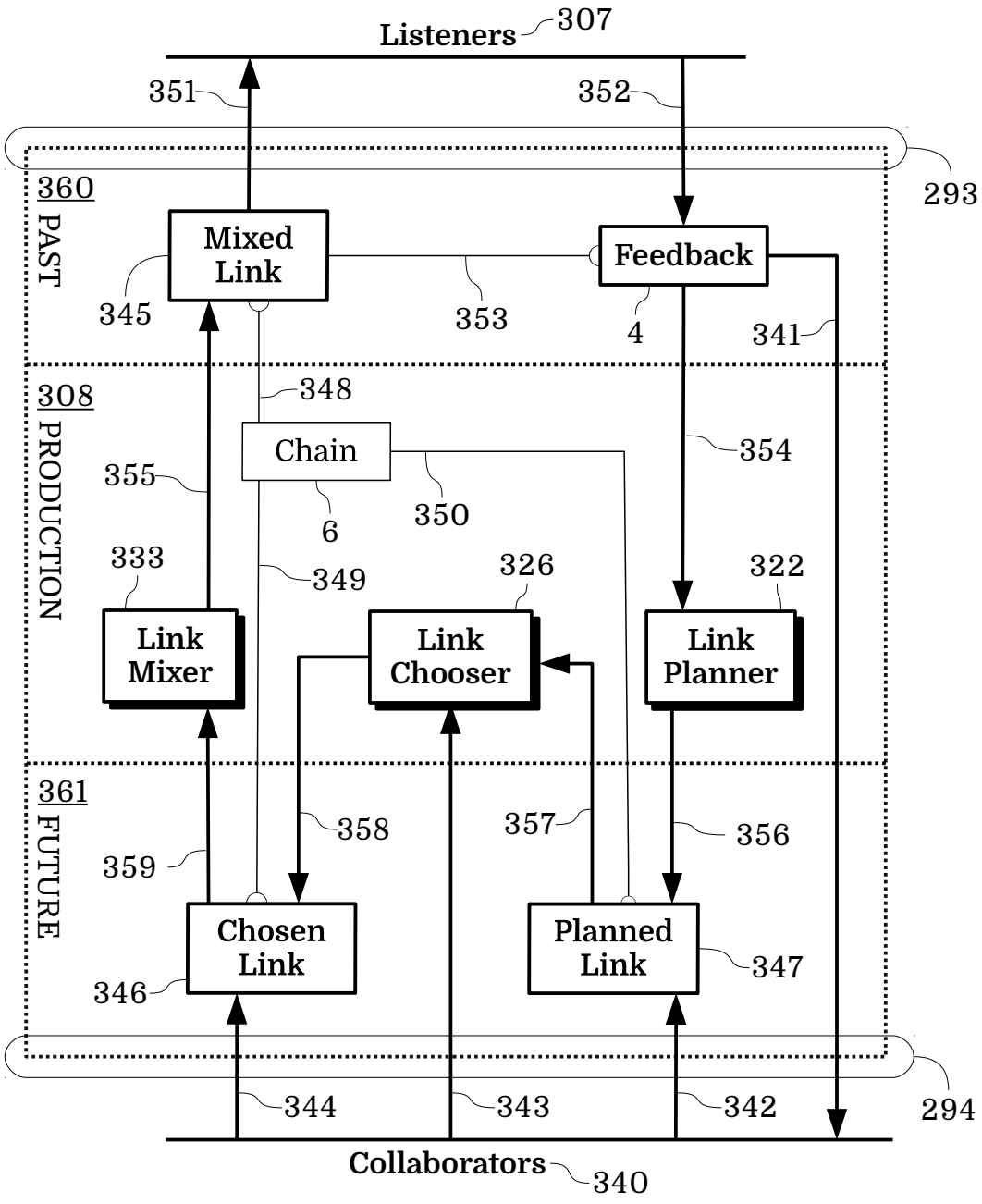

Listeners
307
351
352
293
360
PAST
Mixed Link
Feedback
345
353
4
341
308
PRODUCTION
348
Chain
354
355
350
6
333
349
326
322
Link Mixer
Link Chooser
Link Planner
361
FUTURE
358
357
356
359
Chosen Link
Planned Link
346
347
344
343
342
294
Collaborators
340

