L. B. BELL.

STREET OR STATION INDICATOR FOR RAILWAYS.

APPLICATION FILED DEC. 26, 1914.

1,219,619.

Patented Mar. 20, 1917.

3 SHEETS—SHEET 1.

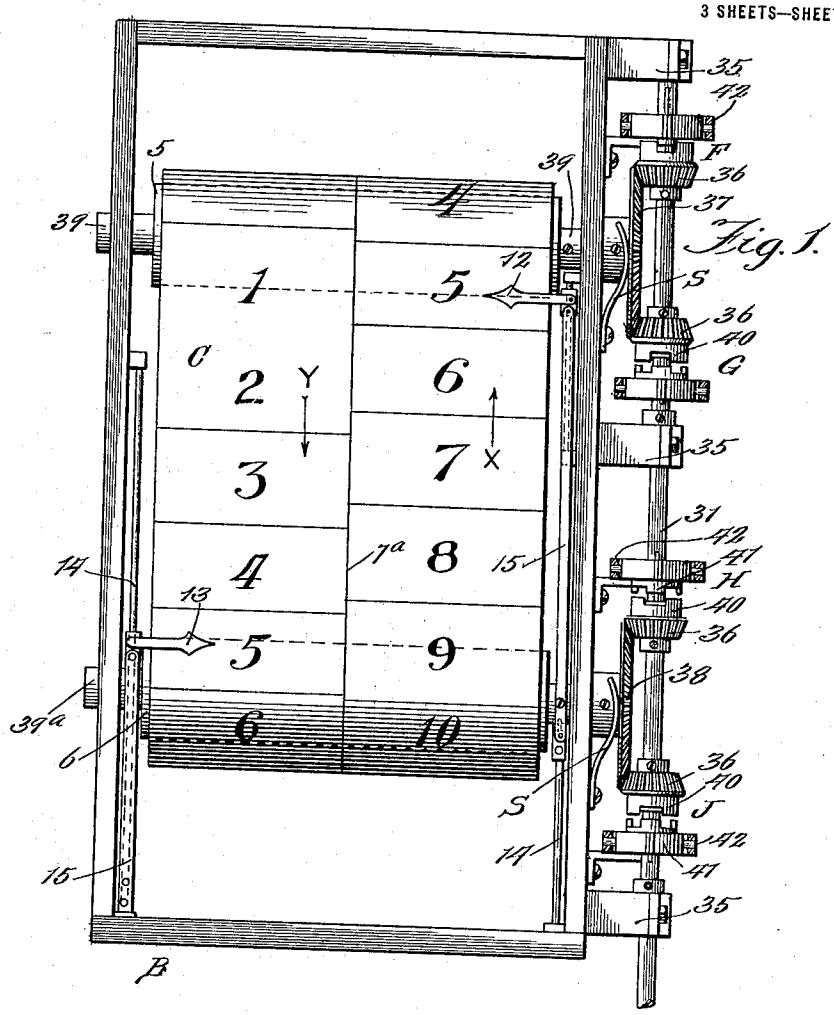


Fig. 1.

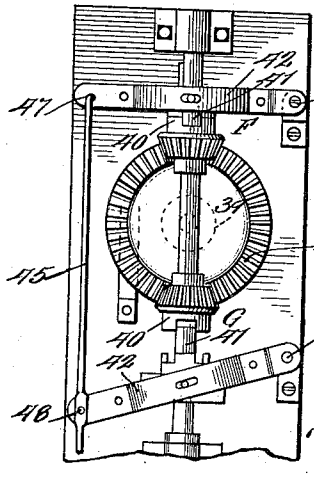


Fig. 2.

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Fig. 4.

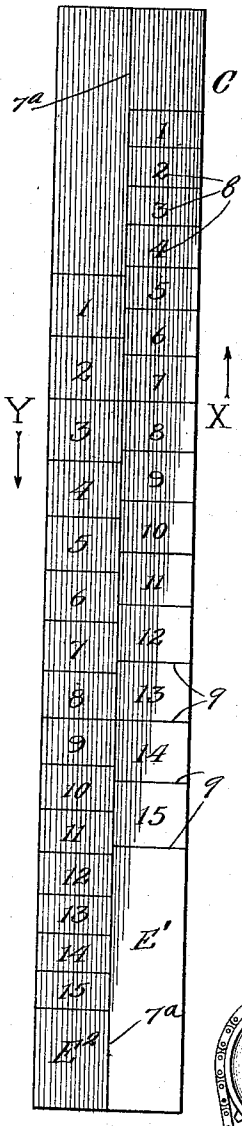


Fig. 3.

