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Inventor(s)	Budd, SR.; Michael L. et al.

Systems, Devices, and/or Methods for Managing Traffic

Abstract

Certain exemplary embodiments can provide a system, machine, device, and/or manufacture comprising a traffic separating median barrier comprising: a barrier body having a substantially uniform cross section along a longitudinally extending direction, said barrier body defining a body length extending along said longitudinally extending direction, a body width orthogonal to said body length, and a body height orthogonal to said body length and said body width, said barrier body terminating in a first barrier end region and a second barrier end region, said first barrier end region comprising a female interlocking structure attached to said barrier body, said second barrier end region comprising a male interlocking structure attached to said barrier body, said female interlocking structure adapted to interlock with said male interlocking structure.

Inventors: **Budd, SR.; Michael L. (Bridgewater, VA), Simmons, JR.; Roy D. (Dayton, VA)**

Applicant: **Conmat Group, Inc.** (Harrisonburg, VA)

Family ID: **42262246**

Assignee: **Conmat Group, Inc. (Harrisonburg, VA)**

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Background/Summary

BRIEF DESCRIPTION OF THE DRAWINGS

[0001] A wide variety of potential practical and useful embodiments will be more readily understood through the following detailed description of certain exemplary embodiments, with reference to the accompanying exemplary drawings in which:

[0002] FIG. **1**A is a left end view of an exemplary barrier, illustrating an exemplary female interlocking structure;

[0003] FIG. **1**B is a side view of the exemplary barrier shown in FIG. **1**A;

[0004] FIG. **1**C is a right end view of the exemplary barrier shown in FIG. **1**A, illustrating an exemplary male interlocking structure;

[0005] FIG. **2** is a side view of the exemplary male and female interlocking structures and an exemplary interconnecting structure between the exemplary male and female interlocking structures;

[0006] FIG. **3** is a plan view of the exemplary male and female interlocking structures and an exemplary interconnecting structure between the exemplary male and female interlocking structures;

[0007] FIG. **4** is a plan cross-sectional view taken at section A-A of FIG. **1**B and showing an exemplary male interlocking structure of one exemplary barrier interlocked with an exemplary female interlocking structure of an adjacent exemplary barrier;

[0008] FIGS. **5**A and **5**B show side and plan views, respectively, of an exemplary male interlocking structure;

[0009] FIGS. **6**A and **6**B show side and plan views, respectively, of an exemplary female interlocking structure;

[0010] FIG. **7** is a plan view of an exemplary group of connected exemplary barriers; and

[0011] FIG. **8** is a side view of an exemplary group of connected exemplary barriers.

Description

DETAILED DESCRIPTION

[0012] Median barriers, which typically are relatively heavy devices that are frequently utilized for separating lanes of traffic from other lanes of traffic, construction work, etc. The barriers typically must be sufficiently heavy such that, if accidentally contacted by a moving vehicle, they will prevent the moving vehicle from leaving its lane, thereby protecting construction workers, pedestrians, and/or other lanes of traffic on the other side of the median barrier.

[0013] Pre-cast reinforced concrete can be used to form median barriers. Yet to be most effective, there is a need to ensure that vehicles generally cannot pass through or substantially move a median barrier and thereby create a hazard to the adjacent lane of traffic, constructions workers, pedestrians, etc.

[0014] Median barriers can have certain resistance to movement caused by the weight of the barrier and the static coefficient of friction between the lower surface of the barrier and the roadway and/or other surface upon which the barrier is located. Because this coefficient of friction is generally

fixed, the resistance to lateral movement is generally proportional to the weight of the barrier. For the convenience of construction crews, temporary barriers are often constructed with a length on the order of 12 feet, although longer or shorter barriers can be provided if the need arises (if, for example, it were necessary to have barriers around a very sharp curve, shorter barriers might permit the outer edge of the curve to be lined with barriers without the barriers intruding on the roadway) Unfortunately, as a barrier becomes smaller, its weight typically becomes less and, thus, its resistance to lateral movement becomes less. This can create challenges when a need arises for both a resistance to impact-generated movement and a non-linear grouping of barriers.

[0015] One answer to the problem of barriers being shifted under vehicle impact is to involve the weight and mass of adjacent barriers such that several adjacent barriers must be moved in the event of a vehicle impact, thereby providing greater resistance to lateral movement of the struck barrier. Exemplary embodiments of such an approach are described here, where similar exemplary structures are similarly numbered among the various figures in the drawings.

[0016] FIG. **1**B is a side view of an exemplary embodiment of a precast concrete barrier **10**, showing longitudinally-extending top face **61**, longitudinally-extending bottom face **62**, end face **63**, and end face **64**. FIG. **1**A is a side view of an exemplary female interlocking structure **14** on one end of barrier **10**, and showing longitudinally-extending side faces **65** and **66**. FIG. **1**C is an end view of the other end of the barrier in FIG. **1**B showing an exemplary male interlocking structure **12** located thereon. Depicted in phantom lines are an exemplary connection structure for interconnecting the male interlocking structure **12** with the female interlocking structure **14** internal to barrier **10**.