Fig. 22

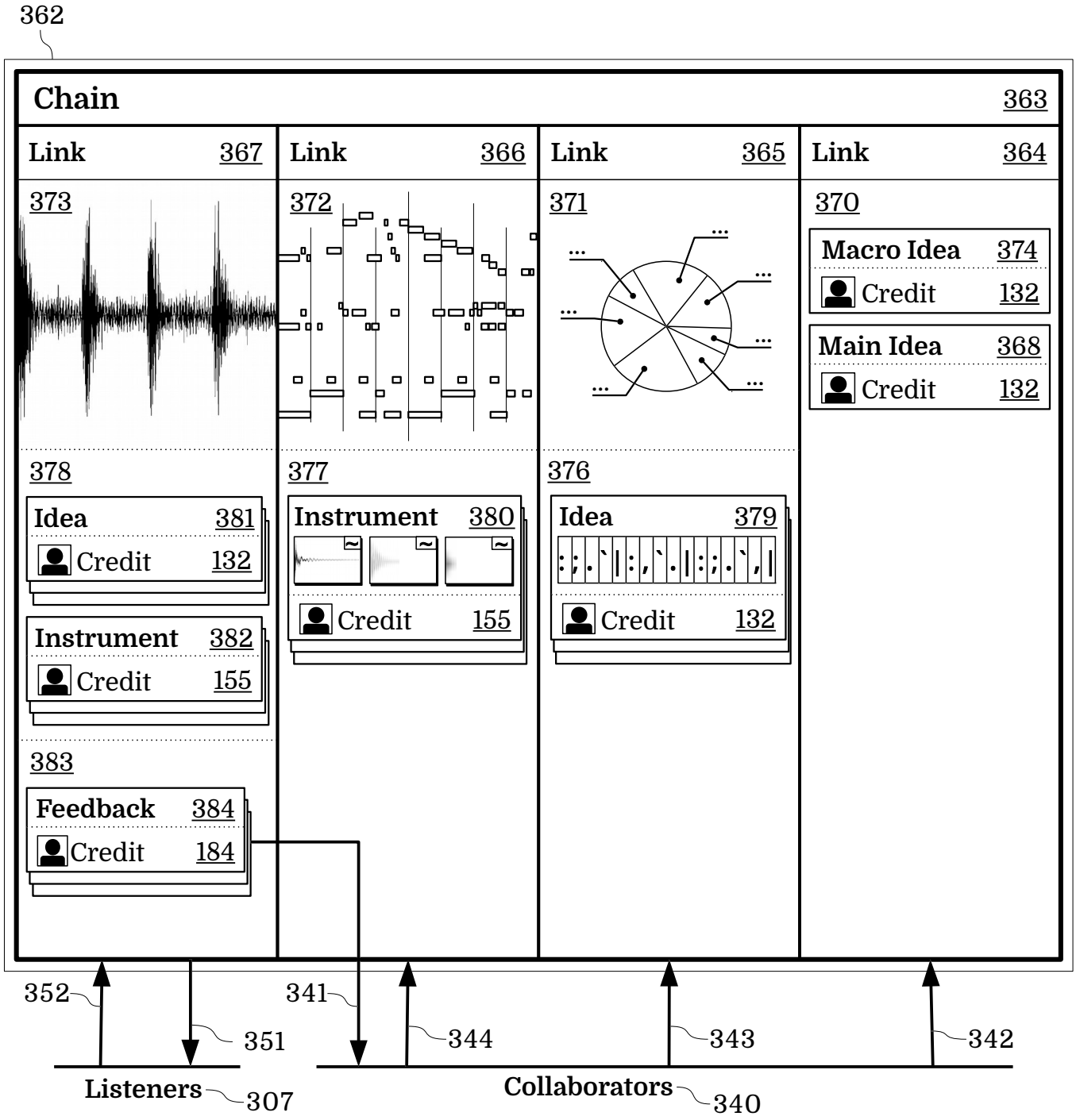

362
Chain
363
Link
367
Link
366
Link
365
Link
364
373
372
371
370
Macro Idea
374
Credit
132
Main Idea
368
Credit
132
378
377
376
Idea
381
Credit
132
Instrument
380
Credit
155
Idea
379
Credit
132
Instrument
382
Credit
155
383
Feedback
384
Credit
184
352
351
341
344
343
342
Listeners
307
Collaborators
340

Fig. 23

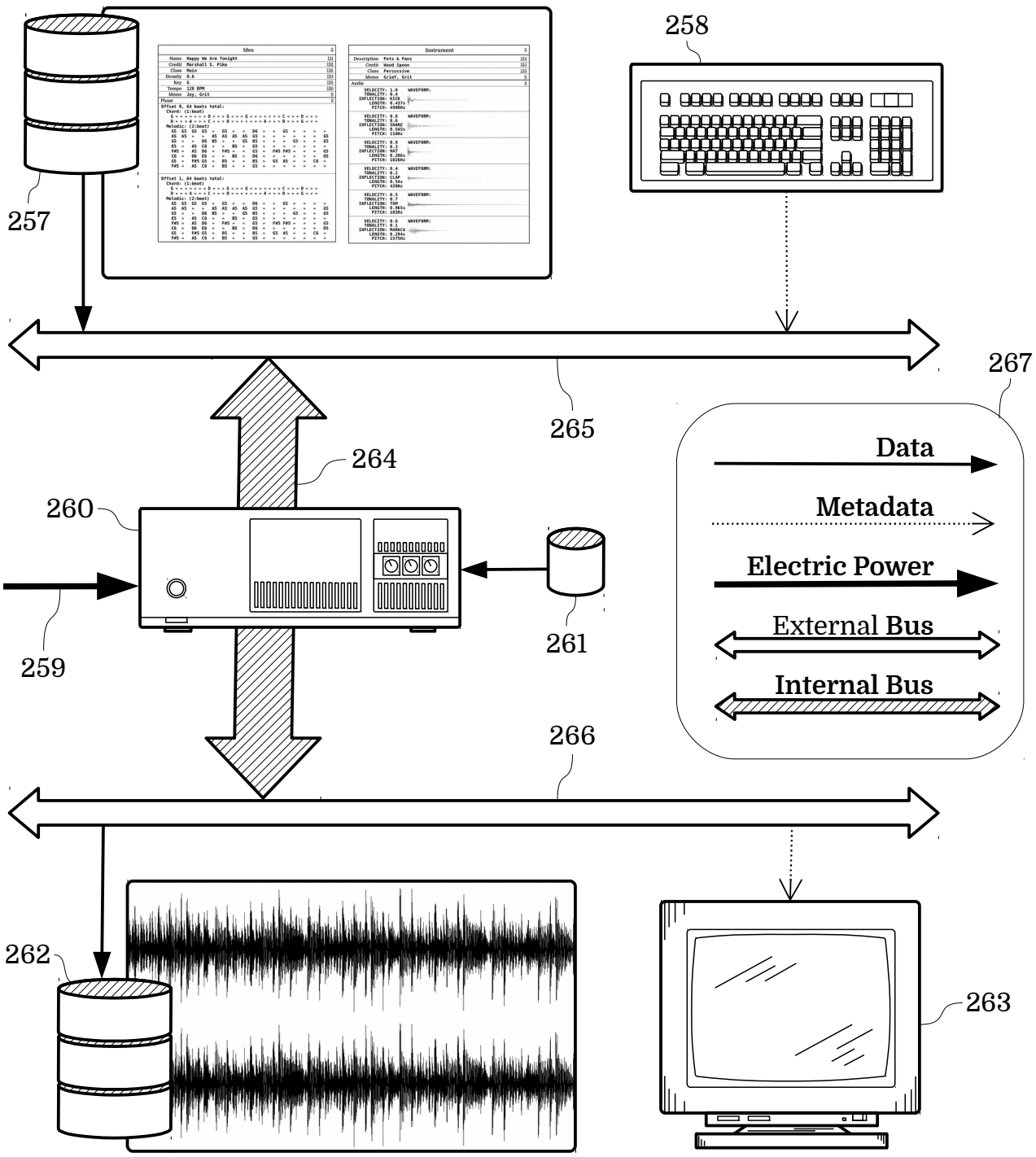

257
258
265
267
264
260
259
261
266
262
263
Data
Metadata
Electric Power
External Bus
Internal Bus

