No. 741,652. PATENTED OCT. 20, 1903.

P. P. I. FYFE.

STATION INDICATOR.

APPLICATION FILED JAN. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

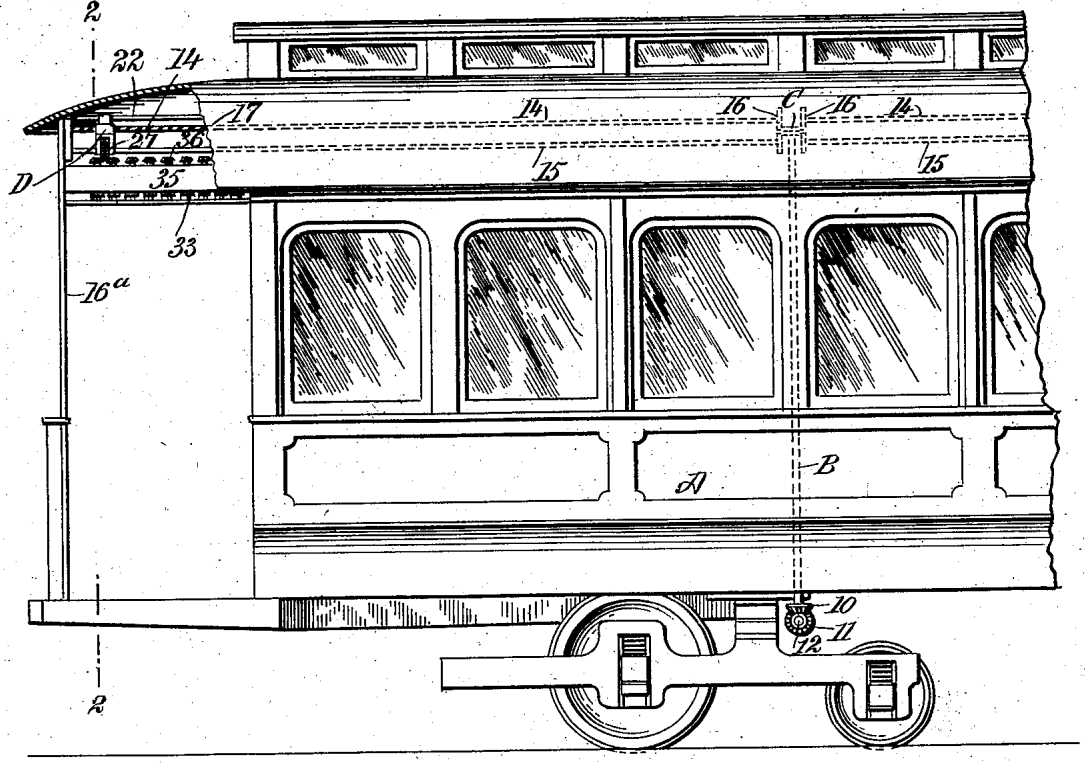

Fig 1

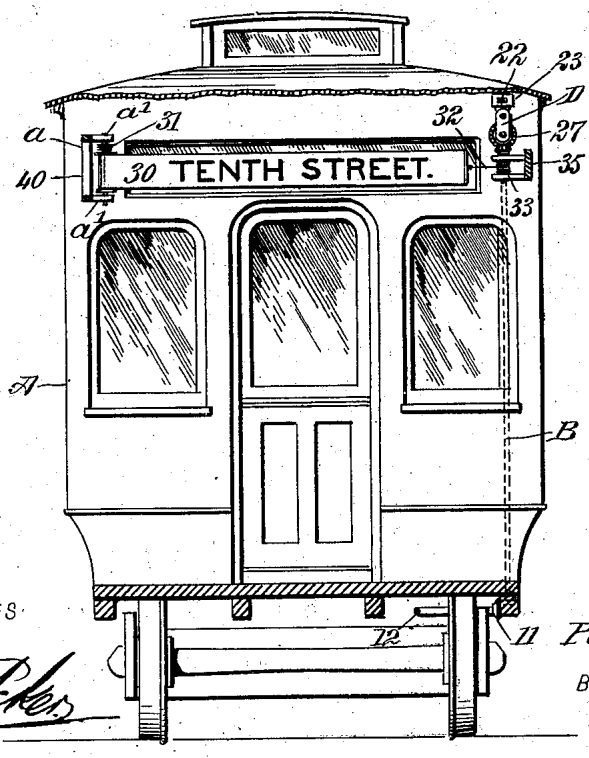

Fig 2

WITNESSES

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NO MODEL. 2 SHEETS—SHEET 2.

