

J. F. MAROUSEK.
INDICATOR.
APPLICATION FILED OCT. 4, 1909.

960,658.

Patented June 7, 1910.

4 SHEETS—SHEET 1.

Fig. 2.

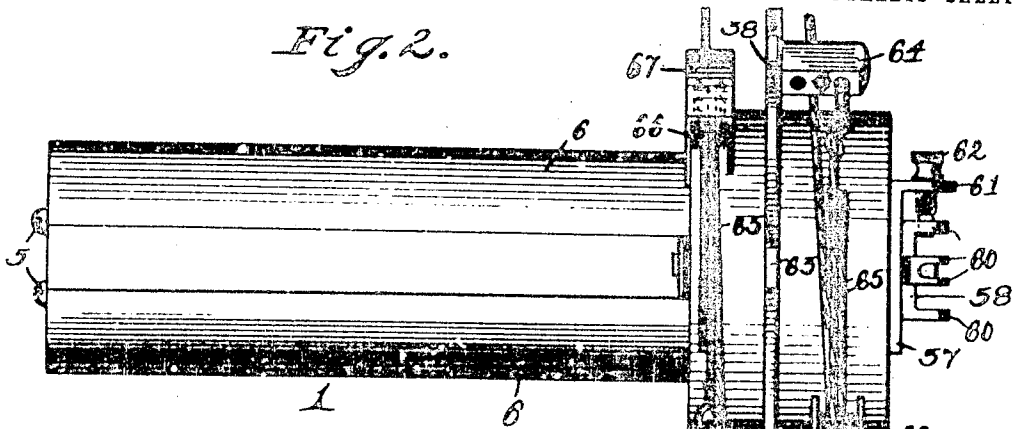
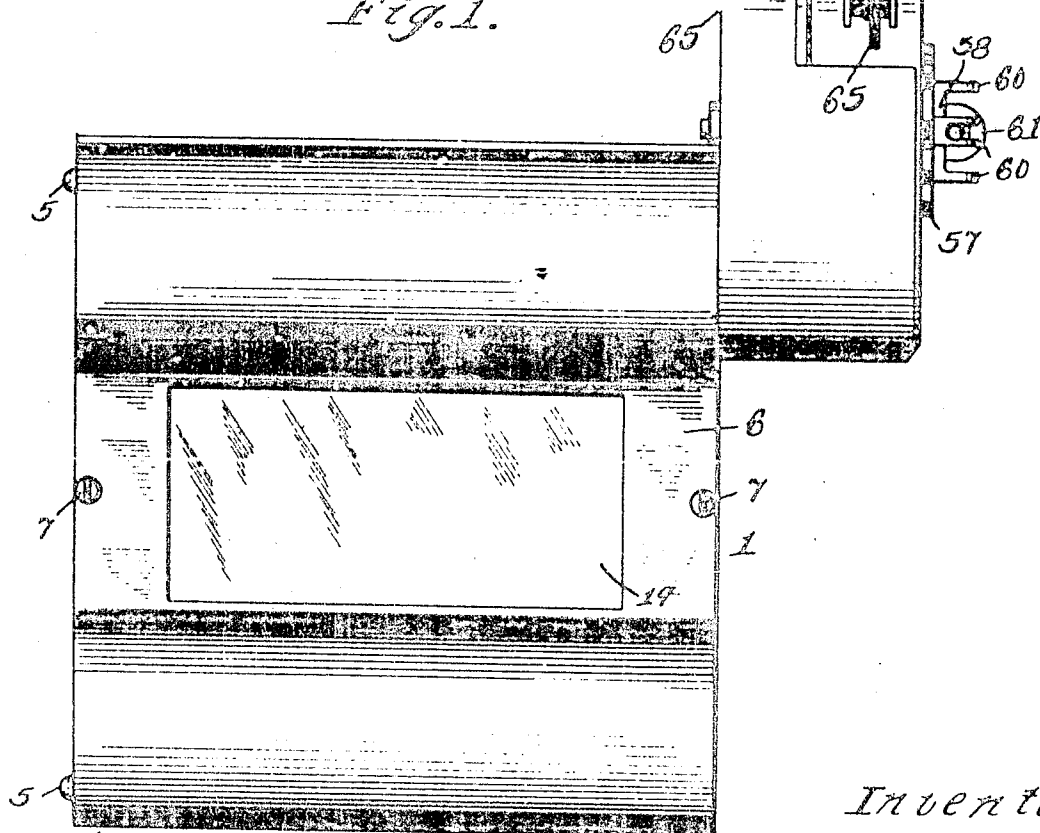


Fig. 1.



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4 SHEETS—SHEET 2.

Fig. 3.