Fig. 24

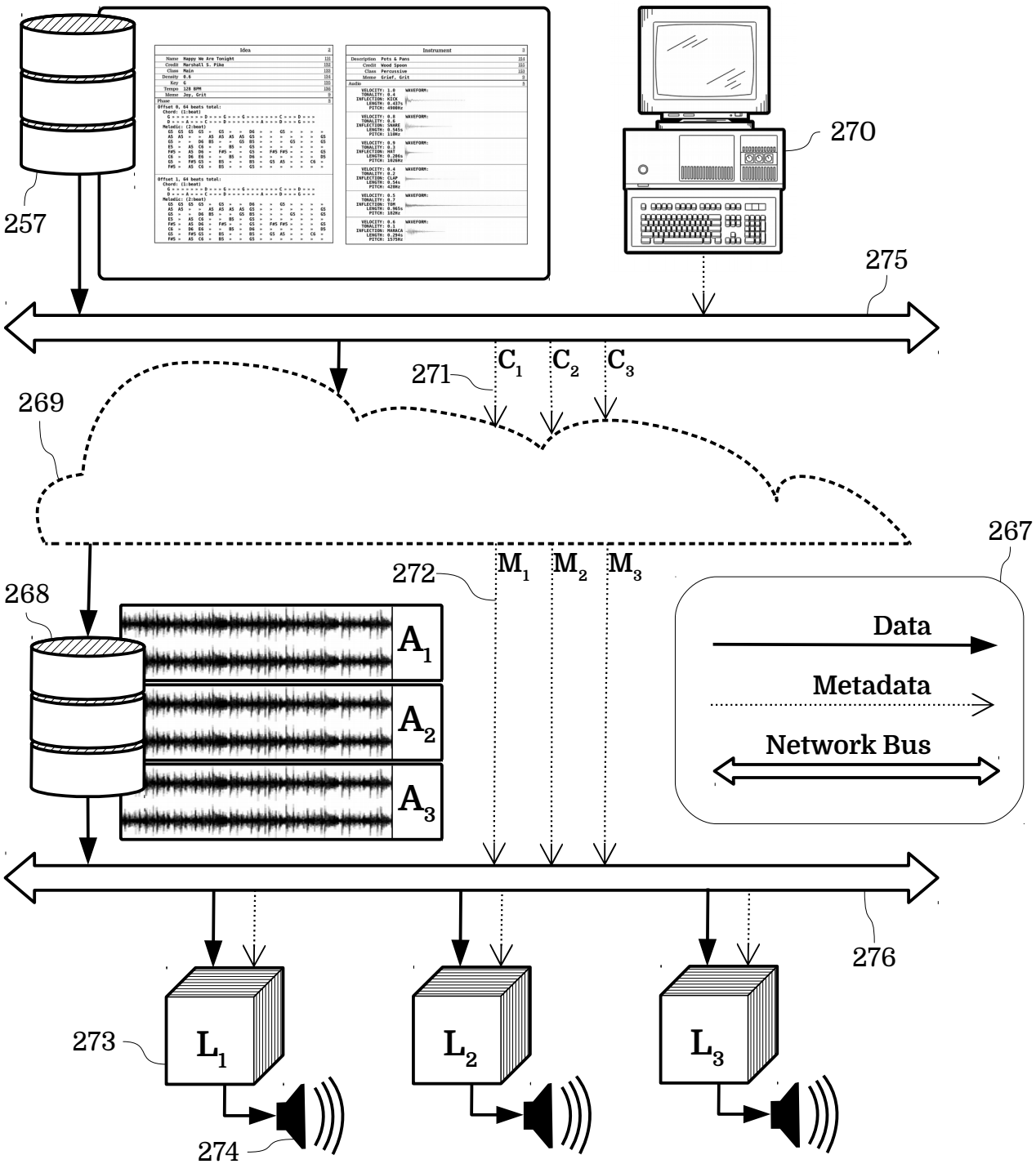

257
270
275
271
C1
C2
C3
269
267
272
M1
M2
M3
268
A1
A2
A3
Data
Metadata
Network Bus
276
273
L1
L2
L3
274

Fig. 25

200

Idea		2
Name	Getting Lonesome	131
Credit	Lonely Artist	132
Type	Macro	133
Phase		8

Offset 0:	Offset 1:
Memes: Joy Key: D# Density: 0.6 Tempo: 128 BPM	Memes: Grief Key: D minor Density: 0.4 Tempo: 110 BPM

Fig. 26

201

Idea		2
Name	Cheering Up	131
Credit	Cheerful Artist	132
Type	Macro	133
Phase		8

Offset 0:	Offset 1:	Offset 2:
Memes: Grief Key: G minor Density: 0.4 Tempo: 90 BPM	Memes: Joy Key: C Density: 0.6 Tempo: 120 BPM	Memes: Joy Key: F Density: 0.7 Tempo: 133 BPM

Fig. 27

202

Idea		2
Name	Cry Baby Blues	131
Credit	George W. Meyer	132
Type	Main	133
Density	0.4	134
Key	C minor	135
Tempo	128 BPM	136
Meme	Grief, Loss	9

Phase 8

Offset 0, 64 beats total: (Meme: Loss)

Chord: (1:beat) 231

C	»	»	»	Em9	»	»	»	C	»	»	»	F	»	»	»
C	»	»	»	Em	»	»	»	G	»	»	»	C	»	»	»
»	»	»	»	»	»	»	»	»	»	»	»	Em9	»	»	»
C	»	»	»	F	»	»	»	Cm	»	»	»				

