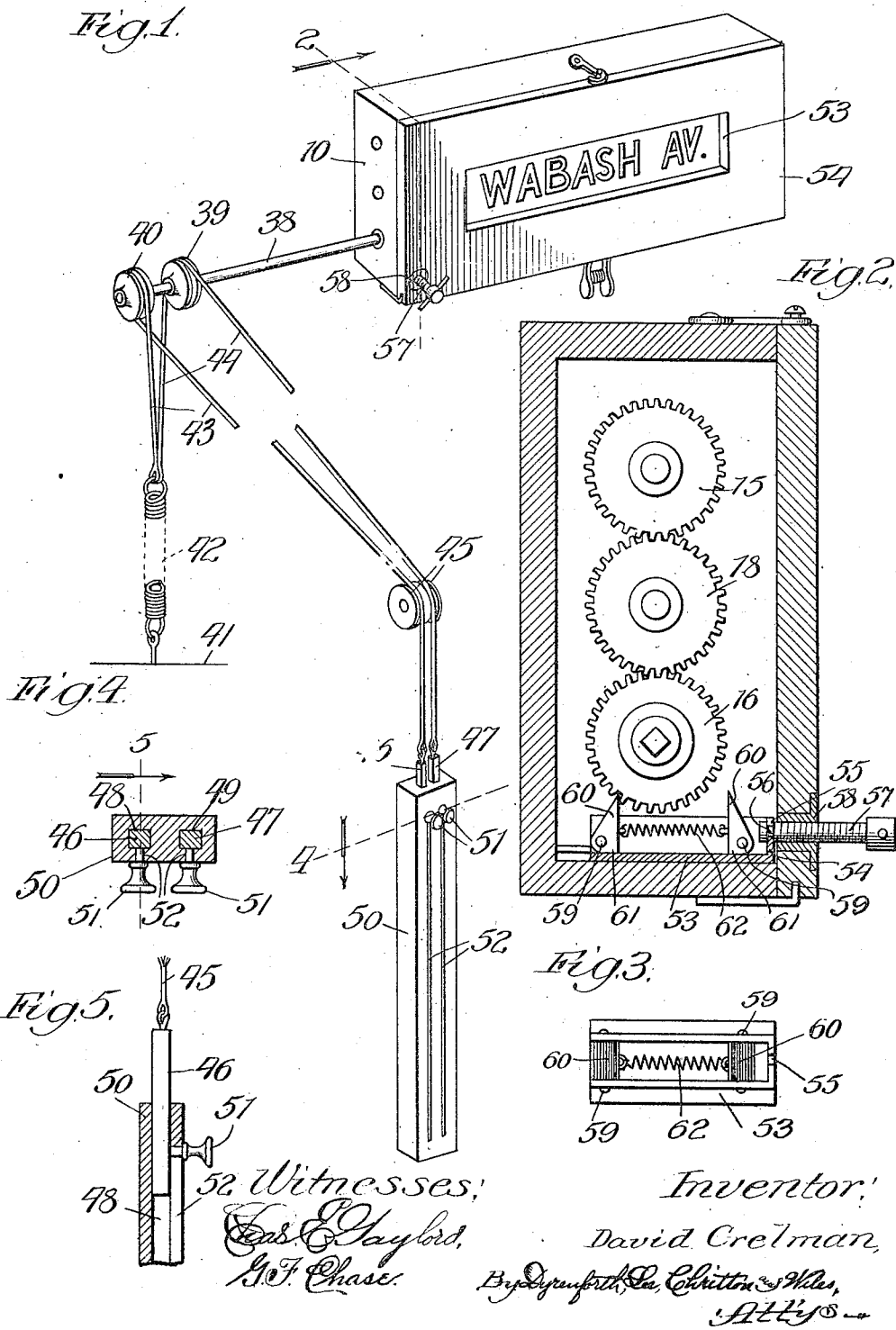


986,046.

Patented Mar. 7, 1911.