[0017] Barrier **10** can be constructed of reinforced concrete having a minimum compressive strength at the age of approximately 28 days of approximately 4,000 psi. Reinforcement in barrier **10** can conform to ASTM A615, Grade 60. The standard length for an exemplary barrier can be approximately 12 feet with the male portion protruding from the end of the barrier by approximately 1-⅞ (1.875) inches. The width of the body of the exemplary barrier shown in FIGS. **1**A and **1**C can be approximately 24 inches and the height can be approximately 32 inches. The body can be cast directly and/or in multiple units. For example, if a length less than approximately 12 feet be desirable, such length can be cast directly, and if a section longer than approximately 12 feet be needed, it can be cast as one unit, or as two or more units.

[0018] The interrelationship of an exemplary male interlocking structure **12** and an exemplary female interlocking structure **14** with a respective exemplary barrier **10** is shown in FIG. **4**. As can be seen, either the male end of an elevated leftmost barrier or the female end of an elevated right-hand barrier can be lowered vertically so as to interengage the web **20** and flange **22** of male interlocking structure **12** with the slot **30** and tube **26** of female interlocking structure **14**. As shown, in certain exemplary embodiments, there can be a gap and/or separation of approximately 0 inches to approximately 4 inches, including all values (e.g., approximately 0.76, 1, 1.252, 1.5, 2, etc., inches) and subranges therebeween, between barriers when the barriers are pulled as far apart as possible while in the interconnected state. This gap can permit one barrier to be canted with respect to another so as to permit a curve in a line of barriers without disengaging the interlocking portions of the barriers. Furthermore, the barriers can continue to form a structural interconnection between adjacent barriers when forming a curve or other non-linear pattern along a roadway, median, etc. This spacing also can permit barriers to be interengaged and/or interlocked when there is a vertical displacement, i.e., the line of barriers begins to go up and/or over a hill and/or otherwise encounters a change in grade and/or elevation.

[0019] Male interlocking structure **12** and female interlocking structure **14** can be respectively interconnected internally to barrier **10**. FIGS. **2** and **3** show these interlocking structures. Each of reinforcing bars **40** and **42** can comprise a section of, for example, number **5** or number **6** rebar measuring approximately 11 foot 8 inches. Note that the number of reinforcing bars shown in the drawings is conceptual only, and the actual number implemented in a particular barrier can depend

on the design requirements of that barrier.
[0020] These interconnecting reinforcing bars **40** and/or **42** can be welded to anchor bars **24** and **28** that can be connected to male interlocking structure **12** and female interlocking structure **14**, respectively. Note that the number of anchor bars shown in the drawings is conceptual only, and the actual number implemented in a particular barrier can depend on the design requirements of that barrier. In certain exemplary embodiments, interconnecting rebar **40** and/or **42** merely can be wired to be substantially adjacent corresponding anchor bars **24** and/or **28** as shown in the phantom lines of FIGS. **1**A and **1**B. This can facilitate precise alignment of male interlocking structure **12** and/or female interlocking structure **14** while the concrete is poured and/or cured. The overlap in which interconnecting reinforcing bars **40** and/or **42** coextend with anchor rods **24** and/or **28** of male interlocking structure **12** and/or female interlocking structure **14** can be equal to approximately **40** diameters of the larger reinforcing bar, which can provide substantially the same structural strength as welding the bars together.
[0021] As shown in FIG. **1**B, edges and/or major surface intersections (e.g., top face to end face, bottom face to end face, side face to end face, etc.) **51**, **52**, **53**, and/or **54** can be sharp, perpendicular, notched, angled, beveled, chamfered, rounded, and/or arced. By notching, angling, beveling, chamfering, rounding, arcing, and/or otherwise causing edges and/or major surface intersections **51**, **52**, **53**, and/or **54** (e.g., by beveling (chamfering) and/or cutting back the intersections by approximately 0.75 inches) to transition from the longitudinally-extending major faces to the end faces of the barriers by other than perpendicular intersections, interconnected barriers **10** can have greater freedom to be positioned at an angle with respect to each other's longitudinal axis as measured in a substantially vertical plane without substantial compromise of the strength and/or crash-worthiness of barrier **10**.
[0022] FIG. **4** is a plan cross-sectional view taken at section A-A of FIG. **1**B. As shown edges and/or major face intersections (e.g., right side surface to end surface, left side surface to end surface, top face to end face, etc.) **56**, **57**, **58**, and/or **59** can be sharp, perpendicular, notched, angled, beveled, chamfered, rounded, and/or arced. By notching, angling, beveling, chamfering, rounding, arcing, and/or otherwise causing edges and/or major face intersections **56**, **57**, **58**, and/or **59** to transition from the side and/or longitudinally extending major surfaces to the end surfaces of the barriers by other than simple perpendicular intersections, interconnected barriers can have greater freedom to be positioned at an angle with respect to each other's longitudinal axis as measured in a substantially horizontal plane.
[0023] FIGS. **5**A and **5**B show the details of an exemplary embodiment of the male interlocking structure **12** comprising web **20** and flange **22**, respectively. In certain exemplary embodiments, web **20** can have the form of a substantially rectangular plate that can extend substantially vertically for approximately 6 inches to approximately 18 inches, including all values (e.g., approximately 7.5, 8, 10, 12, 13.75, 15, etc. inches) and subranges therebetween, and/or can extend substantially longitudinally from an end face of barrier **10** by approximately 2 inches to approximately 8 inches, including all values (e.g., approximately 2.5, 3, 3.75, 5.543, 6, 7.25, etc., inches) and subranges therebetween. Flange **22** can have the form of a substantially rectangular plate that can: be positioned substantially orthogonally to web **20**, extend along any portion of the substantially vertical length of web **20**, and/or have a width of approximately 1 inch to approximately 3 inches, including all values (e.g., approximately 1.364, 1.75, 2, 2.5, etc., inches) and subranges therebetween. In certain exemplary embodiments, web **20** can be welded to flange **22** to form a “T” shape (although the combination can be cast, forged, and/or otherwise machined in one substantially monolithic piece).
[0024] Welded to web **20** can be a number of anchoring bars **24** that can serve to aid in anchoring web **20** in the end of concrete barrier **10**. Reinforcing bars **24** can be, for example, number **6** A706 rebar. In the exemplary embodiment shown in FIGS. **5**A and **5**B, the rebar can measure from approximately 2 feet to approximately 5 feet in length, including all values (e.g., 2.5, 2.78, 3,