Melodic: (2:beat)

E5	»	F5	»	F#5	»	G5	»	E6	»	C6	A5	»	G5	A5	»
C6	»	»	»	»	»	A5	»	G5	»	A5	»	G5	»	-	-
E5	»	F5	»	F#5	»	G5	»	E6	»	C6	A5	»	G	A	»
C6	»	»	»	»	»	A5	»	G5	»	A5	»	G5	»	»	C6
B5	C6	D6	G5	»	»	»	»	C6	D6	E6	G5	»	»	»	»
B5	C6	D6	G5	»	»	»	»	C6	D6	E6	G5	»	»	-	F5
E5	»	F5	»	F#5	»	G5	»	E6	»	C6	A5	»	G	A	»
C	»	»	»	»	»	»	»	»	»	-	-	-	-	-	-

Offset 1, 64 beats total: (Meme: Grief)

Chord: (1:beat)

F	»	Fm	»	Ab7	»	»	»	C	»	Cm	»	A	»	»	»	D	»	»	»	»	»	»	G	»
F	»	Fm	»	Ab7	»	»	»	C	»	Cm	»	A	»	»	»	C	»	»	»	E7	»	»	»	D
»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»
C	»	»	»	C	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»	»

Melodic: (2:beat, start -3 beats)

												C6	»	B5	»	Bb5	»							
A5	C6	A5	D6	»	C6	D6	C6	Eb6	»	»	»	D6	C6	»	-									
E5	G5	E5	A5	»	G5	A5	G5	B5	»	»	»	A	G	»	-									
E5	A5	E5	D5	»	»	-	-	E5	A5	E5	D5	»	»	-	A5									
G5	G#5	A5	-	G5	G#5	A5	-	B	D	B	G	»	-	-	-									
A5	C6	A5	D6	»	C6	D6	C6	Eb6	»	»	»	D6	C6	»	-									
E5	G5	E5	A5	»	G5	A5	G5	B5	»	»	»	A5	G5	»	F5									
E5	»	G5	A5	»	G5	A5	C6	E6	»	»	»	B5	A5	»	-									
D6	»	D6	»	A5	G5	»	»	C6	»	»	»	»	»	-	-									

Fig. 28

203

Idea		2
Name	Happy We Are Tonight	131
Credit	Marshall S. Pike	132
Type	Main	133
Density	0.6	134
Key	G	135
Tempo	128 BPM	136
Meme	Joy, Grit	9

Phase 8

Offset 0, 64 beats total: (Meme: Joy)

Chord: (1:beat)

G	»	»	»	»	»	»	»	D	»	»	»	G	»	»	»
D	»	»	»	A	»	»	»	C	»	»	»	D	»	»	»

Melodic: (2:beat) 236

G5	G5	G5	G5	»	G5	»	»	D6	»	»	G5	»	»	»	»
A5	A5	»	»	A5	A5	A5	A5	G5	»	»	»	»	»	»	G5
G5	»	»	D6	B5	»	»	G5	B5	»	»	»	G5	»	»	G5
E5	»	A5	C6	»	»	B5	»	G5	»	»	»	»	»	»	»
F#5	»	A5	D6	»	F#5	»	»	G5	»	F#5	F#5	»	»	»	G5
C6	»	D6	E6	»	»	B5	»	D6	»	»	»	»	»	»	D5
G5	»	F#5	G5	»	B5	»	»	B5	»	G5	A5	»	»	C6	»
F#5	»	A5	C6	»	B5	»	»	G5	»	»	»	»	»	»	»

Offset 1, 64 beats total: (Meme: Joy, Grit)

Chord: (1:beat)

G	»	»	»	»	»	»	»	D	»	»	»	G	»	»	»
D	»	»	»	A	»	»	»	C	»	»	»	D	»	»	»

Melodic: (2:beat)

G5	G5	G5	G5	»	G5	»	»	D6	»	»	G5	»	»	»	»
A5	A5	»	»	A5	A5	A5	A5	G5	»	»	»	»	»	»	G5
G5	»	»	D6	B5	»	»	G5	B5	»	»	»	G5	»	»	G5
E5	»	A5	C6	»	»	B5	»	G5	»	»	»	»	»	»	»
F#5	»	A5	D6	»	F#5	»	»	G5	»	F#5	F#5	»	»	»	G5
C6	»	D6	E6	»	»	B5	»	D6	»	»	»	»	»	»	D5
G5	»	F#5	G5	»	B5	»	»	B5	»	G5	A5	»	»	C6	»
F#5	»	A5	C6	»	B5	»	»	G5	»	»	»	»	»	»	»

Fig. 29

204

Idea			2
Name	Sorrowful Beat		131
Credit	Gloomy Artist		132
Type	Rhythm		133
Density	0.2		134
Key	C minor		135
Tempo	128 BPM		136
Meme	Grief		9
Phase			8
Offset 0: (16 beats total) Rhythm: (4:beat) KCK HI HI HI HI HI HI HI SNR HI HI HI HI HI HI HI (repeat)	Offset 1: Rhythm: (4:beat) SNR HI HI HI SNR HI HI HI SNR HI HI HI SNR HI HI HI (repeat)	Offset 2: (2 beats total) Rhythm: (4:beat) CRS - - - - - - - - - - - - - - - (repeat)	

Fig. 30

205

Idea			2
Name	New Jack Beat		131
Credit	Upbeat Artist		132
Type	Rhythm		133
Density	0.8		134
Key	C		135
Tempo	128 BPM		136
Meme	Joy, Grit		9
Phase			8
Offset 0: 226 (2 beats total) Rhythm: (4:beat) KCK HAT HAT HAT SNR KCK HAT KCK HI KCK HAT KCK SNR HAT HAT HAT (repeat)	Offset 1: (2 beats total) Rhythm: (4:beat) KCK MAR HAT AR KCK MAR HAT CLP TOM KCK MAR TOM KCK HAT CLP CLP (repeat)	Offset 2: (2 beats total) Rhythm: (4:beat) SNR TOM TOM SNR TOM TOM SNR TOM TOM SNR TOM TOM SNR TOM TOM SNR (repeat)	