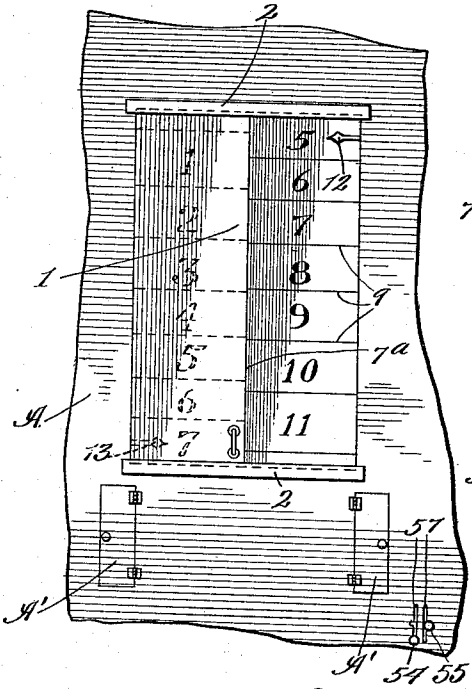
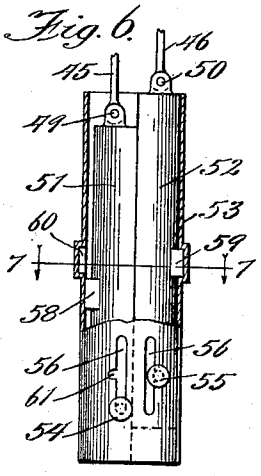


Fig. 6.



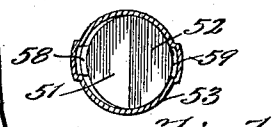
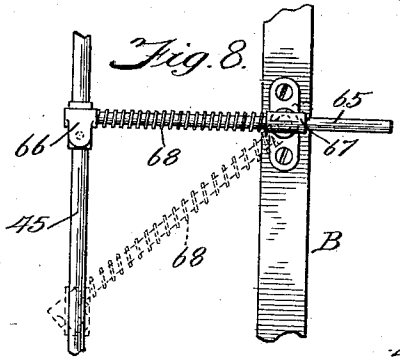


Fig. 7.

Fig. 8.



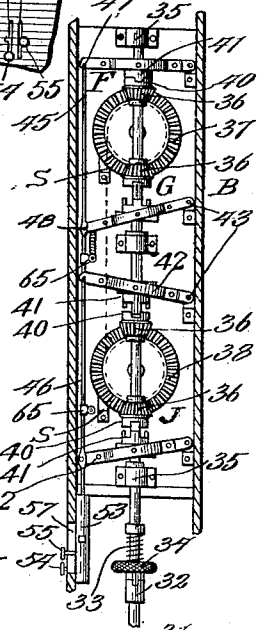
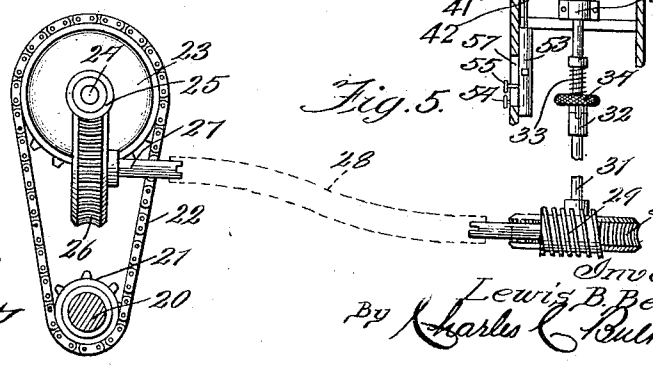


Fig. 5.



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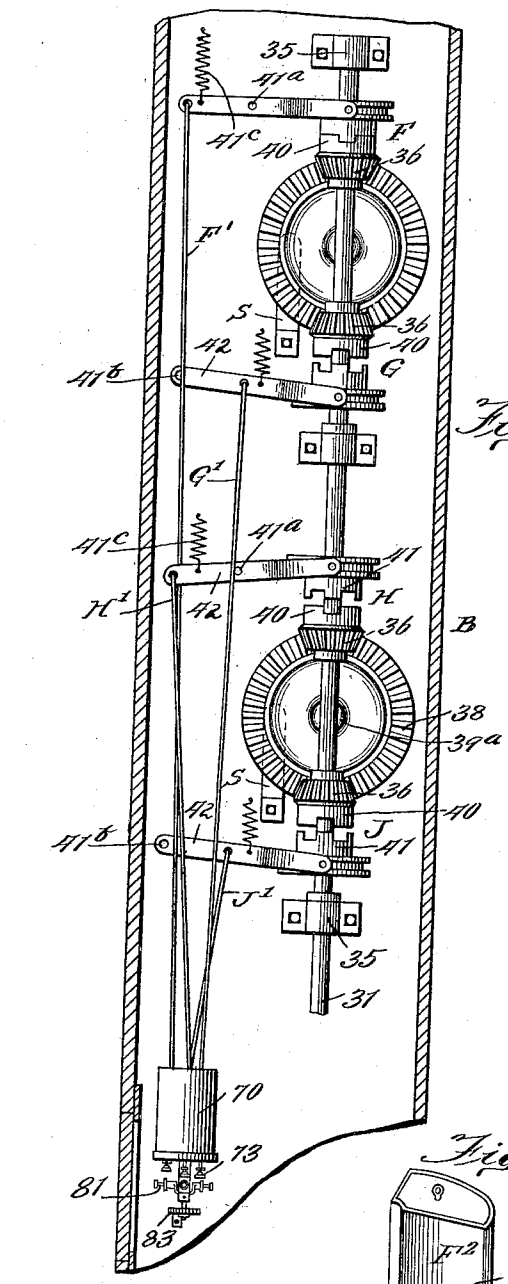