2 SHEETS—SHEET 1.

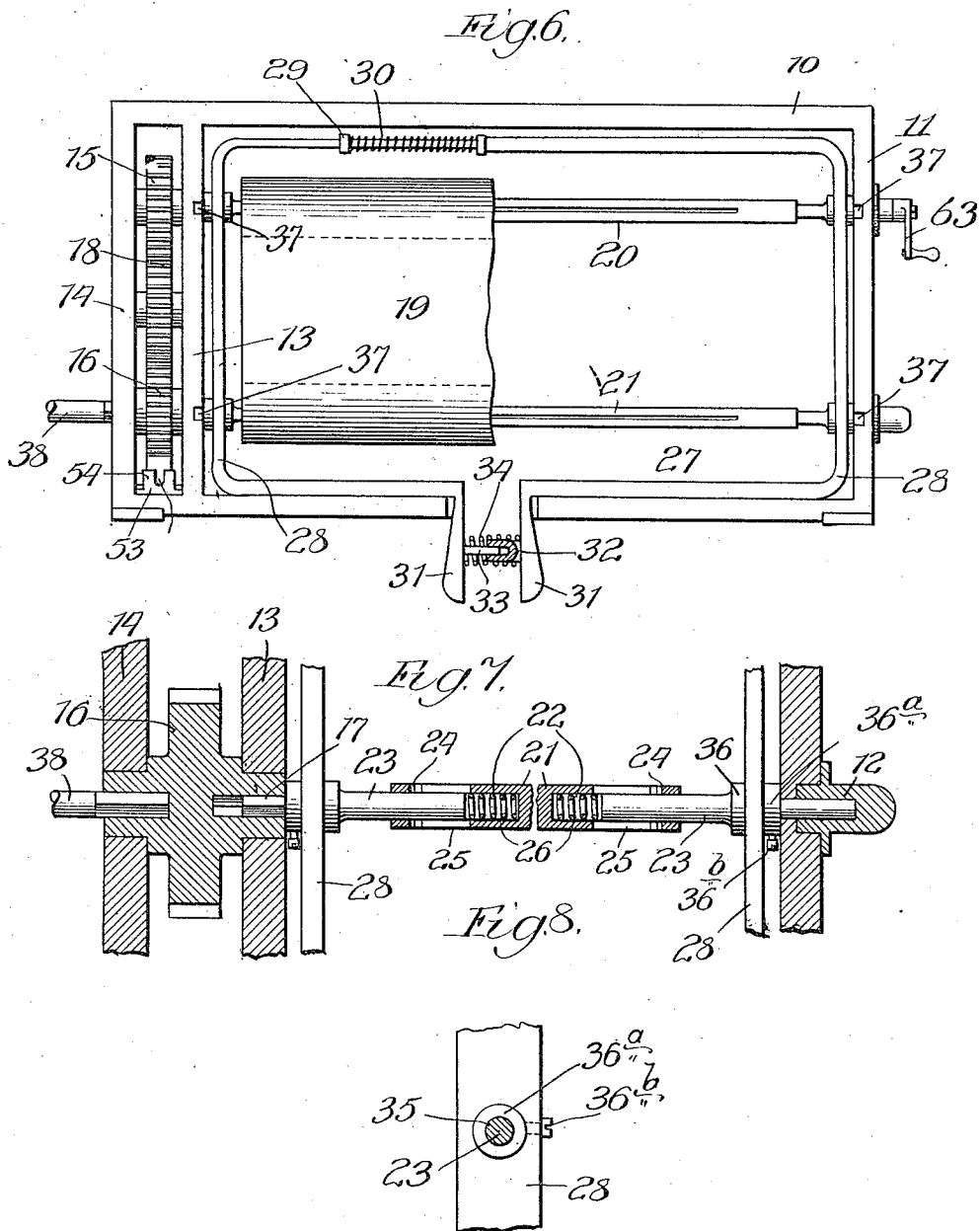


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INDICATOR.
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986,046.

Patented Mar. 7, 1911.

2 SHEETS-SHEET 2.



Witnesses.
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INDICATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID CRELMAN, a subject of the Czar of Russia, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Indicators, of which the following is a specification.

My invention relates to indicators of the class designed to indicate to passengers in a car the streets passed by the car as the latter approaches them; and, more particularly, to indicators formed of a pair of rollers coöperating with a strip of flexible material upon which the names of the streets are printed, and provided with means within reach of an attendant on the car for actuating the strip to move the printing into a position in which it may be viewed by the passengers.