3.777, 4, etc., feet) and subranges therebetween, and/or can be welded to the web **20** where it is in contact therewith. Web **20** and/or flange **22** can measure approximately one-half inch thick and/or can be standard steel, e.g., A36 (FYE close 36 ksi), structural steel, and/or high strength structural steel, e.g., A500 (FYE close 39 ksi).

[0025] Referencing FIGS. **6**A and **6**B, female interlocking structure **14** can be a tube **26** which can have any desired cross-sectional shape (e.g., triangular, square, rhomboid, rectangular, hexagonal, round, etc.), can be constructed of structural steel, can measure, for example, approximately one-half inch thick and approximately 4 inches square, can extend for a predetermined portion of the height of the barrier, and/or can be positioned in a predetermined position with respect to the height of the barrier (e.g., substantially centered, offset by approximately 2 inches from center, raised approximately 10 inches from the bottom surface of the barrier, etc.). The longitudinal axis of tube **26** can be substantially orthogonal with the longitudinally extending direction of the barrier. Substantially parallel with the longitudinally extending direction of the barrier and/or affixed and/or welded to the sides of the substantially vertically oriented tube **26** can be sections of anchoring bars **28**, which can be approximately 2 feet in length. Anchoring bars **28** can serve to anchor tube **26** in the reinforced concrete of the median barrier. In the portion of tube **26** external to the concrete material of median barrier **10** can be a vertically extending slot **30** that can have a width greater than the thickness of web **20**, such as approximately 1 inch. The edges of tube **26** defined by slot **30** can be perpendicular, angled, beveled, chamfered, arced, rounded, etc.

[0026] In certain exemplary embodiments, flange **22** can be in the form of a steel structural tube having smaller outside longitudinal cross-sectional dimension(s) than the inside longitudinal cross-sectional dimension(s) of tube **26**. For example, if tube **26** has a circular longitudinal cross-section with an inner diameter of 4 inches, flange **22** can also have a circular longitudinal cross-section, but with an outer diameter of less than 4 inches, so that flange **22** is free to move longitudinally with respect to tube **26**. As another example, if tube **26** has a square longitudinal cross-section with an inner dimensions of 3 inches by 3 inches, flange **22** can also have a square longitudinal cross-section, but with outer dimensions of less than 3 inches, so that flange **22** is free to move longitudinally with respect to tube **26**. The intersection of web **20** with flange **22** would likely form a cross-sectional shape of other than a “T” shape in such embodiments. Nevertheless, because the width of slot **30** can be less than the dimension of flange **22** measured in the same direction, relative non-longitudinal movement between the flange and tube of two interlocked barriers would be substantially limited, effectively making the two barriers substantially inseparable in response to vehicular impact.

[0027] FIG. **7** is a plan view of an exemplary group of interconnected exemplary barriers **72**, **74**, and **76**, and shows that such barriers can form a curve in a substantially horizontal plane, that curve having, for example, a minimum radius of approximately 50 feet to infinity, including all values (e.g., 63.7, 85, 102.33, 125, 160, 200, 400, 800, etc.), and subranges therebetween, when measured to the innermost surface (or outermost surface if desired) of the barriers with respect to an axis of the curve. Thus, any adjacent pair of such barriers can form an angle with respect to each other's longitudinal axis, as measured in a substantially horizontal plane, of approximately 0 to approximately 15 degrees, which is equivalent to approximately 0 to approximately 16.7 percent, including all values (e.g., approximately 5, 6.1, 7.5, 8.04, 10, 12.5, etc., degrees, and/or approximately 5.6, 6.5274, 8.5, 9, 11.25, 14, etc., percent) and subranges (e.g., between 3.1 and 7.94 degrees, 5 degrees to 10 percent, at least 5 degrees, greater than 6 percent, etc.) therebetween.

[0028] FIG. **8** is a side view of an exemplary group of interconnected exemplary barriers **82**, **84**, and **86**, and shows that such barriers can accommodate a grade change (A) in a substantially vertical plane, that grade change having an angle measuring approximately 0 degrees to approximately 4 degrees. Thus, any adjacent pair of such barriers can form an angle with respect to each other's longitudinal axis, as measured in a substantially vertical plane, of approximately 0 to approximately 4 degrees, which is equivalent to approximately 0 to approximately 4.5 percent,

including all values and subranges therebetween, such as 2.75 degrees, 3.8 percent, greater than 3 degrees, etc.