Fig. 9.

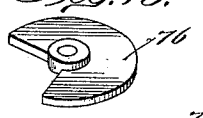


Fig. 13.

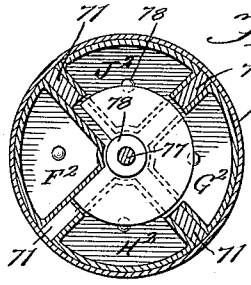


Fig. 11.

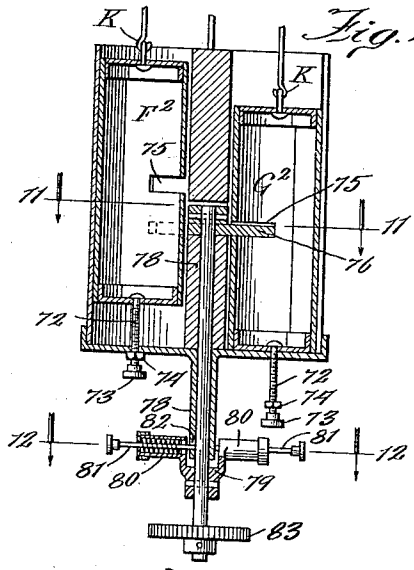


Fig. 10.

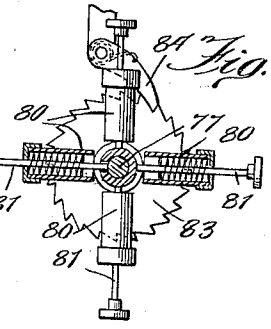


Fig. 12.

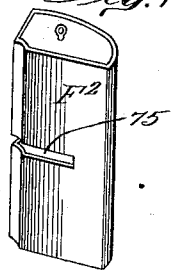


Fig. 14.

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STREET OR STATION INDICATOR FOR RAILWAYS.

1,219,619. Specification of Letters Patent. Patented Mar. 20, 1917.

Application filed December 26, 1914. Serial No. 879,046.

To all whom it may concern:

Be it known that I, LEWIS B. BELL, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Street or Station Indicators for Railways, of which the following is a specification.

My invention relates to improvements in street or station indicators for railways and other vehicles, and has more particular reference to that type of indicators which are positioned in railway cars and which automatically indicate the street or station which the car or train is approaching, so as to inform the passengers when the car approaches and arrives at the street or station at which they wish to alight.

One of the objects of my invention is to provide an improved device of this character which will be simple, durable and reliable in construction and effective and efficient in operation. Other objects of my invention will appear hereinafter.

My invention consists in the features of novelty exemplified in the construction, combination and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and more particularly set forth in the appended claims.

In the drawings—

Figure 1 is a face view of my improved indicator showing the tape or band which carries the legends or street names, and showing the means for operating said band;

Fig. 2 is a view in right hand side elevation of the upper portion shown in Fig. 1, this view illustrating the clutches and gears associated with the upper roll or drum;

Fig. 3 is a face view of a portion of the wall of the car or other support showing the exposed portion of my improved indicator in position;

Fig. 4 is a face view of a representative tape or band laid out flat and showing the arrangement of the legends or names of streets thereon in their relative position;

Fig. 5 is a view in right hand side elevation of the structure shown in Fig. 1, this view showing also the driving connections from the car wheel to the indicator for propelling the tape in accordance with the travel of the car;

Fig. 6 is an enlarged detail view, partially in section, of one form of interlocking clutch control device by which the indicator may be set in accordance with the direction of travel of the car;

Fig. 7 is a detail transverse section on the line 7—7 of Fig. 6;

Fig. 8 is an enlarged detail of a device for carrying the clutches and clutch-operating rods to proper position after they have been once started by the operator;