My object is to provide improvements in devices of the character above referred to, to the end of making the same more practicable and desirable for use by providing improved operating-means for the rollers, improved means for insuring the proper positioning of the printed matter opposite the view-opening in the casing for the rollers, and a frame for the rollers of a construction adapting them to be readily inserted into operative position in the casing on the car and removed therefrom as desired.

Referring to the accompanying drawings—Figure 1 is a perspective view of my improved indicator. Fig. 2 is an enlarged section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 is a plan view of dog-mechanism coöperating with the roller-operating gears. Fig. 4 is an enlarged section taken at the line 4 on Fig. 1 and viewed in the direction of the arrow. Fig. 5 is a section taken at the line 5 on Fig. 4 and viewed in the direction of the arrow. Fig. 6 is a view in elevation of the interior of the indicator. Fig. 7 is a broken section taken through the casing, and one of the gears, showing the roller-carrying frame in elevation; and Fig. 8, a broken view in end elevation of one end of the roller-carrying frame with a roller supported thereon.

The casing for the indicator is represented at 10 and will be located at any convenient point in the car to be equipped, either at its ends or at a side thereof. One side-member 11 of the casing is provided with a pair of spaced bearing-members 12 which open inwardly through the casing as represented in Fig. 7. The opposite end of the casing is

provided with a partition 13, in which and in the adjacent side-member 14 of the casing and in direct line with the bearings, spaced gears 15 and 16 are journaled, both of these gears containing angle-shaped sockets 17 which open inwardly through the partition 13 for receiving roller-shafts hereinafter referred to. Journaled in the casing-side 14 and the partition 13 is a third, idler, gear 18 which is located between the gears 15 and 16 and meshes therewith for causing the gears 15 and 16 to rotate in the same direction for a purpose hereinafter set forth.

The strip of material upon which the streets that the car passes, are printed in succession, is represented at 19 and is rolled at its opposite ends upon rollers 20 and 21, the strip being secured at its opposite free ends to the rollers in any suitable manner, as is well understood in the art, whereby it may be rolled from one roller to the other. Each roller contains in its opposite ends outwardly-opening sockets 22 in which roller-extensions 23 extending beyond the ends of the rollers are reciprocally confined, these extensions carrying pins 24 which slide in closed-end slots 25 in the walls of the sockets 22. The extensions 23 are held outwardly pressed by coiled springs 26 confined between the end-walls of the sockets 22 and the inner ends of the extensions 23, as represented in Fig. 7.

Coöperating with the rollers 20 and 21 is a frame 27 which is preferably formed of two U-shaped members 28 opening toward each other as represented in Fig. 6. One of the arms of one member 28 telescopes with the adjacent arm of the other member 28, and surrounding one of these arms and confined between a stop 29 thereon and the end of the adjacent arm is a coiled spring 30 which operates to spread apart the members 28. The opposite arms of the members 28 are deflected outwardly to provide spaced handle-grips 31, one of which carries a socket-member 32 which telescopes with a pin 33 on the other grip, a coiled-spring 34 surrounding these telescoping parts and operating to hold the members 28 spread apart. The opposite sides of the frame 27 contain openings 35 for receiving the ends of the extensions 23 which are provided with fixed collars 36 and removable collars 36^a carrying set-screws 36^b, the collars 36 fitting against the inner faces of the sides of the frame 27 and the collars 36^a being located on

the outer sides thereof, as represented in Figs. 6 and 8. The openings 35 are so located as to cause the rollers to extend lengthwise of the frame 27 and parallel with each other, and be in position for entering parallel channels, or grooves, 37 in the inner surfaces of the side-member 11 and the partition 13, leading into the bearings 12 and the sockets 17 in the gears 15 and 16, when the frame 27 is introduced into the casing as represented in Fig. 6 for a purpose hereinafter explained.