[0029] For any substantially identical pair of interconnected barriers, the maximum possible degree (or percent) of the angle between the longitudinal axes of those barriers' bodies can be affected by any combination of: [0030] the primary materials, properties, and/or dimensions of barrier **10** and/or its components; [0031] how far web **20** extends from the end face of barrier **10** (i.e., the longitudinally-extending width of web **20**); [0032] the dimensions, thickness, and/or height of web **20** and/or flange **22**; [0033] the position of web **20** and/or flange **22** with respect to the major faces of barrier **10**; [0034] the dimensions, thickness, height, and/or position of tube **26**; [0035] the dimensions and/or position of the slot and/or space defined by tube **20** in which web **20** and/or flange **22** can move; [0036] the dimensions, position, and/or distance of male interlocking structure and/or female interlocking structure with respect to one or more longitudinally-extending major faces of barrier **10**; and/or [0037] the technique via which, one or more longitudinally-extending major faces transitions to one or both end faces of barrier **10** and/or the degree to which the otherwise perpendicular intersections of such faces are angled, beveled, notched, arced, rounded, trimmed, cutback, removed, and/or smoothed, etc.; [0038] etc.

[0039] In certain exemplary embodiments, interconnecting bars and/or anchor bars can be mechanically connected, e.g., through U-shaped bolts and/or extending through holes in the structural tube and/or web to aid in connecting the interlocking components to their respective ends of the pre-cast concrete median barrier. In certain exemplary embodiments, different numbers of interconnecting bars and/or anchor bars and/or different sizes of bars can be used to maintain a secure connection between the interlocking structures and their respective barriers.

[0040] In certain exemplary embodiments, different arrangements of webs and/or flanges can be used as long as the web can be inserted vertically into the slots of the female interlocking structure and the flange is wider than the slot so as to prevent disengagement in any direction other than a substantially vertical direction.

[0041] Median barriers constructed in accordance with certain exemplary embodiments disclosed herein have met or exceeded, in independent crash tests, the Federal Highway Administration standards for median barriers and in particular the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH) Test Level-3 (TL-3). These tests confirm that certain exemplary interlocked barriers did not separate and/or become disengaged even though impacted by a 2.205 ton pickup traveling at 63.3 miles per hour at a 25.66 incidence angle with the barrier.

[0042] Federal Highway Administration approval of a barrier in accordance with certain exemplary embodiments was granted on 17 Jul. 2009.

[0043] Thus, certain exemplary embodiments can provide a system, machine, device, and/or manufacture comprising, and/or a method for creating and/or using, a traffic separating median barrier comprising: [0044] a barrier body comprised of an elongated concrete material, said barrier body defined by a substantially uniform cross section along a longitudinally extending direction, said barrier body defining a body length extending along said longitudinally extending direction, a body width orthogonal to said body length, and a body height orthogonal to said body length and said body width, said barrier body terminating in a first barrier end region and a second barrier end region, said first barrier end region comprising a female interlocking structure attached to said barrier body, said second barrier end region comprising a male interlocking structure attached to said barrier body, said female interlocking structure adapted to interlock with said male interlocking structure; [0045] said female interlocking structure comprising a substantially open-ended tube having a longitudinal axis extending substantially parallel to said body height, said tube defining a slot having a slot width substantially parallel to said body width and having a slot height substantially parallel to said body height; and [0046] said male interlocking structure comprising a web having a web thickness extending substantially parallel to said slot width and measuring less

than said slot width, said web extending from said barrier end in a direction parallel to said body length and attached to a flange having a longitudinal axis extending substantially parallel to a longitudinal axis of said web and a major surface extending substantially perpendicular to a major surface of said web, said flange having a flange width greater than said slot width; [0047] a plurality of interconnecting rods, each of said interconnecting rods connected to each of said interlocking structures and extending longitudinally through said barrier body; [0048] a first plurality of interlock anchor rods, each of said first plurality of interlock anchor rods interconnecting with one of said interlocking structures and extending in said longitudinally extending direction a distance of at least 40 diameters of said interconnecting rods; and/or [0049] a first plurality of interlock anchor rods, each of said first plurality of interlock anchor rods extending in said longitudinally extending direction, interconnecting with one of said interlocking structures, and overlapping an adjacent one of said interconnecting rods by a distance of at least 40 diameters of said interconnecting rods; [0050] wherein: [0051] for any substantially identical pair of said barriers, a longitudinal axis of a barrier body of a first barrier from said pair is capable of being angled horizontally by at least 6 degrees, or vertically by at least 3 degrees, with respect to a longitudinal axis of a barrier body of a second adjacent barrier from said pair when a male interlocking structure of said first barrier is interlocked with a female interlocking structure of said second barrier by a web of said first barrier extending through a slot of said second barrier and a flange of said first barrier located within a metal tube of said second barrier; [0052] said concrete material is precast concrete; [0053] said concrete material is reinforced precast concrete; [0054] said tube is at least partially embedded in said concrete material; [0055] said web and said flange interconnect to form a T-shaped cross-section; [0056] said web height is substantially equivalent to said slot height; [0057] said male interlocking structure is comprised of metal and said female interlocking structure is comprised of metal; [0058] said male interlocking structure extends less than 18 inches in a direction parallel to said body height; [0059] said female interlocking structure extends less than 18 inches in a direction parallel to said body height; [0060] each of said barrier end regions comprises an end face that transitions to a longitudinal face, a top face, and a bottom face of said barrier via a plurality of chamfers; [0061] each of said barrier end regions comprises an end face that transitions to a longitudinal face, a top face, or a bottom face of said barrier via a corresponding chamfer; [0062] each of said barrier end regions comprises an end face that transitions to a longitudinal face, top face, or bottom face of said barrier via a corresponding substantially beveled edge; [0063] each of said barrier end regions comprises an end face that transitions to a longitudinal face, top face, or bottom face of said barrier via a corresponding substantially rounded edge; [0064] said first barrier is incapable of separation from said second barrier when interlocked therewith and subjected to a vehicle impact load sufficient to otherwise move said first barrier when not interlocked with said second barrier; [0065] said barrier is adapted to satisfy all current crash test requirements of the United States Federal Highway Administration (FHWA); and/or [0066] said barrier is adapted to satisfy all current crash test requirements of the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH) Test Level-3 (TL-3).