Fig. 9 is an enlarged view in right hand elevation, similar to Fig. 7, showing the parts slightly modified to adapt them to a modified form of interlocking and controlling mechanism which is also shown in the lower end of said figure;

Fig. 10 is an enlarged detail vertical section of the interlocking controlling device shown in the lower portion of Fig. 9;

Fig. 11 is a transverse section on the line 11—11 of Fig. 10;

Fig. 12 is a transverse detail section on the line 12—12 of Fig. 11;

Fig. 13 is a detail perspective view of the interlocking disk; and

Fig. 14 is a detail perspective view of one of the shiftable interlocking members to which the clutch-operating rods are connected, and which coöperates with the interlocking disk shown in Fig. 13.

In the drawings, I have shown a structure which is adapted to be positioned in some conspicuous place in the car so that it may be readily observed by the passengers, and, as shown in Fig. 3, only the tape or band which carries the names of the streets or other legends is exposed through the wall A of the car. Practically all of the operating parts are mounted in a suitable rectangular open frame B which is secured behind the opening in the car wall so as to expose the tape or band C. Across the face of the tape is a door 1 mounted in suitable guideways 2, as shown in Fig. 3, so as to cover practically one-half the width of the tape. By shifting this door from one side to the other, corresponding to the direction of the car, the particular one-half portion or side of the tape which corresponds to the direction in which the car is traveling may be exposed, and the other half may be covered so as not to confuse the passengers. In the present structure, I have provided a double tape, so to speak,—that is, a tape the face

of which is longitudinally sectioned or divided into two parts. On one side of the tape are the names of the streets corresponding to the direction in which the car is traveling, and on the other side of said tape are the names of the streets corresponding to the return direction of travel of the car.

The ends of the tape are fastened to rolls or drums 5—6, in any suitable manner, so that the tape can be wound upon and unwound from these rolls. In the present structure, I have arranged the tape and rolls so that the tape will unwind from one roll and wind upon the other when the car is going in a given direction, and when the car reaches its destination the direction of movement of the tape will be reversed, and it will wind upon the roll just emptied and unwind from the last filled roll. The operation and control of this tape, whereby it can be made to travel from one roll to the other in the proper direction corresponding to the direction of travel of the car, is accomplished by means of control mechanism which may be adjusted or set by the conductor at the end of each trip, or it may be adjusted or set in the barns before the car starts out. This mechanism, which will be described later, is so arranged that the parts may be interlocked in such manner as to render it extremely inconvenient and impracticable for the conductor to wrongly manipulate said parts to defeat the operation of the structure. In its preferred form, the tape C is one continuous piece of flexible material, as shown in Figs. 1 and 4, which is divided by a longitudinal center line 7^a into two parts E′ and E^2, one of which bears the names of the streets or stations along a given route, corresponding to one direction of travel of the car, and the other of which bears the names of streets over said route corresponding to the return direction of travel of the car. The names of the streets or stations are arranged in progressive order on said tape, and for convenience of description I have used the numerals from one to fifteen, but these numerals may be understood as representing street names or other legends. The names of the streets are longitudinally spaced apart along the tape on each side of the dividing line 7^a, but the spacing of the names, as indicated by the transverse lines 9, progressively varies in length. Thus the spacing between names on the side E′ of the tape, beginning at one end with the numeral 1, gradually increases to the other end of the range of names or stations, which in this case is 15. The spacing of the names on the other side of the tape—that is, on the side E^2 thereof—varies in the opposite direction. I graduate the tape in this manner, so as to allow for the increase and decrease of the size of the rolls, due to the winding upon and the unwinding of the tape. By reference to Figs. 1 and 4, it will be readily seen that the upper roll, for instance, assuming that the tape is traveling in the direction of the arrow X, Fig. 1, will increase in diameter as the tape winds upon it. In consequence, its circumference gradually increases, and for every revolution the roll requires more tape. But the varying or graduating of the spacing of the names on this tape compensates for this increase and causes the names to appear in their proper relative position. This same condition exists with respect to the other side—that is, the side E^2 of the tape—except that the spacing of the names gradually decreases in the opposite direction to that of the side E′. This is for the reason that assuming that the tape has all been wound upon the upper roll, the lower roll will be empty and of small diameter. In the present arrangement, the side E′ of the tape corresponds to the direction indicated by the arrow X, and the side E^2 corresponds to the direction indicated by the arrow Y. In other words, this tape is arranged so as to provide for a complete round trip of a car or train over a given route, the direction indicated by the arrow X corresponding, for instance, to the "going" trip of the car, and the direction indicated by the arrow Y corresponding to the "return" trip. Assuming that the tape is all wound upon the lower roll 6, and the car is going in the direction corresponding to the arrow X, the streets or stations on the E′ side of the tape will appear in consecutive order, just as the numerals on said side of the tape are arranged in consecutive order. On the return trip of the car, the tape will re-wind upon the lower roll, hence the last street or station indicated at the end of the "going" trip will be the first street or station to appear at the beginning of the return trip. Thus, as shown in Fig. 5, the lists of names on both sides of the tape progress in the same direction, as indicated by the numerals 1 to 15 on both sides of the tape; therefore, on account of the tape traveling in opposite directions corresponding to the going and return trips, the names of the streets or stations will be presented in their proper order. As a means by which the passengers may determine when the car arrives at a certain street, I provide arrows or index fingers 12—13, (Figs. 1 and 3), with which the names on the tape register in accordance with the travel of the car at the several streets. Since the side E′ of the tape is exposed when the car is going in the direction corresponding to the arrow X, I place the index finger 12 at the upper end of the exposed portion of the side E′ of the tape, so that passengers may observe in advance several—preferably