Fig 3

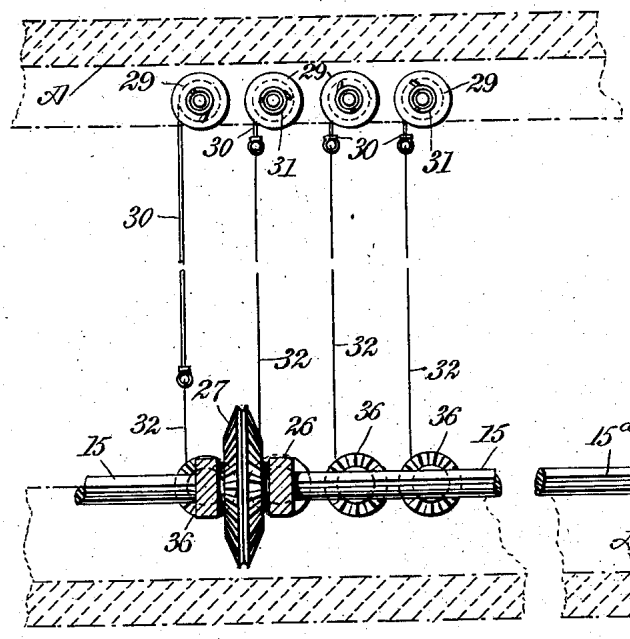
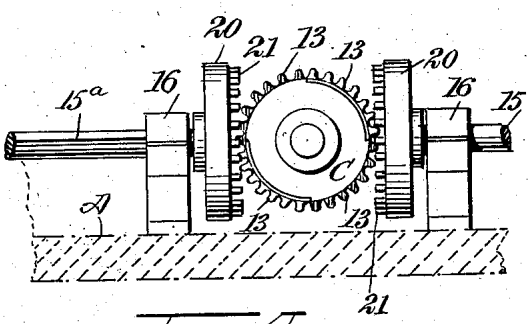


Fig 4



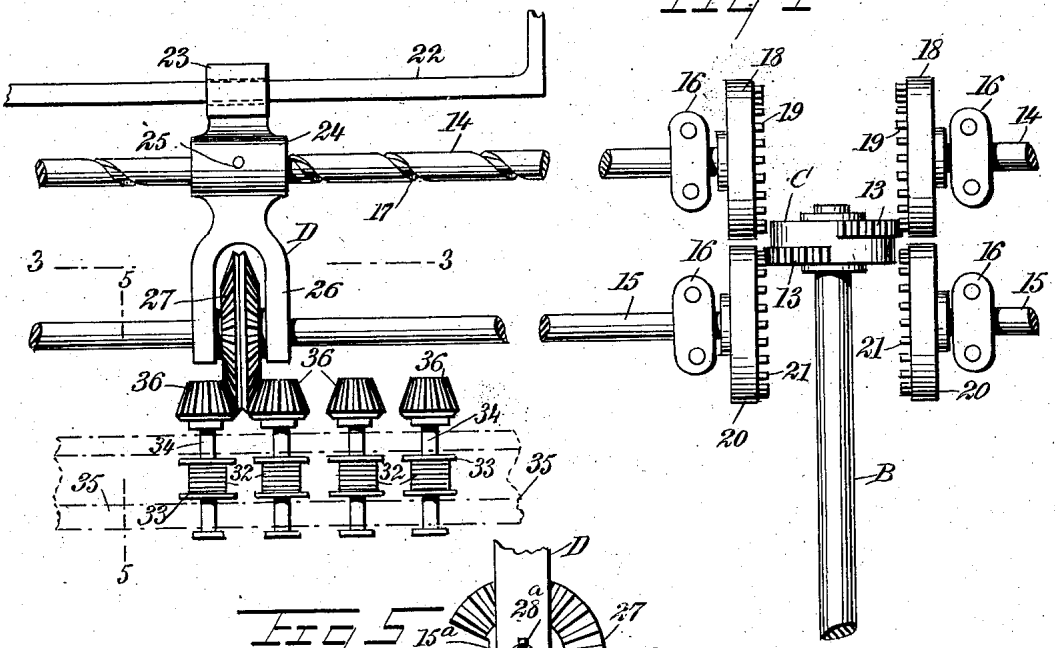
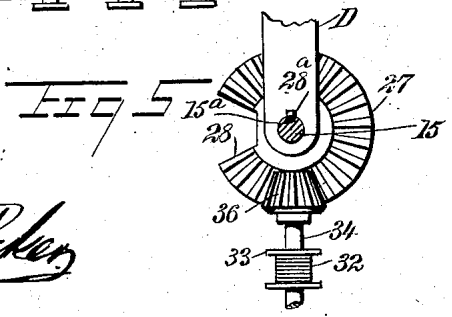