Fig. 31

206

Idea		2
Name	**Grievances**	131
Credit	**Blue Artist**	132
Type	**Support**	133
Density	**0.3**	134
Key	**C minor**	135
Tempo	**128 BPM**	136
Meme	**Grief**	9
Phase		8

Offset 0:
(16 beats total)
Harmonic: (2:beat)
C5 - D5 D#5 - F5 » Bb5 C2 » D2 D#2 - - Bb2 »
C5 - D5 D#5 - F5 » Bb5 C2 » D2 D#2 - - Bb2 »

Fig. 32

219

Idea	2
Name	**Sense of Loss** 131
Credit	**Schermer Horn** 132
Type	**Support** 133
Density	**0.2** 134
Key	**C minor** 135
Tempo	**128 BPM** 136
Meme	**Loss** 9
Phase	8

```
Offset 0:
(16 beats total)
  Melodic: (2:beat)
    -   -   -   -   D#5 D5  C5  Bb4 -   -   -   -   D#5 D5  C5  Bb4
    -   -   -   Ab4 -   -   -   G4  -   -   -   F4  -   -   -   -
  Harmonic: (2:beat)
    C3  -   -   G2  »   »   »   »   C3  -   -   -   -   -   -   Bb4
    -   -   -   Ab4 -   -   -   G4  -   -   -   F4  -   -   -   -
```

Fig. 33

207

Idea		2
Name	**Joyous Vibrations**	131
Credit	**Orange Artist**	132
Type	**Support**	133
Density	**0.2**	134
Key	**C**	135
Tempo	**128 BPM**	136
Meme	**Joy**	9
Phase		8

Offset 0:
(16 beats total)
Harmonic: (4:beat)

-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C5	D5	E5	F5	G5	A5	B5	C6	»	»	»	»	»	»	»	»
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C6	B5	A5	G5	F5	E5	D5	C5	»	»	»	»	»	»	»	»

Fig. 34

220

Idea		2
Name	**Gritty Times**	131
Credit	**The Survivor**	132
Type	**Support**	133
Density	**0.4**	134
Key	**C**	135
Tempo	**128 BPM**	136
Meme	**Grit**	9
Phase		8

Offset 0:
(32 beats total)
Melodic: (2:beat)

C5	-	C5	C5	C5	-	C5	-	C5	-	C5	C5	C5	-	C5	-	
C5	-	C5	C5	C5	-	C5	-	G5	»	»	»	A4	»	B4	»	
C5	-	C5	C5	C5	-	C5	-	C5	-	C5	C5	C5	-	C5	-	
C5	-	C5	C5	C5	-	C5	-	G4	»	»	»	»	»	»	»	

Fig. 35

208

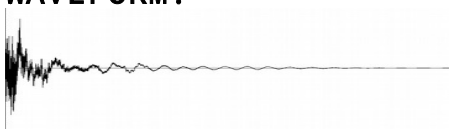
Instrument		3
Description	Pots & Pans	154
Credit	Wood Spoon	155
Type	Percussive	153
Meme	Grief, Grit	9
Audio		8
VELOCITY: 1.0 TONALITY: 0.4 INFLECTION: KICK LENGTH: 0.437s PITCH: 4900Hz	WAVEFORM: 	
VELOCITY: 0.8 TONALITY: 0.6 INFLECTION: SNARE LENGTH: 0.545s PITCH: 110Hz	WAVEFORM: 	
VELOCITY: 0.9 TONALITY: 0.3 INFLECTION: HAT LENGTH: 0.206s PITCH: 1026Hz	WAVEFORM: 	
VELOCITY: 0.4 TONALITY: 0.2 INFLECTION: CLAP LENGTH: 0.54s PITCH: 428Hz	WAVEFORM: 	
VELOCITY: 0.5 TONALITY: 0.7 INFLECTION: TOM LENGTH: 0.965s PITCH: 182Hz	WAVEFORM: 	
VELOCITY: 0.6 TONALITY: 0.1 INFLECTION: MARACA LENGTH: 0.294s PITCH: 1575Hz	WAVEFORM: 	

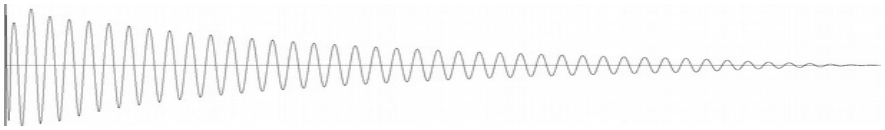
Fig. 36

209

Instrument		3
Description	TR-808 Rhythm Composer	154
Credit	Roland Corporation	155
Type	Percussive	153
Meme	Joy, Nostalgia	9
Audio		8

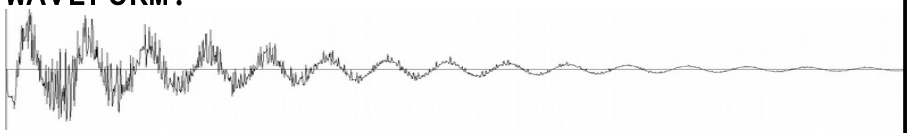
227

VELOCITY: 1.0
TONALITY: 1.0
INFLECTION: KICK
LENGTH: 0.865s
PITCH: 57Hz
WAVEFORM:



228

VELOCITY: 1.0
TONALITY: 0.7
INFLECTION: SNARE
LENGTH: 0.925s
PITCH: 178Hz
WAVEFORM:

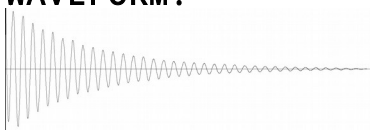


229

VELOCITY: 0.8
TONALITY: 0.2
INFLECTION: HAT
LENGTH: 0.053s
PITCH: 6500Hz
WAVEFORM:

VELOCITY: 0.7
TONALITY: 0.1
INFLECTION: CLAP
LENGTH: 0.56s
PITCH: 1102Hz
WAVEFORM:

VELOCITY: 0.8
TONALITY: 0.5
INFLECTION: TOM
LENGTH: 0.56s
PITCH: 104Hz
WAVEFORM:



VELOCITY: 0.8
TONALITY: 0.1
INFLECTION: MARACA
LENGTH: 0.26s
PITCH: 190Hz
WAVEFORM:

Fig. 37

210

Instrument		3
Description	Chorus of Wails	154
Credit	Sorry Bunch	155
Type	Harmonic	153
Meme	Grief	9
Audio		8
VELOCITY: 1.0 TONALITY: 0.8 LENGTH: 2.017s PITCH: 1400Hz TEMPO: 128bpm CHORDS: C minor	WAVEFORM: 	
VELOCITY: 0.8 TONALITY: 0.74 LENGTH: 1.925s PITCH: 410Hz TEMPO: 128bpm CHORDS: D	WAVEFORM: 	233
VELOCITY: 0.9 TONALITY: 0.3 LENGTH: 1.506s PITCH: 440Hz TEMPO: 128bpm CHORDS: A minor 7	WAVEFORM: 	
VELOCITY: 0.4 TONALITY: 0.2 LENGTH: 0.64s PITCH: 470Hz TEMPO: 128bpm CHORDS: F minor 9	WAVEFORM: 	234
VELOCITY: 0.5 TONALITY: 0.7 LENGTH: 1.165s PITCH: 182Hz TEMPO: 128bpm CHORDS: G minor	WAVEFORM: 	

Fig. 38

211

Instrument		3
Description	Rejoice From Mountain Tops	154
Credit	Angels	155
Type	Harmonic	153
Meme	Joy	9
Audio		8

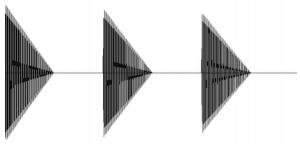
VELOCITY: 0.9 TONALITY: 0.8 LENGTH: 1.91s PITCH: 105Hz TEMPO: 120bpm CHORDS: C	WAVEFORM: 
VELOCITY: 0.7 TONALITY: 0.6 LENGTH: 1.88s PITCH: 300Hz TEMPO: 120bpm CHORDS: D	WAVEFORM: 
VELOCITY: 0.9 TONALITY: 0.89 LENGTH: 1.67s PITCH: 140Hz TEMPO: 120bpm CHORDS: F	WAVEFORM: 
VELOCITY: 0.8 TONALITY: 0.8 LENGTH: 1.98s PITCH: 1040Hz TEMPO: 120bpm CHORDS: G minor	WAVEFORM: 
VELOCITY: 0.7 TONALITY: 0.6 LENGTH: 2.01s PITCH: 682Hz TEMPO: 120bpm CHORDS: A	WAVEFORM: 

Fig. 39

212

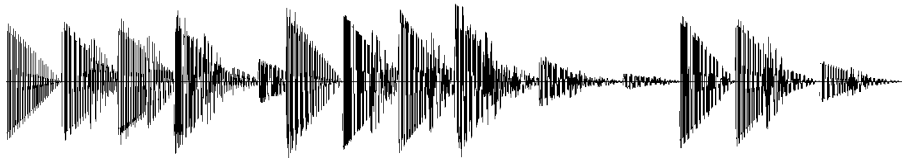
Instrument		3
Description	Blue Synth	154
Credit	Lars Feels	155
Type	Melodic	153
Meme	Grief	9
Audio		8

WAVEFORM:



VELOCITY: 1.0
TONALITY: 0.95
LENGTH: 1.500s
PITCH: 262Hz
TEMPO: 120bpm
EVENTS: C4 - B3 - A#3 -

WAVEFORM:



VELOCITY: 0.9
TONALITY: 0.92
LENGTH: 4.00s
PITCH: 222Hz
TEMPO: 120bpm
EVENTS: A3 C4 A3 D4 - C4 D4 C4
D#4 - - - D4 C4 - -

WAVEFORM:

VELOCITY: 0.9
TONALITY: 0.92
LENGTH: 0.50s
PITCH: 262Hz
TEMPO: 120bpm
EVENTS: C4

Fig. 40

214

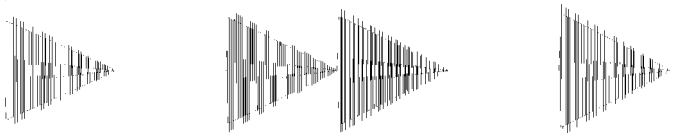
Instrument		3
Description	Ecstatic Machine	154
Credit	Jam Love	155
Type	Melodic	153
Meme	Joy	9
Audio		8
VELOCITY: 0.9 TONALITY: 0.94 LENGTH: 2.00s PITCH: 1160Hz TEMPO: 120bpm EVENTS: E6 - - A5 - - - -	WAVEFORM: 	240
VELOCITY: 0.9 TONALITY: 0.96 LENGTH: 2.00s PITCH: 185Hz TEMPO: 120bpm EVENTS: F#3 - A3 D4 - F#3 - -	WAVEFORM: 	
VELOCITY: 0.9 TONALITY: 0.92 LENGTH: 1.00s PITCH: 787Hz TEMPO: 120bpm EVENTS: C5 C5 C5 C5	WAVEFORM: 	238
VELOCITY: 0.9 TONALITY: 0.94 LENGTH: 0.50s PITCH: 1160Hz TEMPO: 120bpm EVENTS: D6	WAVEFORM: 	239