four or five—of the streets or stations before the arrival of the name of the particular street or station in registration of the index finger 12. This same condition exists with respect to the side E^2 of the tape, and for this reason the index finger 13 is positioned at the lower end of the exposed portion of the E^2 side of the tape. In order that these index fingers may be adjusted to allow for inaccuracies or errors which might arise, the arrows or index fingers are mounted on sleeves which are arranged to slide on vertical guide rods 14. The positioning of these index fingers may be accomplished in any suitable manner, as by means of the operating links 15, connected at their upper ends to the sleeves which carry the index fingers, and accessible through small doors A′ in the wall A of the car, as shown in Figs. 1 and 3.

Any suitable means may be employed as a driving connection for the indicator. In the drawings, and particularly in Fig. 5, I have shown driving mechanism between one of the axles of the car truck and the indicator. One of the car axles, represented by the shaft or member 20, carries a sprocket wheel 21, which, through the medium of a sprocket chain 22, drives a larger sprocket 23 on a counter-shaft 24. This counter-shaft carries a worm 25, which drives a worm wheel 26 on another shaft 27. The shaft 27 has a flexible portion 28 to allow for the relative movements of the car truck and the body of the car, and which carries at its other end a worm 29 which drives a worm wheel 30, these parts being preferably all located below the floor of the car. The worm wheel 30, however, is carried on the lower end of a vertical shaft 31, which extends up through the floor of the car in driving relation to the mechanism of the street indicator. This shaft 31, however, is preferably made in two sections, which are normally connected in driving relation by a clutch 32. One member of this clutch is normally spring-pressed into engagement with the other member of the clutch by means of the spring 33, and it carries a hand-wheel 34 by which it may be disconnected from its coöperating clutch member to disconnect the upper member of the shaft from the lower. The purpose of this clutch arrangement is to enable the upper section of the shaft to be rotated by hand independently of the lower section, so that in the event that an error, caused for instance by the slipping of the driving wheel, should occur, the indicator may be adjusted to compensate for this error.

The shaft 31 extends upwardly into operating relation to the indicator and it is suitably journaled in bearings 35 on the frame B. It carries four beveled pinions 36, all of which are normally loose on the shaft but constantly in mesh with beveled gears 37 and 38 which are fastened to the shafts 39 and 39^a of the drums or rolls 5 and 6, respectively. The two beveled pinions of the upper set mesh with the bevel gear 37 at diametrically opposite points, and the pinions of the lower set mesh with the gear 38 at diametrically opposite points. These pinions are adapted to be connected with or disconnected from the shaft 31 by means of the clutches F, G, H and J, each pinion being controlled by a clutch. These clutches may be of any suitable construction. In the present structure, the pinions carry toothed members 40 forming one of the members of the clutch. The other members 41 of the clutches are similarly formed and are splined to rotate with but to slide longitudinally of the shaft 31, and these clutch members 41 are adapted to be shifted into and out of connection with respect to their coacting members 40 by means of the yoke members 42, which are in the form of levers pivoted to the frame of the indicator at the points 43.

By rocking the levers 42 about their pivots, the clutches may be operated to connect the driving pinions with the shaft 31. The clutches are all preferably arranged so that they may be all left disconnected and the indicator left in idle condition.