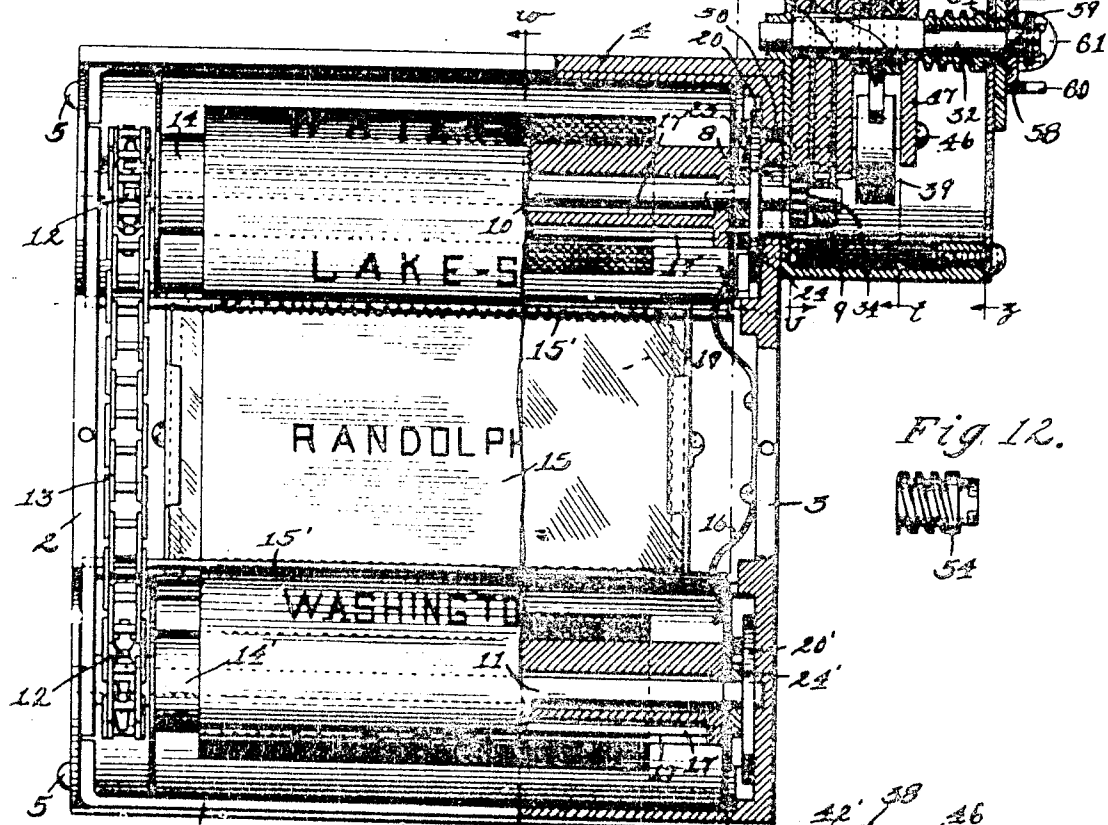
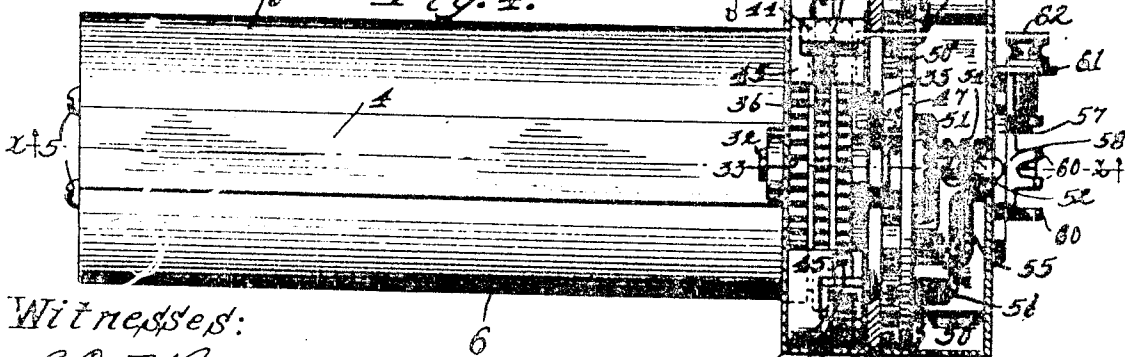


Fig. 12.



Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

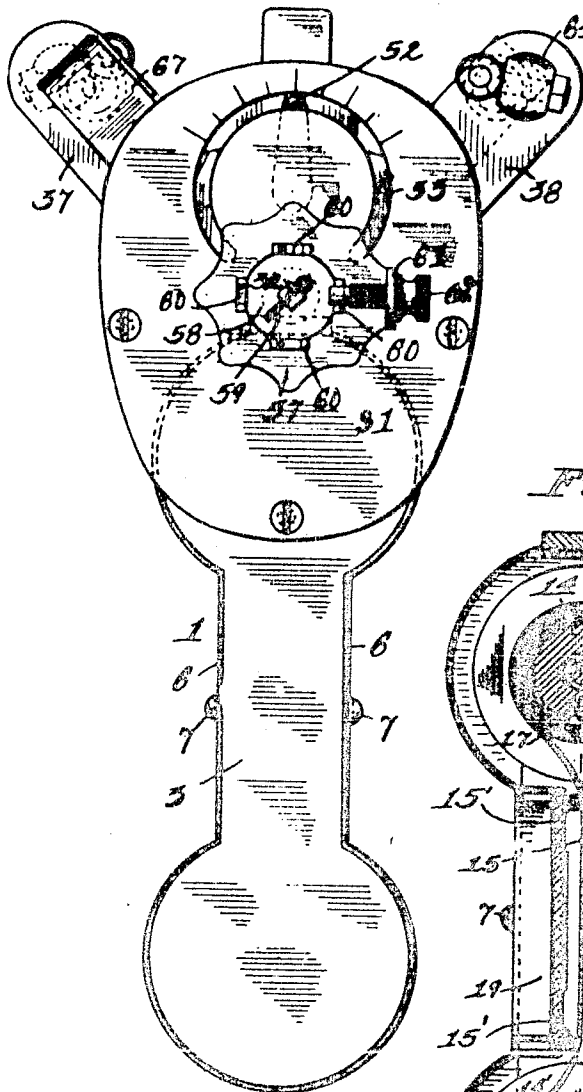


Fig. 6.

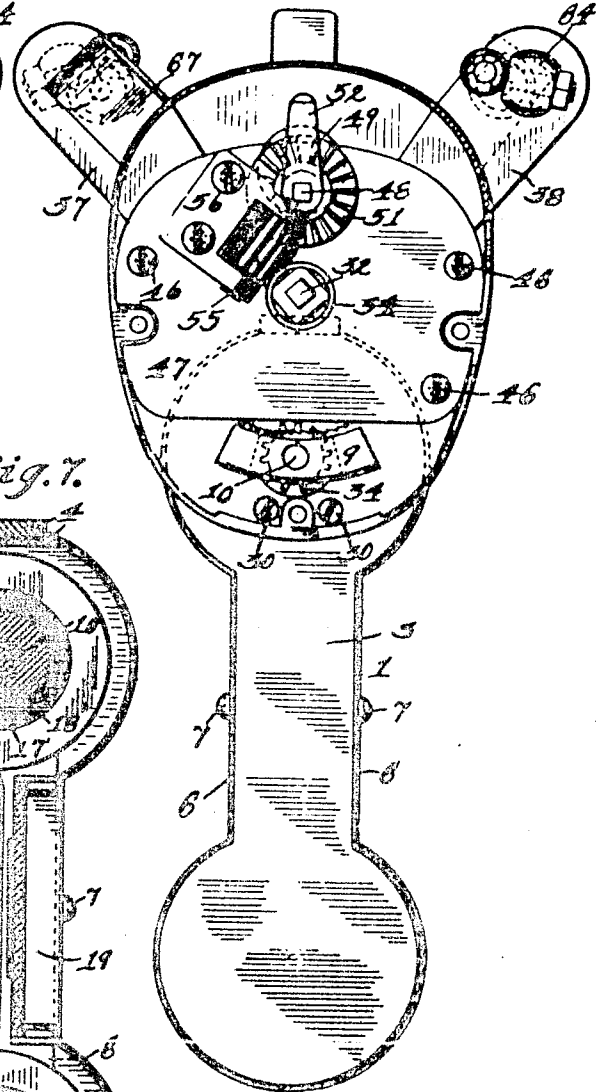
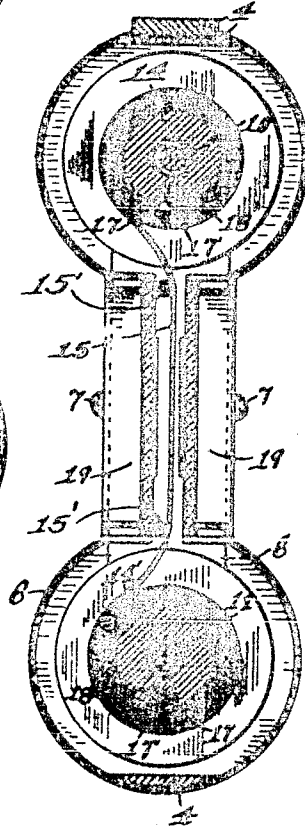


Fig. 7.



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4 SHEETS—SHEET 4.