Definitions

[0067] When the following terms are used substantively herein, the accompanying definitions apply. These terms and definitions are presented without prejudice, and, consistent with the application, the right to redefine these terms via amendment during the prosecution of this application or any application claiming priority hereto is reserved. For the purpose of interpreting a claim of any patent that claims priority hereto, each definition in that patent functions as a clear and unambiguous disavowal of the subject matter outside of that definition. [0068] a—at least one. [0069] activity—an action, act, step, and/or process or portion thereof. [0070] adapted—suitable, fit, and/or capable of performing a specified function. [0071] adjacent—close to; lying near; next to; adjoining, and/or within a horizontal radius of approximately 0.5 to approximately 6 inches of,

including all values and subranges therebetween. [0072] all—every. [0073] anchor—(v) to hold, fix, and/or secure; (n) a device adapted to hold, fix, and/or secure another. [0074] and/or—either in conjunction with or in alternative to. [0075] angled—forming or set at an angle [0076] apparatus—an appliance or device for a particular purpose [0077] associate—to join, connect together, and/or relate. [0078] at least—not less than. [0079] attach—to fasten, secure, couple, and/or join. [0080] axis—a straight line about which a body or geometric object rotates or can be conceived to rotate and/or a center line to which parts of a structure or body can be referred. [0081] barrier—a structure that impedes and/or obstructs free movement. [0082] beveled edge—an edge of a structure that is not perpendicular (but instead often at 45 degrees) to the faces of the structure. [0083] body—a main and/or central part. [0084] bottom—a lowermost point. [0085] can—is capable of, in at least some embodiments. [0086] capable—having the requisite structural qualities for. [0087] cause—to bring about, provoke, precipitate, produce, elicit, be the reason for, result in, and/or effect. [0088] chamfer—(n) a beveled edge connecting two perpendicular surfaces; (v) to cut a bevel on and/or shape to a bevel. [0089] comprised—included in; a part of. [0090] comprising—including but not limited to. [0091] concrete—a hard, strong construction material comprising sand, conglomerate gravel, pebbles, broken stone, or slag, in a mortar or cement matrix. [0092] configure—to make suitable or fit for a specific use or situation. [0093] connect—to join or fasten together. [0094] connected—physically linked. [0095] containing—including but not limited to. [0096] convert—to transform, adapt, and/or change. [0097] corresponding—related, assoicated, accompanying, similar in purpose and/or position, conforming in every respect, and/or equivalent and/or agreeing in amount, quantity, magnitude, quality, and/or degree. [0098] coupleable—capable of being joined, connected, and/or linked together. [0099] coupling—linking in some fashion. [0100] crash test—a form of destructive testing involving vehicular impact that is usually performed to ensure compliance with safe design standards. [0101] create—to bring into being. [0102] cross-section—a section formed by a plane cutting through an object at a right angle to an axis. [0103] current—contemporaneous to the present time (i.e., as of the effective filing date of the relevant priority patent application). [0104] define—to establish the outline, form, and/or structure of. [0105] degree—a measure of arcs and plane angles and representing 1/360 of a full rotation. [0106] device—a machine, manufacture, and/or collection thereof. [0107] diameter—a thickness of an elliptical object. [0108] direction—a spatial relation between something and a course along which it points and/or moves; a distance independent relationship between two points in space that specifies the position of either with respect to the other; and/or a relationship by which the alignment and/or orientation of any position with respect to any other position is established. [0109] distance—a measure of physical and/or logical separation. [0110] each—every one of a group considered individually. [0111] edge—an often sharp intersection of two, often substantially planar, surfaces. [0112] elongated—drawn out, made spatially longer, and/or having more length than width. [0113] embed—to implant, fix, and/or set securely and/or deeply. [0114] end—an extremity and its vicinity of something that has length; a terminus. [0115] end region—a portion in the vicinity of an terminus. [0116] equivalent—the same as, equal to. [0117] extend—to reach spatially outward, stretch, cover, and/or span. [0118] extending—existing, located, placed, and/or stretched lengthwise. [0119] face—a significant and/or prominent surface of an object. [0120] female—a structure adapted to receive an corresponding extending structure. [0121] flange—a protruding rim, edge, rib, collar, tube, etc. [0122] form—to create. [0123] from—used to indicate a source. [0124] further—in addition. [0125] generate—to create, produce, give rise to, and/or bring into existence. [0126] greater—larger and/or more than. [0127] having—including but not limited to. [0128] height—a measurement of the extent of something along an, often substantially vertical, dimension. [0129] horizontal—parallel to and/or in the plane of the horizon. [0130] identical—alike and/or very similar. [0131] impact—to have an effect and/or influence on. [0132] incapable—not capable. [0133] inch—a unit of length equal to one twelfth of a foot. [0134] including—including but not limited to. [0135] initialize—to prepare something for use and/or some future