It will be obvious that the direction of rotation of the main shaft 31 will be dependent upon the direction of rotation of the truck axle 20 of the car, and that the direction of the axle 20 will, of course, be dependent upon which end of the car is the forward end in a given direction. Since the direction of the shaft 31 changes with the relative position of the car, and under some conditions with the direction of travel of the car, it is obvious that the tape drums or rolls must be capable of the proper connection with the shaft 31 in accordance with the particular conditions. Hence, I provide the clutches F, G, H and J, so that these requirements may be met. There are in general three sets of conditions of street railway operation, one of which exists where the car or train makes a loop at both ends of its route. Under such condition the axle 20, and hence the shaft 31 will always rotate in the same direction. The second position exists where the car makes a loop at one end of its route and simply switches back, and thereby reverses itself, at the other end of the route. Under such condition the direction of rotation of the axle 20 and shaft 31 reverses every second round trip. The third set of conditions exist where the car switches back at each end of its route. Under this condition the axle 20 and shaft 31 change or reverse their direction of rotation for each "going" and "return" trip of the car. The clutches and gears are, therefore, arranged so that for these various operating condi-

tions, the tape may be driven in the proper direction in accordance with the direction of travel of the car.

Assuming, for instance, that the tape is wound upon the lower roll, as shown in Fig. 1, that the car starts on a trip, and that the car happens to be in such relative position that the shaft 31 rotates left-handed. In order then to wind the tape upon the upper roll, the clutch F must be thrown in and the other clutches left out. Under this condition the car travels to the other end of its route, and if at this other end of its route it makes a loop the shaft 31 will continue to rotate in the same direction—that is, left-handed on the return trip. But the tape, at the beginning of the return trip, will have been wound upon the upper roll. Hence to wind it upon the lower roll, the clutch J must be thrown in and the remaining clutches left out. Should, however, the car not make a loop at said other end, but instead simply switch back, the direction of rotation of the shaft 31 will be reversed, that is, will become right-handed on the return trip, and to wind the tape on the lower roll, the clutch H should be thrown in and the remaining clutches left out. In this manner, by throwing in the proper clutch for the particular circumstances, the conductor may set the indicator so that it will operate in accordance with the direction of travel of this car.

In order that the clutches may be conveniently operated by the conductor, I provide them with operating rods or links 45 and 46. The rod 45 is pivotally connected at 47 and 48 to the free ends of the two levers 42 which operate the two clutches F and G of the upper set, and the rod 46 is similarly connected to the levers 42 of the clutches H and J of the lower set. In other words, the rod 45 is common to the levers of clutches F and G, and the rod 46 is common to the upper levers of the clutches H and J. The rods 45 and 46 extend downwardly to the lower end of the frame B, where they are pivotally connected at 49 and 50 to two interlocking members 51 and 52, respectively, which are, as shown clearly in Figs. 6 and 7, semi-cylindrical in section with their flat faces adjacent each other. These members 51 and 52 slide vertically in a tubular member 53, positioned just behind the wall of the car below the frame B. Each of the members 51 and 52 have operating handles or buttons 54 and 55 which are movable in the slots 56 of the tubular member 53, and which also project through openings 57 in the wall of the car so as to be conveniently accessible to the operator. Each of the members 51 and 52 have lugs 58 and 59 which fit in corresponding sockets or depressions 60 of the tubular member 53. These parts, however, are so proportioned that both lugs cannot be out of their sockets at the same time. In other words, one of the lugs must be in its socket in order to liberate or release the member which carries the other lug, and permit said member to be shifted longitudinally of the tubular member 53. In this manner the rods 45 and 46 are interlocked with respect to each other so that the clutches of one set cannot be operated until those of the other set are in open or neutral position. This neutral position, of course, is determined by the position of the depressions or sockets 60 in the tubular member 53. The slots 56 of said tubular member also have offset notches 61 which correspond to the neutral positions, and into which the operating buttons 54 and 55 may be rotated when both sets of clutches are in the off or neutral position. By this interlocking arrangement it is impossible for the conductor to simultaneously throw in one clutch of each set, which might drive the rollers in opposite directions and tear or part the tape. In order to carry the clutches into proper operating relation to their coacting members, I provide each of the operating rods 45 and 46 with a pivotally connected rod 65, as shown in Fig. 8. One end of this rod 65 is pivotally connected at 66 to the rods 45 and 46. The rods 65 are arranged to slide in swivel bearings 67 on the frame B of the indicator. Between the pivotal points 66 and the bearings 67 are spiral springs 68 on the rods 65. When the rods 65 are at right angles with respect to the rods 45 and 46, as shown in full lines in Fig. 8, which position corresponds to the neutral or off position of the clutches, the springs 68 are under compression. Now, if the rods 45 and 46 are shifted longitudinally in either direction, for instance as shown in dotted lines in Fig. 8, the springs act on the rods to yieldingly force them in the direction in which they are shifted. So that should the conductor fail to move the buttons 54 and 55 far enough, the springs 68 will carry the rods and hence the clutch members the rest of the way. This has another advantage in that should the teeth of the particular clutch member not register at the moment the clutch is thrown in, the spring 68 will yieldingly cause said clutch member to engage as soon as soon as their teeth do register.