Fig. 8.

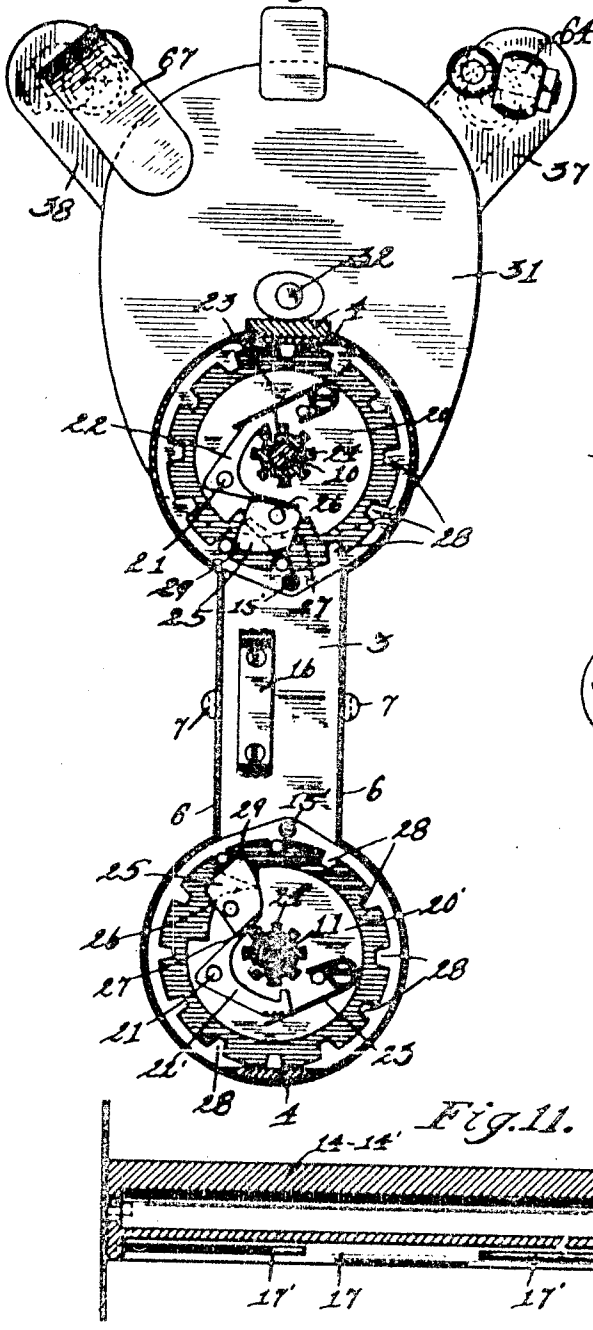


Fig. 9.

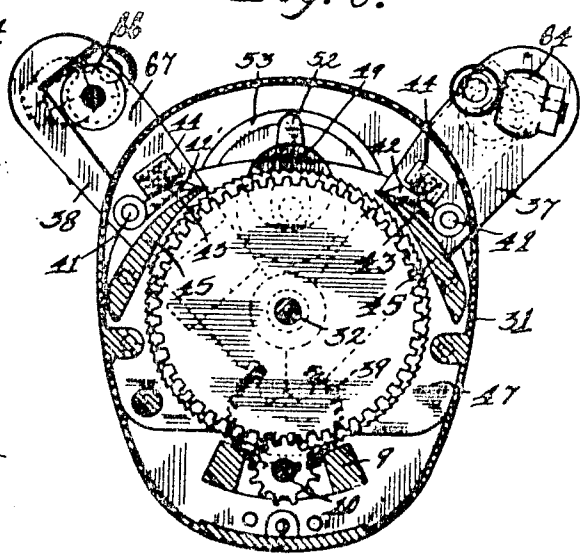


Fig. 10.