event. [0136] install—to connect or set in position and prepare for use. [0137] interconnect—to connect to one another. [0138] interlock—to unite or join closely so as to substantially restrict and/or prevent relative movement therebetween in at least one direction. [0139] length—a longest dimension of something and/or the measurement of the extent of something along its greatest dimension. [0140] less than—having a measurably smaller magnitude and/or degree as compared to something else. [0141] load—a substantial force. [0142] located—situated in a particular spot and/or position. [0143] longitudinal—of and/or relating to a length; placed and/or running lengthwise. [0144] longitudinal axis—a straight line defined parallel to an object's length and passing through a centroid of the object. [0145] major—relatively great in size or extent. [0146] male—a structure adapted to extend and to be received by a corresponding female structure. [0147] material—a substance and/or composition. [0148] may—is allowed and/or permitted to, in at least some embodiments. [0149] measure—(n) a quantity ascertained by comparison with a standard. (v) to physically sense, and/or determine a value and/or quantity of something relative to a standard. [0150] metal—any of a category of electropositive elements that usually have a shiny surface, are generally good conductors of heat and electricity, and can be melted or fused, hammered into thin sheets, or drawn into wires. [0151] method—one or more acts that are performed upon subject matter to be transformed to a different state or thing and/or are tied to a particular apparatus, said one or more acts not a fundamental principal and not pre-empting all uses of a fundamental principal. [0152] move—to change a position and/or place. [0153] not—a negation of something. [0154] open—not closed. [0155] orthogonal—perpendicular. [0156] overlap—to extend over and cover a part of. [0157] pair—a quantity of two of something. [0158] parallel—of, relating to, or designating lines, curves, planes, and/or or surfaces everywhere equidistant and/or an arrangement of components in an electrical circuit that splits an electrical current into two or more paths. [0159] partially—to a degree, but not necessarily totally. [0160] perpendicular—intersecting at and/or forming a substantially right angle. [0161] plurality—the state of being plural and/or more than one. [0162] precast—molded and/or cast at a prior time. [0163] predetermined—established in advance. [0164] project—to calculate, estimate, or predict. [0165] provide—to furnish, supply, give, and/or make available. [0166] receive—to get, take, acquire, and/or obtain. [0167] recommend—to suggest, praise, commend, and/or endorse. [0168] rectangular—defined by four substantially right angles. [0169] reinforce—to give added strength and/or support. [0170] request—to express a desire for and/or ask for. [0171] requirement—a documented necessity, mandatory specification, and/or prerequisite condition. [0172] rod—an elongated structure having a cross-section taken perpendicular to its longitudinal axis that is substantially elliptical and/or circular shaped. [0173] rounded—having a surface that is curved, arced, and/or not flat. [0174] satisfy—to fulfill, carry out, effect, and/or complete. [0175] select—to make a choice or selection from alternatives. [0176] separate—(n) distinct; (v) to disunite, space, set, or keep apart and/or to be positioned intermediate to. [0177] separation—removal, disengagment, and/or substantial displacement. [0178] set—a related plurality. [0179] slot—a narrow opening and/or aperture; and/or an opening having a longer length than a width of the opening. [0180] structure—a device. [0181] substantially—to a considerable, large, and/or great, but not necessarily whole and/or entire, extent and/or degree. [0182] sufficient—to a degree necessary to achieve a predetermined result. [0183] support—to bear the weight of, especially from below. [0184] surface—the outer boundary of an object and/or a material layer constituting and/or resembling such a boundary. [0185] system—a collection of mechanisms, devices, machines, articles of manufacture, processes, data, and/or instructions, the collection designed to perform one or more specific functions. [0186] terminate—to end. [0187] thickness—a dimension through an object. [0188] through—in one side and out the opposite or another side of, across, among, and/or between. [0189] top—an uppermost point. [0190] traffic—a flow of vehicles and/or pedestrians. [0191] traffic separating median—a strip and/or space that divides, segregates, and/or sets apart opposing lanes of vehicles and/or pedestrians. [0192] transform—to change in measurable: form, appearance, nature, and/or