Fig. 41

		Chain 6				
		Link 221	Link 222	Link 223	Link 224	Link 225
172	Offset	0	1	2	3	4
174	Start	0 sec	30 sec	60 sec	96 sec	139 sec
175	Finish	30 sec	60 sec	96 sec	139 sec	169 sec
176	Total	64 beat	64 beat	64 beat	64 beat	64 beat
177	Density	0.6	0.6	0.4	0.4	0.6
178	Key	D#	D#	D minor	D minor	G major
179	Tempo	128 BPM	128 BPM	90 BPM	90 BPM	128 BPM
9	Memes	Joy	Joy, Grit	Loss	Grief	Joy
215	Macro Idea	Idea 200: Phase: 0 Tpose: 0	Idea 200: Phase: 0 Tpose: 0	Idea 201: Phase: 0 Tpose: -5	Idea 201: Phase: 0 Tpose: -5	Idea 201: Phase: 1 Tpose: -5
216	Main Idea	Idea 203: Phase: 0 Tpose: -4	Idea 203: Phase: 1 Tpose: -4	Idea 202: Phase: 0 Tpose: +2	Idea 202: Phase: 1 Tpose: +2	Idea 203: Phase: 0 Tpose: 0
217	Rhythm Idea	Idea 205: Phase: 0 Tpose: +3	Idea 205: Phase: 1 Tpose: +3	Idea 204: Phase: 0 Tpose: +2	Idea 204: Phase: 1 Tpose: +2	Idea 205: Phase: 0 Tpose: -5
218	Support Ideas	Idea 207: Phase: 0 Tpose: +3	Idea 207: Phase: 0 Tpose: +3 Idea 220: Phase: 0 Tpose: +3	Idea 219: Phase: 0 Tpose: +2	Idea 206: Phase: 0 Tpose: +2	Idea 207: Phase: 0 Tpose: -5