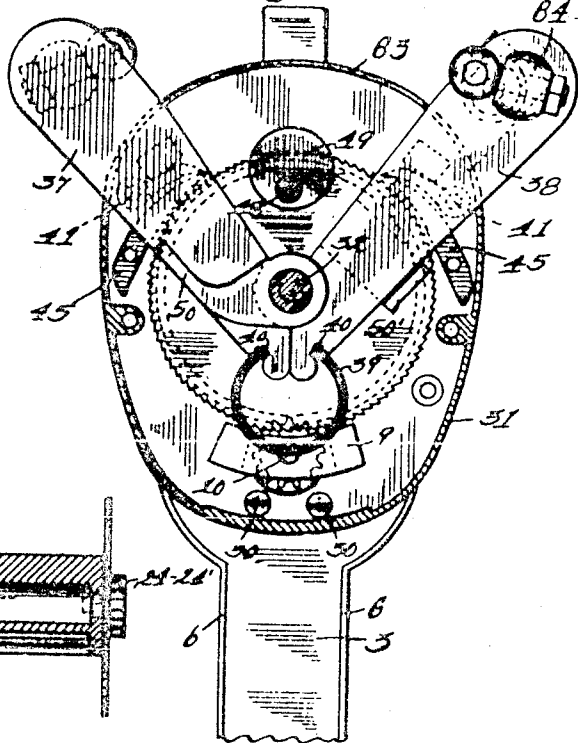
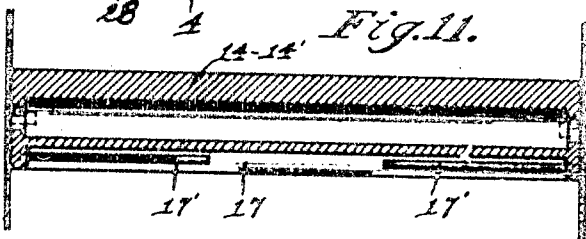


Fig. 11.



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UNITED STATES PATENT OFFICE.

BEST AVAILABLE COPY

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INDICATOR.

960,658.

Specification of Letters Patent.

Patented June, 1910.

Application filed October 4, 1909. Serial No. 520,782.

To all whom it may concern:

Be it known that I, JOSEPH F. MAROUSEK, a citizen of the United States, residing at Chicago, county of Cook and State of Illinois, have invented certain new and useful Improvements in Indicators, of which the following is a specification.

My invention relates to indicators and more specifically to that class thereof designed particularly for employment in railway cars to successively indicate streets or crossings just prior to the intersection thereof by the car in which the device is arranged.

The object of my invention is the provision of an indicator of the character mentioned which will be positive in operation and strong and durable in construction.

Another object is the provision of an indicator which will be manually operable, provision being made whereby the same may be operated by the conductor or other personage appointed to operate the device from any position in the car.

Other objects will appear hereinafter.

With these objects in view my invention consists in certain details of construction and arrangement of parts all as will be hereinafter fully described and particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a front elevation of my device in its preferred form, Fig. 2 is a top plan view thereof, Fig. 3 is a vertical longitudinal section taken on substantially the line $x-x$ of Fig. 4, Fig. 4 is a longitudinal section taken on substantially the line $y-y$ of Fig. 3, Fig. 5 is an end elevation, Fig. 6 is a vertical transverse section taken on substantially the line $z-z$ of Fig. 3, Fig. 7 is a vertical transverse section taken on line $w-w$ of Fig. 3, Fig. 8 is a vertical transverse section taken on substantially the line $v-v$ of Fig. 3, Fig. 9 is a section taken on substantially the line $u-u$ of Fig. 3, Fig. 10 is a section taken on substantially the line $t-t$ of Fig. 3, Fig. 11 is a central longitudinal section of one of the spools embodied in the device, and Fig. 12 is an elevation of the worm mounted on the operating shaft.

Referring now to the drawings, 1 indicates the preferably metallic main casing of my device, the same being comprised of the

vertical end members 2 and 3 rigidly spaced by horizontally disposed connecting bars 4 formed integral with the member 3, the member 2 being secured to the offset outer ends of the bars 4 by screws 5, and front and rear plates 6 secured to the end members 2 and 3 by screws 7. As clearly shown in Fig. 1, the upper and lower ends of the casing 1 are enlarged or cylindrically formed, the parts 2, 3, and 6 being formed to effect such design.

Having one of its ends centrally journaled in the upper end of the member 2, the opposite end thereof passing through an opening 8 centrally formed in the upper end of the member 3 and being journaled in a bearing block 9 secured upon the outer surface of the member 3, is a horizontally disposed shaft 10. Having its extremities centrally journaled respectively in the lower ends of the members 2 and 3, is a shaft 11 parallelly extending with the shaft 10. Fixed to corresponding ends of said shafts are sprocket wheels 12 connected by an endless sprocket chain 13. With such provision, the simultaneous rotation of said shafts is evidently effected. Loosely mounted upon the shafts 10 and 11 are flange spools 14 and 14' respectively upon which are coiled the respective ends of a flexible ribbon 15. Provided intermediate the spools 14 and 14' are rollers 15' the ends of which are journaled in the casing end members 2 and 3 in such a manner as to direct the ribbon 15 which passes thereover centrally through the casing. A leaf spring 16 secured at its center to the member 3, the extremities thereof respectively engaging corresponding flanges of said spool, is evidently adapted to hold the latter against relative lateral movement. Each of said spools is preferably provided with a peripheral longitudinally extending slot 17. Having their outer ends secured at the extremities of each of said slots, are inwardly longitudinally extending rods 17' the adjacent extremities of which are spaced as shown. The extremities of the ribbon 15 being provided with loops 18 adapted to be engaged by said rods 17', as clearly shown in Fig. 7, a detachable efficient connection between the former and the spools 14 and 14' is evidently made possible. Arranged upon either side of the ribbon 15, the same being equally spaced thereon is a plurality of indications individually visible through

glass covered openings 19 formed in either of the plates 6. In the drawings the names of streets or crossings passed by the car upon which the device is arranged, are shown, said indications being arranged upon said ribbon in the order in which the car in traveling in one direction crosses the streets or crossings successively indicated thereby.