In Figs. 9 to 14, I have illustrated a modified form of interlocking control mechanism, which not only performs the interlocking function of the structure described with relation to the previous figures, but also makes it necessary for the conductor to follow a certain sequence of operation, and prevents him from throwing the wrong clutch. This modified construction also has another advantage in that the mechanism may be adjusted or set in the barns to any one of the three conditions of operation above specified.

In order to carry out the function, however, the clutch-operating members 42 of the clutches F and H are pivoted at 41^a intermediate their ends, while those members 42 for the clutches G and J are pivoted at their ends 41^b. In addition to this, each one of the clutch levers has an independent operating rod or link. These rods are indicated by the reference letters F^1, G^1, H^1, and J^1, respectively. These rods are connected at their lower ends to interlocking members F^2, J^2, H^2 and G^2, which are vertically slidable in a tubular or cylindrical shaped casing 70, this casing being divided into four cells or chambers by the partition 71. These rods are connected to said interlocking members by means of open hooks K or any other suitable detachable connecting means so that the rods may be transposed with respect to said interlocking members. These sliding interlocking members carry threaded rods 72 at their lower ends which project through openings in the bottom of the casing 70 and carry buttons 73 at their lower ends by which the interlocking members may be readily manipulated. Each of the clutch levers 42 is acted on by a spring 41^c which urges the levers to throw in the clutch associated therewith. These springs also act through the links F^1, etc., to raise the interlocking members in the casing 70. When the interlocking members are resting upon the bottom wall of the casing 70, the parts are so proportioned that the clutches will all be out, or in off position, and these members may be fastened in this lowermost position by means of nuts 74 on the stems or rods 72. The nuts, as will be clearly seen, may be screwed up on to the rods 72, until they operate as stops to prevent the upward movement of the interlocking member. It is by this means that certain of the interlocking members may be locked against operation so that the conductor may not manipulate them, thus leaving the conductor with access to only those interlocking members which have not been set at the barn. Each of the interlocking members has slots or notches 75 cut in their inner edges, as shown clearly in Fig. 14. All of these notches register with each other when all of the interlocking members are in their lowermost position in the casing 70. Coöperating with these notches is an interlocking disk 76 which has slightly more than a quarter of itself cut away, as shown in Fig. 13, so that when this cut-away portion registers with any one of the interlocking members that particular interlocking member will be free to shift or move vertically and allow the clutch associated therewith to be thrown in. This interlocking disk is fastened to the upper end of a rod or shaft 77 centrally positioned and journaled in a depending sleeve or bearing 78 on the casing 70. The lower end of this shaft projects below the bearing and has keyed to it a member 79, having four radial hollow arms 80. Each of these arms carries a spring-pressed rod 81 having buttons at their outer ends by which they may be conveniently manipulated. The inner ends of these rods coöperate with the bearing sleeve 78, and this bearing sleeve has a single notch 82, into which any one of the rods 81 may enter, depending upon whichever one happens to be in position with respect to said notch 82. At its lower end the shaft 77 also carries a ratchet wheel 83 which is engaged by a ratchet dog 84 to prevent the shaft from being rotated backward. This ratchet makes it necessary for the conductor to rotate the shaft 77 always in the same direction, but if desired the ratchet and dog may be dispensed with and the shaft 77 permitted to rotate in either direction.

It is obvious that the interlocking disk 76 will lock all of the interlocking members except one, this particular one which is thus left free being dependent, of course, upon the position to which the disk 76 has been rotated. I prefer to so arrange the interlocking members that those members which are needed to operate the clutches for any one of the three conditions of operation above specified, will be contiguous or adjacent each other, this being indicated by the disposition of the reference letters F^2, J^2, G^2 and H^2 (Fig. 11). Thus an indicator may be adjusted or set at the barns to adapt it to the particular one of (and any possible deviations from) the conditions of operation above specified.

After the indicator has been thus set, nothing remains for the conductor to do at the end of each trip but to pull down the button 73 corresponding to the trip he has just finished, which button in this case is the only one that is up, and the releasing of the particular interlocking member corresponding to the trip he is about to make. Since the apparatus was previously set or adjusted in the barns, the conductor cannot release any other interlocking member than that corresponding to the trip about to be made unless he disturbs the adjustment of the apparatus made in the barns, but he would find it very impracticable to disturb the preadjustment and is, therefore, extremely unlikely to do it. The releasing of the proper interlocking member is accomplished after the conductor has pulled down the particular button 73 corresponding to the trip which he has just finished, by pulling out the spring-pressed rod 81 which happens to be in the notch 82, and then rotate the shaft 77 until the interlocking disk releases said interlocking member corresponding to the trip which the car is about to make. This interlocking member will then be raised and its corresponding clutch thrown in by the