character. [0193] transition—to pass, change, convert, and/or transform from one place and/or state to another. [0194] T-shaped—shaped to resemble the upper case letter T. [0195] tube—an elongate member having a longitudinal axis and defining a longitudinal cross-section resembling any substantially closed shape such as, for example, a circle, a non-circle such as an oval (which generally can include a shape that is substantially in the form of an obround, ellipse, limaçon, cardioid, cartesian oval, and/or Cassini oval, etc), and/or a polygon such as a triangle, rectangle, square, parallelogram, rhomboid, pentagon, hexagon, the shape of the letter "D", the shape of the letter "P", etc. Thus, a right circular cylinder is one form of a tube, an elliptic cylinder is another form of a tube having an elliptical longitudinal cross-section, and a generalized cylinder is yet another form of a tube. [0196] uniform—non-varying. [0197] vehicle—any type of land surface mobile transport, such as a car, motorcycle, truck, trailer, bus, tram, scooter, bicycle, ATV, golf cart, unmanned vehicle, robot, taxiing airplane, etc. [0198] vertical—substantially perpendicular to horizontal. [0199] via—by way of and/or utilizing. [0200] web—a substantially rectangular plate. [0201] when—at a time. [0202] wherein—in regard to which; and; and/or in addition to. [0203] width—a measurement of the extent of something along an, often substantially horizontal, dimension. [0204] with respect to—in relation to. [0205] within—inside.

Note

[0206] Various substantially and specifically practical and useful exemplary embodiments of the claimed subject matter, are described herein, textually and/or graphically, including the best mode, if any, known to the inventors for carrying out the claimed subject matter. Variations (e.g., modifications and/or enhancements) of one or more embodiments described herein might become apparent to those of ordinary skill in the art upon reading this application. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the claimed subject matter to be practiced other than as specifically described herein. Accordingly, as permitted by law, the claimed subject matter includes and covers all equivalents of the claimed subject matter and all improvements to the claimed subject matter. Moreover, every combination of the above described elements, activities, and all possible variations thereof are encompassed by the claimed subject matter unless otherwise clearly indicated herein, clearly and specifically disclaimed, or otherwise clearly contradicted by context.

[0207] The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate one or more embodiments and does not pose a limitation on the scope of any claimed subject matter unless otherwise stated. No language in the specification should be construed as indicating any non-claimed subject matter as essential to the practice of the claimed subject matter.

[0208] Thus, regardless of the content of any portion (e.g., title, field, background, summary, description, abstract, drawing figure, etc.) of this application, unless clearly specified to the contrary, such as via explicit definition, assertion, or argument, or clearly contradicted by context, with respect to any claim, whether of this application and/or any claim of any application claiming priority hereto, and whether originally presented or otherwise: [0209] there is no requirement for the inclusion of any particular described or illustrated characteristic, function, activity, or element, any particular sequence of activities, or any particular interrelationship of elements; [0210] no characteristic, function, activity, or element is "essential"; [0211] any elements can be integrated, segregated, and/or duplicated; [0212] any activity can be repeated, any activity can be performed by multiple entities, and/or any activity can be performed in multiple jurisdictions; and [0213] any activity or element can be specifically excluded, the sequence of activities can vary, and/or the interrelationship of elements can vary.

[0214] The use of the terms "a", "an", "said", "the", and/or similar referents in the context of describing various embodiments (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be

construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted.
[0215] Moreover, when any number or range is described herein, unless clearly stated otherwise, that number or range is approximate. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value and each separate subrange defined by such separate values is incorporated into the specification as if it were individually recited herein. For example, if a range of 1 to 10 is described, that range includes all values therebetween, such as for example, 1.1, 2.5, 3.335, 5, 6.179, 8.9999, etc., and includes all subranges therebetween, such as for example, 1 to 3.65, 2.8 to 8.14, 1.93 to 9, etc.
[0216] When any claim element is followed by a drawing element number, that drawing element number is exemplary and non-limiting on claim scope. No claim of this application is intended to invoke paragraph six of 35 USC 112 unless the precise phrase “means for” is followed by a gerund.
[0217] Any information in any material (e.g., a United States patent, United States patent application, book, article, etc.) that has been incorporated by reference herein, is only incorporated by reference to the extent that no conflict exists between such information and the other statements and drawings set forth herein. In the event of such conflict, including a conflict that would render invalid any claim herein or seeking priority hereto, then any such conflicting information in such material is specifically not incorporated by reference herein.
[0218] Accordingly, every portion (e.g., title, field, background, summary, description, abstract, drawing figure, etc.) of this application, other than the claims themselves, is to be regarded as illustrative in nature, and not as restrictive, and the scope of subject matter protected by any patent that issues based on this application is defined only by the claims of that patent.

Claims

1. A system comprising a plurality of median barriers.
2. The system of claim 1, wherein the plurality of median barriers are loosely inter-attached.
3. The system of claim 1, wherein the plurality of median barriers are.
4. A method for installing a plurality of median barriers, comprising: substantially vertically sliding a male key of a first barrier into a female receptacle of a second barrier.
5. A system comprising a plurality of substantially solid, elongated, steel bar reinforced, precast, concrete, vehicular traffic-separating barriers of the type that are configured to, when physically interconnected, rely solely on substantially horizontally-oriented friction forces to resist lateral movement of each barrier from the plurality of barriers with respect to a barrier-supporting surface, the friction forces arising between the barrier-supporting surface and a bottom surface of each barrier from the plurality of barriers, each barrier from the plurality of barriers comprising: a barrier body comprised of an substantially solid, elongated, steel bar reinforced, precast, concrete material, said barrier body defining a body length of approximately 12 feet as measured along a longitudinally extending direction, a body width defined orthogonal to said body length, and a body height defined orthogonal to said body length and said body width, said barrier body terminating in a first barrier end region and a second barrier end region, said first barrier end region comprising a steel female interlocking structure attached to said barrier body, said second barrier end region comprising a steel male interlocking structure attached to said barrier body by a plurality of reinforcing bars having a length from approximately 2 feet to approximately 2.5 feet; said female interlocking structure comprising a substantially open-ended tube having a longitudinal axis extending substantially parallel to said body height, said tube defining a slot having a slot width substantially parallel to said body width and having a slot height substantially parallel to said body height; said male interlocking structure comprising a web having a web thickness extending substantially parallel to said slot width and measuring less than said slot width, said web extending