Fig. 42

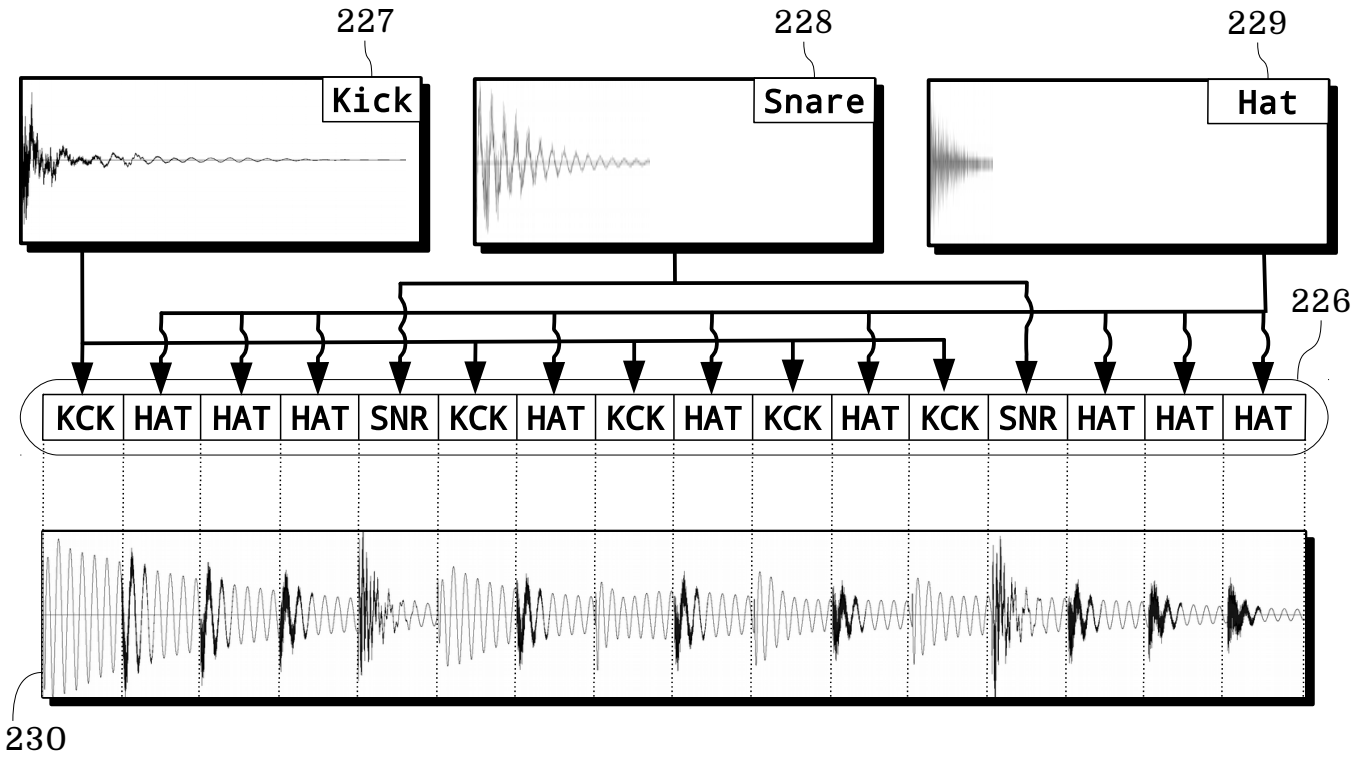

227
228
229
Kick
Snare
Hat
226
KCK
HAT
HAT
HAT
SNR
KCK
HAT
KCK
HAT
KCK
HAT
KCK
SNR
HAT
HAT
HAT
230

Fig. 43

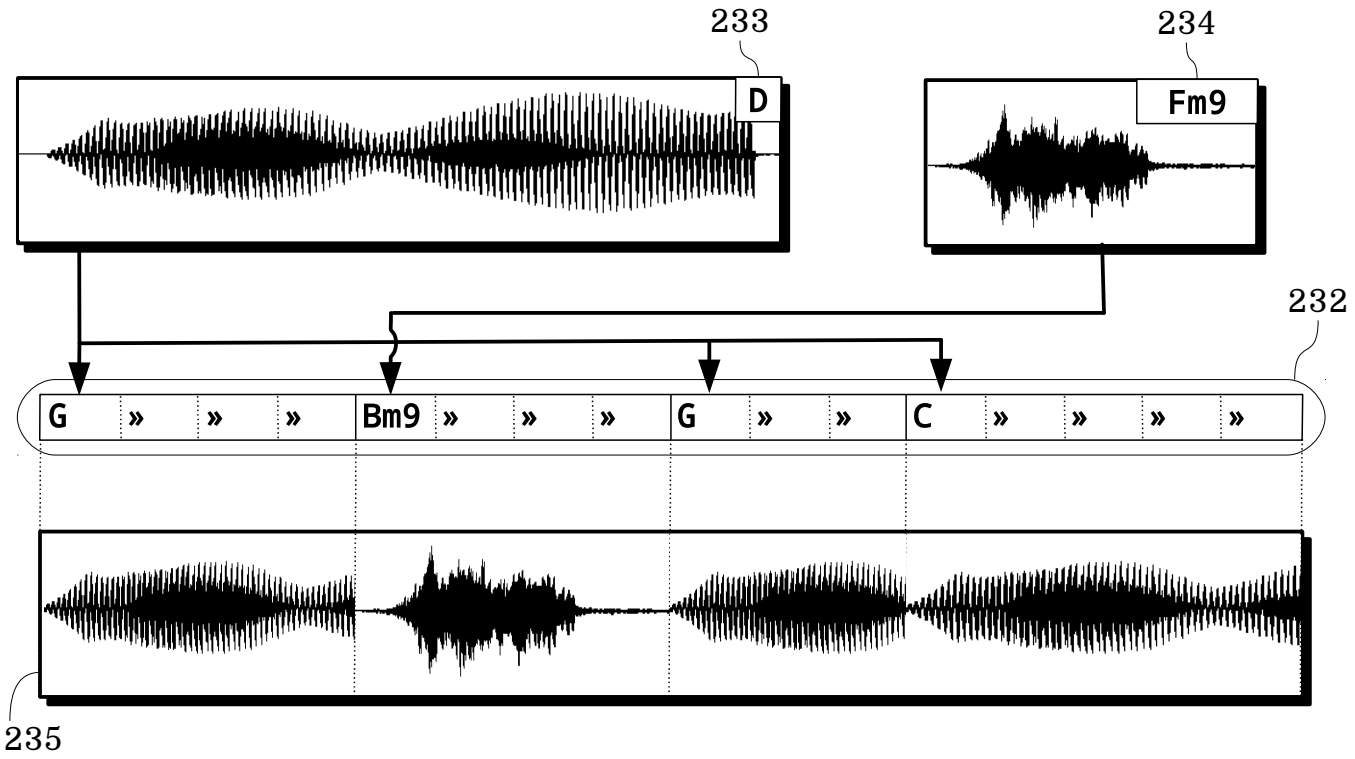


Fig. 44

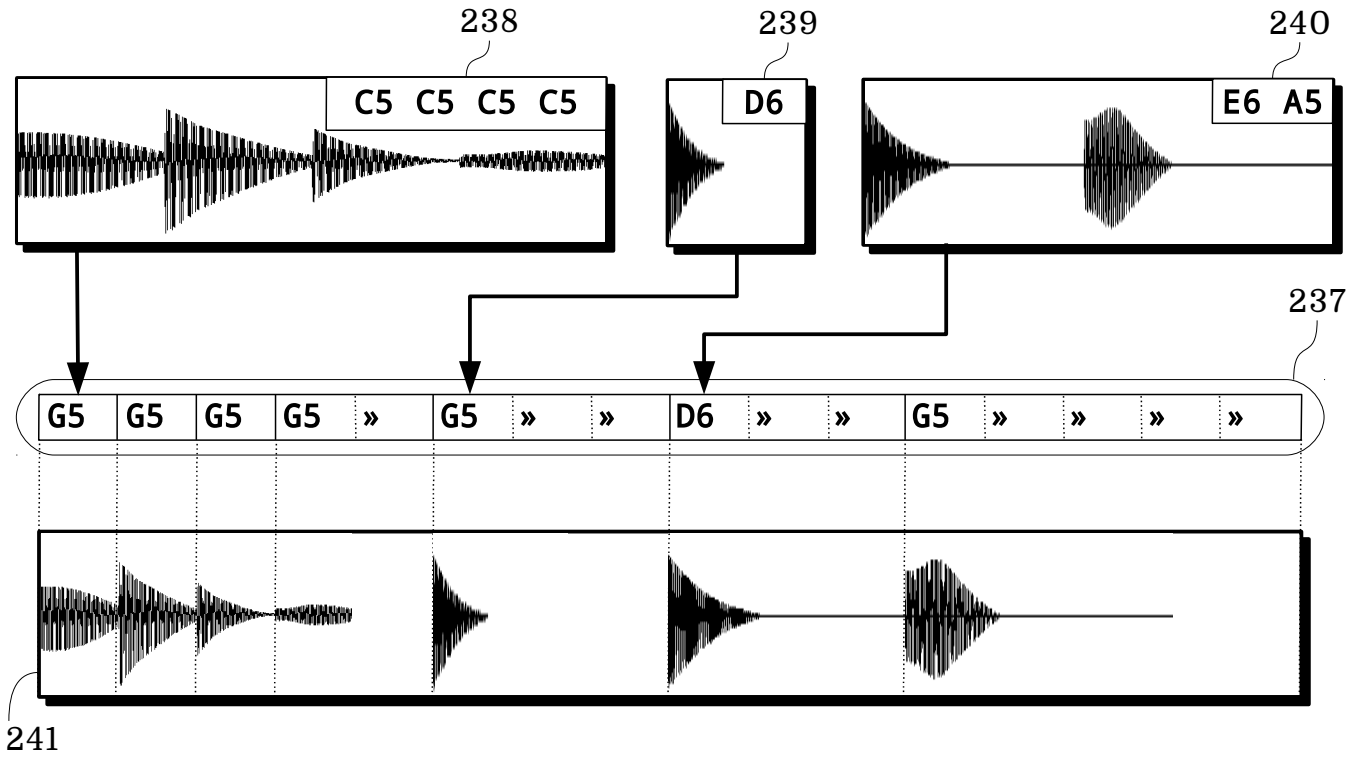


Fig. 45