spring 41c. Since, as before mentioned, the interlocking members are so arranged that those which are necessary for any of the above specified conditions of operation are contiguous, the conductor need rotate the releasing shaft 77 a portion of a revolution. It will be particularly noted that only one of the tape rolls or drums is propelled or driven by the mechanism during operation, and that the other roll is rotated entirely by the pull of the tape. There is no need, therefore, as in cases where both rolls are positively driven by the mechanism, for any mechanism to compensate for the relative difference in speed of rotation of the rolls due to the varying diameters of the rolls. I prefer to provide a suitable brake for each of the rolls, so as to prevent them from running entirely free when being pulled by the tape, thus eliminating any chance of the momentum of the roll causing a slack in the tape. In the structure shown, these brakes are in the form of flat springs (see Figs. 1, 5 and 9), one end of which is secured to the frame B of the device, and the other end of which yieldingly presses against the faces of the beveled gears 37 and 38. These springs impose a sufficient drag on the rolls to accomplish the above-mentioned object. It will be obvious to one skilled in the art, after having obtained an understanding of my invention from the disclosures herein made, that my invention is capable of embodiment in other structures and modifications without departing from the scope and spirit of the invention, and I wish it so understood.

What I claim as my invention is:

1. An indicator member for structures of the class described comprising a long continuous strip of flexible material capable of being wound upon or unwound from a roll or drum and having two parallel longitudinally disposed series of indicator characters, the order of the characters of both series beginning at the same end of said strip, and being arranged in progressively increasing spaced relation in opposite directions.

2. An indicator member for structures of the class described, comprising a long continuous strip of flexible material capable of being wound upon or unwound from a roll or drum and having two parallel longitudinally disposed series of indicator characters, the characters of both series being arranged in progressive order, and being arranged in progressively increasing spaced relation in opposite directions, one series of characters being as a whole offset longitudinally of the strip with respect to the other series as a whole.

3. The combination of a pair of rolls or drums and an indicator tape adapted to wind upon and unwind from said drums, mechanism for rotating either of said drums in either direction, means individual to each drum and to each direction of rotation of each drum for connecting said mechanism with said drums, and means preventing the operation of more than one of said individual means at a time.

4. The combination of a pair of rolls or drums and an indicator tape adapted to wind upon and unwind from said drums, mechanism for rotating either of said drums in either direction, means individual to each drum and to each direction of rotation of each drum for connecting said mechanism with said drums, and interlocking mechanism to prevent the operation of more than one of said individual means at a time.

5. The combination of a pair of drums, mechanism for rotating either of said drums in either direction, clutches individual to each drum and to each direction of rotation of each drum for connecting said mechanism with and disconnecting it from said drums, mechanism individual to each clutch for actuating any one of said clutches, and means for preventing the actuation of the remaining clutches.

6. In an indicator for vehicles, the combination of a pair of drums, a legend bearing tape carried by said drums and adapted to wind upon and unwind from said drums in either direction, mechanism responsive to the direction of travel of the vehicle for driving either of said drums in the direction corresponding to the direction of travel of the vehicle, and clutch mechanism individual to each drum and to each direction of rotation thereof for connecting the driving mechanism with or disconnecting it from said drums.

7. In an indicator for vehicles, the combination of a pair of drums, a legend bearing tape carried by said drums and adapted to wind upon and unwind from said drums in either direction, mechanism responsive to the direction of travel of the vehicle for driving either of said drums in the direction corresponding to the direction of travel of the vehicle, clutch mechanism individual to each drum and to each direction of rotation thereof for connecting the driving mechanism with or disconnecting it from said drums, means individual to each clutch for actuating said clutch, and interlocking means for locking the remaining clutches against actuation.

8. In an indicator for vehicles, the combination of a pair of drums, a legend bearing tape carried by said drums and adapted to wind upon and unwind from said drums in either direction, mechanism responsive to the direction of travel of the vehicle for driving either of said drums in the direction corresponding to the direction of travel of the vehicle, clutch mechanism individual to each drum and to each direction of rota-

tion thereof for connecting the driving mechanism with or disconnecting it from said drums, means individual to each clutch for actuating said clutch, and adjustable interlocking means for locking the remaining clutches against actuation.

9. An indicator member for a structure of the class described, comprising a long continuous strip of flexible material capable of being wound upon or unwound from a roll or drum, and having a plurality of parallel longitudinally disposed series of characters, the characters of said series being arranged in progressive order beginning at the same end of the strip, and the characters of each series being arranged in opposite progressively increasing spaced relation.

Signed by me at Chicago, Illinois, this 15th day of December, 1914.

LEWIS B. BELL.

Witnesses:
E. H. CLEGG,
EDGAR FRANCIS BEAUBIEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."