Fixed to the shafts 10 and 11, the same being positioned thereon so as to rotate adjacent the inner surface of the member 3, are disks 20 and 20' respectively. Pivoted at 21 upon the inner surfaces of the disks 20 and 20' are pawls 22 and 22' respectively, said pawls as shown being in the forms of bell crank levers. Leaf springs 23 exert forces upon said pawls tending to normally hold the same in operative engagement with pinions 24 and 24' fixed to the adjacent extremities of the spools 14 and 14', said pawls evidently serving as a means of establishing an operative connection between shafts 10 and 11 and their respective spools 14 and 14'.

As stated, the indications upon the ribbon 15 are equally spaced thereon, hence in the operation of the device said ribbon must needs, upon each actuation, be fed an equal distance in order to successively display the indications thereon. In order to effect such feeding of the ribbon provision is made whereby, when feeding the ribbon in one direction, the one of the spools 14 or 14' upon which the ribbon is being coiled shall be driven or operatively connected with its shaft 10 or 11, while the other spool shall be loose upon its shaft whereby the paying out of the ribbon coiled thereon will be governed by the demand for it as created by the driven receiving spool; and whereby such conditions will be reversed when feeding the ribbon in the other direction. With such provision in view, the disks 20 and 20' are provided with similar irregular cam members 25 and 25' respectively rotatably mounted thereon. Said cam members are so positioned upon the disks 20 and 20', that the inoperative ends of the pawls 22 and 22' rest in engagement therewith as clearly shown in Fig. 8, each of said cams being of such form that when said end portion of the pawl coacting therewith is resting in engagement with the face 26 thereof, the engaging or opposite end of the pawl will be in operative position that is will be permitted to engage the teeth of its coacting pinion 24 or 24'; and that when said end portion of the pawl is resting in engagement with the face 27 thereof, the engaging end of the pawl will be in inoperative position. Formed at the upper and lower ends of the casing member 3 concentrically with the axis of the shaft 11, is a plurality of spaced inwardly projecting teeth 28. Said teeth are so positioned and the cams 25 and 25' so formed that the corners 29 of the lat-

ter, upon the rotation of the disks 20 and 20' will engage said teeth as clearly shown in Fig. 8. Further said arrangement is such that upon rotation in one direction of the connecting chain 13 the cams 25 and 25' will be actuated by the teeth 28 to cause one of the pawls 22 or 22' to be positioned to cause locking of one of the spools 14 or 14' to its shaft and the other pawl to be positioned to effect the free movement of the other spool upon its shaft; and that upon rotation in the other direction of the connecting chain, the cams 25-25' will be partially rotated by reason of the contact of the teeth 28 to a position to cause the reversion of the results above stated. Such construction is clearly shown in Fig. 8. With such provision it is, therefore, evident that in whatever direction the chain 13 is driven one of the spools 14 or 14' will be automatically released for uncoiling and the other locked for receiving of the indicator ribbon.

Secured as by screws 30 to the upper end of the casing 1, at one side thereof, is a second auxiliary substantially cylindrical casing 31. Having its extremities centrally journaled in bearings provided in the end walls of the casing 31 is a shaft 32. Fixed to said shaft adjacent the inner end wall of casing 31 is a gear wheel 33 meshing with a pinion 34 fixed to one extremity of the shaft 10. Also fixed to said shaft, the same being positioned thereon adjacent the gear wheel 33 is a pair of ratchet wheels 35 and 36. Having their inner ends rockingly mounted upon said shaft adjacent ratchet wheel 35 are two upwardly extending rocker arms 37 and 38, the former being bifurcated at its attached end to receive said end of the other. A circular split leaf spring 39 the respective extremities of which engage notches 40 provided in the lower extremities of the arms 37 and 38 is adapted to normally hold said extremities of the latter in contact or in close proximity with each other, and consequently the upper ends thereof in divergent positions, as clearly shown in Fig. 10. Having their outer ends swingingly secured upon studs 41 projecting from the inner sides of the arms 37 and 38 are pawls 42 and 42' respectively. Coiled compression springs 43 arranged in housings 44 formed upon the arms 37 and 38, engaging the free ends of the pawls 42 and 42' are adapted to normally exert an inwardly directed force upon the latter. The pawl 42 is so positioned that upon inward rocking of arm 37, the same will engage the ratchet 35 to cause a partial rotation thereof, and the pawl 42 is so positioned that upon the inward rocking of the arm 38 the same will engage the ratchet 36 to cause the rotation thereof in a direction opposite to that of the rotation imparted to the ratchet 35 by the pawl 42. Formed on the inner surface of the casing 31 are in-