Fig 5



WITNESSES:

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No. 741,652. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

PAUL PHILIA ICAVILLE FYFE, OF CONCORD, NORTH CAROLINA, ASSIGNOR OF ONE-THIRD TO STANDARD RIGHT COMPANY, OF CHARLOTTE, NORTH CAROLINA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 741,652, dated October 20, 1903.

Application filed January 30, 1903. Serial No. 141,142. (No model.)

To all whom it may concern:

Be it known that I, PAUL PHILIA ICAVILLE FYFE, a citizen of the United States, and a resident of Concord, in the county of Cabarrus and State of North Carolina, have invented a new and Improved Station-Indicator, of which the following is a full, clear, and exact description.

My invention relates to an improvement in station-indicators, and has for its object to provide a means for displaying in street or railroad cars the names of the streets or stations, with or without advertising matter, upon tapes carried by spring-controlled reels, and, further, to provide means for automatically causing one tape to be rolled up upon its reel simultaneously with the next tape being unwound to expose the data thereon and held in display position until purposely released.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a central side elevation of a portion of a car, illustrating the application of the indicator. Fig. 2 is a vertical section taken practically on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the device, partly in section, on the line 3 3 in Fig. 4, parts being omitted. Fig. 4 is a side elevation of the device; and Fig. 5 is a section taken practically on the line 5 5 of Fig. 4, showing a master-wheel in side elevation.

A represents a car of any type, and within the said car at one side or near the center a vertical shaft B is located, supported in suitable bearings. At the lower end of the shaft B a miter-gear 10 is secured, which meshes with a similar gear 11, secured on a shaft 12, located beneath the car, which shaft is driven in any suitable or approved manner, either from the wheels of a truck of the car or by connection with the axle of the wheels.

At the upper end of the drive-shaft B, also within the car and near the clear story of the car, a wheel C is horizontally secured on the drive-shaft B, which wheel is provided with quadrantally-arranged series of teeth 13, and these sectors of teeth are so arranged that two of the sectors will be at the upper portion of the wheel and two near the lower portion thereof, the four sectors or groups of teeth being clearly shown in Fig. 3.

At one side of the car two pairs of shafts 14 and 15 are located, one shaft of a pair being above the other, and these shafts extend from the mutilated wheel C to and through the ends of the car-body and over the platforms, the shafts being journaled at their inner ends in suitable bearings 16 and at their outer ends in bearings secured to or formed, preferably, upon the standards 16^a, supporting the hoods of the car. The upper shaft 14 is provided with a spiral groove 17, as is shown in Fig. 4, and the lower shaft 15, as is shown in Fig. 3, is provided with a longitudinal groove 15^a.

At the inner end of each spirally-grooved shaft 14 a wheel 18 is secured, having teeth 19, adapted to mesh with the upper toothed sectors on the said mutilated gear-wheel C, and at each end of each lower shaft 15 a corresponding wheel 20 is attached, having teeth 21, adapted to mesh with the lower sectors of teeth on the mutilated gear-wheel C, as is illustrated in Fig. 4.

A track or rail 22 is supported at the upper portion of the car above each of the upper shafts 14, as is also shown in Fig. 4, and the upper portion 23 of a downwardly-extending carriage D is adapted to travel freely upon each rail or track 22. Each carriage D is provided with a central section 24, apertured to receive an upper spirally-grooved shaft 14, and each central section 24 of the carriage is provided with an inner projection 25, adapted to enter the spiral groove 17 of the shaft 14, on which the carriage travels. The lower end 26 of each carriage D is bifurcated, and between the members of the bifurcated end of the carriage a master-wheel 27 is located. Each master-wheel is mounted upon a lower shaft 15, and each master-wheel 27, as is shown in Fig. 5, is provided with a recess 28 in its periphery and with a key 28^a,

which enters the groove 15^a in the shaft upon which the said master-wheel is mounted. The master-wheel is a two-faced bevel-wheel, as is clearly shown in Figs. 3 and 4.