from said second barrier end region in a direction substantially parallel to said body length and attached to a flange having a longitudinal axis extending substantially parallel to a longitudinal axis of said web and a major surface extending substantially perpendicular to a major surface of said web, said flange having a flange width greater than said slot width; a plurality of interconnecting rods, each of said interconnecting rods connected to each of said interlocking structures and extending longitudinally through said barrier body; and a first plurality of interlock anchor rods, each of said first plurality of interlock anchor rods interconnecting with one of said interlocking structures and extending in said longitudinally extending direction a distance of at least 40 diameters of said interconnecting rods; wherein: each of said first plurality of interlock anchor rods overlapping an adjacent one of said interlock anchor rods by a distance of at least 40 diameters of said interlock anchor rods; said precast, steel bar reinforced, concrete material has a minimum compressive strength of approximately 4,000 psi; each of said first barrier end region and said second barrier end region defines a corresponding end face that transitions to a top face of said barrier body via a corresponding chamfered intersection; each end face of said barrier body transitions to a longitudinally extending right face of said barrier body via a corresponding chamfered intersection; each end face of said barrier body transitions to a longitudinally extending left face of said barrier body via a corresponding chamfered intersection; each end face of said barrier body transitions to the bottom surface of said barrier body via a corresponding chamfered intersection; said web and said flange interconnect to form a device having a T-shaped longitudinal cross-section; a length of said male interlocking structure, measured parallel to said body height, is less than 50 percent of said body height; in an operative arrangement, a top of said female interlocking structure is positioned below a top of said barrier body; in an operative arrangement, a bottom of said female interlocking structure is positioned approximately 10 inches above a bottom of said barrier body; for any substantially identical and adjacent pair of barriers from the plurality of barriers: a longitudinal axis of a barrier body of a first barrier from said pair is configured to be angled vertically by at least 3 degrees to approximately 4 degrees with respect to a longitudinal axis of the barrier body of a second adjacent barrier from said pair when the male interlocking structure of said first barrier is interlocked with the female interlocking structure of said second barrier by the web of said first barrier extending through the slot of said second barrier and the flange of said first barrier is located within the tube of said second barrier; when said male interlocking structure of said first barrier is not interlocked with said female interlocking structure of said second barrier, said male interlocking structure operatively configured to resist inter-engaging with said female interlocking structure of said second barrier when subjected to substantial relative movement between said first barrier and said second barrier in any direction other than a substantially vertical direction; when said male interlocking structure of said first barrier is interlocked with said female interlocking structure of said second barrier, said male interlocking structure operatively configured to resist disengaging from said female interlocking structure of said second barrier when subjected to substantial relative movement between said first barrier and said second barrier in any direction other than a substantially vertical direction; in an operable arrangement, said flange of said male interlocking structure of said first barrier is configured to enter and exit said tube of said female interlocking structure of said second barrier only via a substantially vertical relative motion between said male interlocking structure of said first barrier and said female interlocking structure of said second barrier; and when said substantially identical pair of said barriers are operatively interlocked, facing end faces of said barriers are configured to be separated by between approximately 1.5 inches and approximately 2 inches when the pair of said barriers are pulled apart from each other as far as operably possible; and in an operative arrangement, said plurality of barriers is configured to form a curve in a substantially horizontal plane, that curve having, a minimum radius of approximately 50 feet to approximately 85 feet.

6. A traffic separating median barrier according to claim 5, wherein: said tube is at least partially

embedded in said concrete material.

7. A traffic separating median barrier according to claim 5, wherein: said web height is substantially equivalent to said slot height.

8. A traffic separating median barrier according to claim 5, wherein: said male interlocking structure extends less than 18 inches in a direction parallel to said body height.

9. A traffic separating median barrier according to claim 5, wherein: said female interlocking structure extends less than 18 inches in a direction parallel to said body height.

10. A traffic separating median barrier according to claim 5, wherein: said male interlocking structure of said first barrier is operatively configured to non-destructively inter-engage with, and non-destructively disengage from, said female interlocking structure of said second barrier only via a substantially vertical relative movement between said first barrier and said second barrier.

11. A traffic separating median barrier according to claim 5, wherein: said length of said male interlocking structure, measured parallel to said body height, is greater than 20 percent of said body height.

12. A traffic separating median barrier according to claim 5, wherein: a length of said female interlocking structure, measured parallel to said body height, is less than said body height.

13. A traffic separating median barrier according to claim 5, wherein: said tube defines a first pair of opposing side walls and a second pair of opposing side walls, each of said first pair of side walls defining a corresponding substantially planar major outer surface oriented substantially parallel to said body width and substantially perpendicular to said body length, said slot defined through one sidewall from said first pair of sidewalls.