wardly extending curved shield plates 45 so positioned and of such curvature as to extend in close proximity to and to cover the end portions of the upper peripheries of the ratchet wheels 35 and 36, as clearly shown in Fig. 4. Said portions 45 are of such length as to be engaged by the free ends of the pawls 42 and 42' when the arms 37 and 38 are in normal outwardly obliquely extending position, hence said portions will normally effect the disengagement of said pawl from their respective ratchets 35 and 36. With such provision it is evident that the feeding of the indicator ribbon upon the spools 14 and 14' as in a manner before described may be readily effected by the rocking actuation of the arms 37 and 38:

Traversing the interior of the casing 31, the same being secured thereon by screws 46 threaded into bosses formed upon the inner surface of the casing is a plate 47. Journalled in said plate in a position parallelly extending and in vertical alinement with the shaft 32 is a shaft 48. Carried at the inner extremity of said shaft is an eccentric 49 the same being so positioned as to traverse the path of rotary or oscillatory movement of the ears 50 and 50' formed upon and projecting from the outer longitudinal edges of the arms 37 and 38 respectively, such arrangement being clearly shown in Fig. 10. Said eccentric thereby evidently forms a stop to limit the extent of inward movement of said arms. Fixed to said shaft 48 at the opposite side of the plate 47 is a beveled gear 51 and to the outer extremity thereof is an indicator arm 52 the offset outer extremity of which projects through a circular graduated slot 53 formed in the outer end wall of the casing 31. Loosely mounted upon the shaft 32 is a worm 54 operatively connecting which and the gear 51 is a gear 55 mounted in a bearing 56 secured to the plate 47, as clearly shown in Fig. 6. The outer end of said worm projects through the casing 31 and is squared, as clearly shown in Fig. 6, to receive a disk 57 through the medium of which said worm may evidently be rotated.

Mounted upon the squared outer end of the shaft 32 is a disk 58 held in position thereon by a cotter pin 59. Formed upon the periphery of the disk 48 are outwardly extending bifurcated ears 60. Threaded in an outwardly projecting ear 61 formed at the periphery of the disk 57 is a thumb screw 62 the inner extremity of which is adapted to engage the bifurcations in the ear 60 as clearly shown in Fig. 5. With such provision it is clear that said screw 62 forms a means of operatively connecting the worm 54 in the shaft 32. By such provision, by simply unscrewing said screw to disengagement with the ears 60 the shaft 32 may be rotated independently of said worm and hence of the gear 51 and the eccentric 49.

By the provision of said eccentric arranged and operatively connected with the shaft 32 as shown and described, the same will automatically regulate the extent of vibration or oscillation of the arms 37 and 38 in such a manner that the length or extent of indicator ribbon uncoiled from one spool and coiled upon the other upon each feeding thereof will be constant, in other words said eccentric is of such design as to restrict the extent of vibration of one of the arms 37 or 38 when the spool actuated thereby is carrying the majority of the ribbon, hence when said spool is of increased diameter, and at the same time to permit of the correspondingly greater extent of vibration of the other arm since in such instance the spool actuated thereby will be carrying a lesser amount or the minority of the ribbon hence will be of decreased diameter.

By the provision of the indicator arm 52 the exact position of said cam relative to the arms 37 and 38 may be readily ascertained. And by the provision of the means for operatively connecting said cam to the main shaft 32, namely, the disks 57 and 58 and the connecting screw 62, said cam may be readily adjusted to correctly position the same relative to the position of the indicator ribbon on the spools 14 and 14'.

The arms 37 and 38 project through a slot 63 formed in the upper side of the casing 31 and are each provided with a projecting lug 64. By means of cords 65 secured to said lugs and passing over and around pulleys 66 mounted in housing 67 formed on the upper side of the casing 31, as clearly shown in Fig. 2, said cords, when the device is arranged in a car extending to either extremity of the latter, said arms 37 and 38 may be rocked by the conductor or other personage from any position in which he may be in the car.

The operation of the device is evident. The device being arranged in a car with the indicator ribbon provided with the names of the streets or crossings successively arranged thereon in the order in which the same are crossed by the car, all that is required in order to operate the device is to draw or pull one of the cords 65 whereupon the names of the streets will be displayed so as to be visible from either side of the device. When traveling in one direction one of the cords 65 will be operated to feed the indicator ribbon in one direction, and when traveling in the other direction the other will be operated to reversely wind said ribbon since in traveling in the opposite direction the order in which the streets are crossed is reversed.