Brackets 40 are located at the side of the car A opposite the shafts 14 and 15, and these brackets, as is illustrated in Fig. 2, each usually consists of connected upright members a and horizontal members a', which extend inwardly from the top and bottom portions of the vertical or upright members a. The spindles or reels 29 are journaled in the horizontal members a' of the bracket 40, and tapes 30 are secured to said reels, being adapted to be normally wound thereon, and the tapes are held thus wound on the reels by suitably-applied springs 31, which springs are placed under tension when the tapes are unwound from the reels. The tapes are adapted to be carried horizontally in direction of the opposite side of the car, and thus when unwound occupy the transverse position shown in Fig. 2, and on these tapes the names of the streets or stations are produced, together with such explanatory and advertising matter as may be deemed desirable. Preferably cords or wires 32 are attached to the ends of the tapes 30, and these cords or wires 32 are attached to reels 33, carried by spindles 34, as shown in Figs. 2 and 4, which spindles are mounted in the horizontal members of brackets 35, extending below the lower shafts 15, and the spindle 34 for each reel 33 is provided at its upper end with a miter or bevel gear 36, as is shown in Figs. 3 and 4. The recesses 28 in the peripheral portions of the master-wheels 27 are of sufficient size and of such shape that the master-wheels may pass by the said pinions 36 when the recesses in the master-wheels are brought in registry with said pinions; but the pinions 36 are placed so close together that when the master-wheel is brought between two adjacent pinions the teeth of the said wheel will engage with both of said pinions, as is clearly shown in Fig. 4.

Under this construction it will be observed that when the shaft 14 is turned the carriage D on that shaft will be made to travel lengthwise of the shaft, and as at such time the recess 28 in the master-wheel of the carriage is in registry with the pinions 36 below the carriage the master-wheel can readily pass from one pinion to the other. When the master-wheel has assumed a position between adjacent pinions 36, a lower sector of the mutilated gear C will engage with the teeth of the wheel 20 on the shaft 15 and cause the said shaft to revolve, and thus turn the master-wheel, which in turning will cause one pinion with which it engages to be rotated in such a direction as to release the tape drawn out from its reel and permit the spring 31 of such reel to wind the tape thereon, and the master-wheel will at the same time turn the other pinion in such direction as to cause the tape on the next reel or drum to be unwound therefrom and the matter thereon exposed, the slack of the wire or cord 32 being taken up by the reel with which the pinion is connected.

It will be understood that spools may be employed instead of reels, if desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a station-indicator, opposing reels arranged in opposite series, pivotal supports for the reels, a flexible display connection between corresponding reels in the series, a single master-wheel adapted to actuate the reels and travel from one reel of a series to another, and devices for imparting traveling and rotary motion to the master-wheel.

2. In a station-indicator, reels arranged in opposing series, pivotal supports for the reels, tension devices for the reels of one series, serving to turn them in winding direction, flexible display connections between opposing reels of the series, driving devices for the reels opposite those tension-controlled, a driver common to all of the driving devices on the reels and adapted for movement along the line of such driving devices connected with the reels and for simultaneous engagement with two adjacent driving devices carried by the reels, to simultaneously turn one reel in one direction and the other reel in an opposite direction, and means, substantially as described, for imparting traverse and rotary motion to the said driver, as set forth.

3. In a station-indicator, opposing sets of reels, pivotal supports therefor, tension devices for one set of reels, flexible display connections between opposing reels, pinions connected with the opposite sets of reels, a double-faced toothed master-wheel adapted for simultaneous engagement with adjacent pinions, and devices for moving the master-wheel along the line of pinions and for rotating the master-wheel, as described.

4. In a station-indicator, supports adapted for attachment to opposite sides of a car, spools or reels journaled in one support, opposing spools or reels journaled in the other support, driving devices connected with the latter spools or reels, a flexible display connection between opposing spools or reels, arranged for simultaneous engagement with adjacent driving devices for the spools or reels, and mechanism, substantially as described, for moving a master-wheel over the driving devices and imparting rotary movement to the master-wheel.

5. In a station-indicator, the combination with opposing reels or spools, pivotal supports therefor, tension devices for one set of reels or spools, flexible display connections between opposing reels or spools, and pinions connected with one set of reels or spools, of a spirally-grooved shaft, a second shaft, a carriage mounted to slide upon both shafts, projections from the carriage entering the groove

of the first-named shaft, a double-faced toothed master-wheel adapted to engage with adjacent pinions, which master-wheel is guided by the carriage and is adapted to slide upon and turn with the second shaft, and an alternating driving mechanism for the two shafts, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL PHILIA ICAVILLE FYFE.

Witnesses:
THOMAS S. SHINN,
D. C. DAYWALT.