While I have shown what I deem to be the preferred form of my device I do not wish to be limited thereto as there might be various changes made in the details of

construction and arrangement of parts without departing from the spirit of the invention comprehended within the scope of the appended claims. And although I have designed my device with special reference to its use as a street indicator in a railway car I may use the same for any other purpose to which it is applicable.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an indicator, the combination of a casing, a pair of parallelly disposed shafts rotatably mounted therein, a driving connection between said shafts, spools carried upon said shafts, an indicator ribbon having its respective ends coiled upon said shafts, said ribbon having indications equally spaced upon either of its sides, means carried by said shafts whereby rotation of said shafts in one direction causes the operative release of one spool from its shaft and the operative or driving connection of the other spool to its shaft, and whereby rotation in the other direction causes reversal of such results, another shaft mounted adjacent one of said before named shafts and in operative connection therewith, means for rotating said last named shaft to cause coiling of said indicator ribbon from one spool to the other, and means for automatically regulating said last named means to effect a constant extent or length of feeding of the indicator ribbon upon each actuation thereof, substantially as described.

2. In an indicator, the combination of a casing, a pair of parallelly disposed shafts rotatably mounted therein, a driving connection between said shafts, spools carried upon said shafts, an indicator ribbon having its respective ends coiled upon said spools, said ribbon having indications equally spaced upon either of its sides, another shaft mounted adjacent one of said before named shafts and in geared connection therewith, oscillatory projecting arms in operative connection with said last named shaft for oscillating the same to cause the coiling of said indicator ribbon from one spool to the other, and an automatically operated eccentric for governing the extent of oscillation of said arms so as to effect the constant extent of feeding of the indicator ribbon upon each actuation thereof, substantially as described.

3. In an indicator, the combination of a casing, a pair of parallelly disposed shafts rotatably mounted therein, a driving connection between said shafts, spools carried upon said shafts, an indicator ribbon having its respective ends secured to and coiled upon said spools, said ribbon having indications equally spaced upon either of its surfaces, another shaft mounted adjacent one of said before named shafts in geared connection therewith, projecting arms rockingly

mounted upon said last named shaft, pawl and ratchet connections between said arms and said shaft whereby said shaft may be rotated in either direction, and an eccentric operatively connected with said last named shaft for automatically governing the extent of oscillation of said arms, whereby the length of indicator ribbon fed upon each operation of the device will be constant, substantially as described.

4. In an indicator, the combination of a casing, a pair of parallelly disposed vertically alining shafts rotatably mounted therein, a chain and sprocket connection between said shafts, flanged spools carried upon said shafts, an indicator ribbon having its respective ends detachably secured to and coiled upon said spools, said ribbon having indications equally spaced upon either of its surfaces, another shaft mounted adjacent one of said before named shafts in geared connection therewith, projecting arms rockingly mounted upon said last named shaft, pawl and ratchet connections between said arms and said shaft whereby said shaft may be rotated in either direction, an eccentric interposed between said arms, a worm and gear connection between said eccentric and said last named shaft adapting said eccentric to automatically regulate the extent of oscillation of said arms so as to effect an equal extent of feeding of the indicator ribbon upon each operation thereof, substantially as described.

5. In an indicator, a casing in combination with a pair of parallel shafts rotatably mounted therein, a driving connection between said shafts, spools rotatably mounted upon said shafts, an indicator ribbon having its ends secured to and wound upon said spools, means for turning one of said shafts in either direction, a flange formed upon each of said shafts, a toothed member fixed to each of said spools adjacent said flanges respectively, means mounted upon said flanges and adapted to cooperate with said toothed members and means on said casing for actuating the last said means whereby rotation of said shafts in one direction causes the operative release of one spool from its shaft and the operative connection of the other spool to the shaft and whereby rotation in the opposite direction causes the reversal of such results, substantially as described.

6. In an indicator a casing in combination with a pair of parallel shafts rotatably mounted therein, a driving connection between said shafts, spools rotatably mounted upon said shafts, an indicator ribbon having its ends secured to and wound upon said spools, means for driving one of said shafts in either direction, flanges formed upon each of said shafts, a toothed member fixed to each of said spools adjacent said flanges

respectively, dogs on said flanges adapted to engage said toothed members, a cam on said flanges and means on said casing for actuating said cams whereby rotation of said shafts in one direction causes said cams to release one of said dogs from one of said toothed members and to engage the other dog with its respective member and whereby rotation of said shafts in the other di-

rection causes a reversal of said results, substantially as described. 10

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

JOSEPH F. MAROUSEK.

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JANET E. HOGAN.