The operation of the device as described is as follows: Assuming the casing to be empty of its frame 27 and the rollers carried thereby, the operator will insert the rollers 20 and 21 with the strip 19 wound thereon into the frame 27 in such position, as illustrated in Fig. 6, as to cause the extensions 23 to extend through the openings 35 (Fig. 8) with the collars 36 disposed on the inner sides of the frame-ends, whereupon the collars 36 may then be fastened on the extensions 23 in the position illustrated in Fig. 8. The operator will then grasp the frame 27 at its handle-grips 31 squeezing the latter together against the resistance of the springs 34 and 30 with the result of causing the extensions 23 to be partially drawn into the interior of the rollers against the tension of the springs 26, thereby shortening the roller-devices. The operator, still grasping the frame 27 as described, inserts the latter into the casing 10, cross-wise thereof, the ends of the extensions 23 entering the channels 37 which guide the extensions to the bearings 12 and sockets 17 in the gears 15 and 16. As soon as the frame 27 is positioned as described, the operator releases his grip on the handles 31, whereupon the springs 33, 30 and 26 recoil and spread the frame-members 28, thereby projecting the extensions 23 into the bearings 12 and the sockets in the gears 15 and 16, thus positioning these rollers for operation when the gears are rotated in any suitable manner, as for instance by the means hereinafter described. When it is desired that the rollers be removed from the casing 10, the operator will grasp the handle-grips 31, thus withdrawing the extensions 23 from engagement with the gears 15 and 16 and bearings 12 and permitting the frame 27 to be withdrawn without disturbing the relative positions of the rollers. The means which I prefer to employ for operating the rollers is that shown in the drawings and is as follows: The gear 16 is rigidly connected with a shaft 38 which extends beyond the casing 10, and carries a pair of pulleys 39 and 40, or these pulleys may be combined in one if desired. Secured to the floor of the car represented at 41 is a coiled spring 42, to the upper end of which two cords 43 and 44 are secured. The cord 43 passes around the pulley 40 in one direc-

tion and the cord 44 around the pulley 39 in the opposite direction, as represented in Fig. 1, these cords extending over pulleys 45 and leading to a point in the car convenient of access to either the conductor or motorman, as desired. The ends of the cords 43 and 44 opposite to those attached to the spring 42 connect with slides 46 and 47, respectively, which are confined in a pair of parallel channels 48 and 49 provided in a block 50, these slides carrying finger-grips 51 which extend through closed-end slots 52 in the walls of said channels and through the medium of which grips the cords may be operated against the tension of the spring 42.

When it is desired that the strip 19 travel from one roller to the other in one direction, the operator will by successively drawing down on one of the finger grips 51, draw on the cord secured thereto, and with each pull rotate the shaft 38 and consequently the gears in the casing 10 sufficiently far to expose with each operation, at an opening 53 in the removable cover 54 for the casing 10, the name of a street, and when it is desired that the strip 19 travel in the opposite direction, such successive operations of the gear-mechanism may be effected by operating the other finger-grip 51 as described, the slots 52 being of a length equal to the distance between the adjacent lines of printed matter on the strip to properly position the printed matter opposite the openings 53; and the spring 42 operating to automatically return the cords and finger-grips connected therewith to normal position, (Fig. 1.)

As a means for preventing the turning of the gears during the return movement of the cord to normal position and thus displacement of the strip 19, except when operated as hereinbefore described, I provide a double-pawl device, a description of which is as follows: Slidable upon the bottom of the casing 10, immediately below the gear 16, is a trough-shaped member 53 provided at one end with a plate 54 containing an upwardly-extending slot 55 adapted to engage with the reduced shouldered end 56 of a screw 57 working through a nut 58 in the side of the casing 10. Pivoted on pins 59 secured in the opposed walls of the trough 53 are upwardly-extending dogs 60 which are so constructed that they will not yield inwardly by reason of the engagement of their portions 61 with the bottom of the trough 53. The dogs are connected together and held yielding in the position illustrated in Fig. 2, by means of a coiled spring 62. When in the operation of the gears, the gear 16 turns to the right in Fig. 2, the trough should be positioned as illustrated to cause the left-hand dog 60 to cooperate with this gear and prevent it from turning to the left. When the gears are so operated as to cause the gear 16 to rotate to the left in Fig.

2 and thus reverse the direction of travel of the strip 19, the trough 53 should be moved to the left in Fig. 2 by operating the screw 57 to a position in which the right-hand dog 60 will coöperate with the gear 16 for permitting it to rotate to the left in Fig. 2, but not to the right.

While I have shown springs 26 operating to extend the roller-extensions 23, I do not wish to be understood as intending to limit my invention to the use of such springs, as the springs in the frame may be alone used. Furthermore, instead of using the springs in the frame, those in the rollers may be alone employed, the object of providing some spring-means being that of causing the roller-extensions to be moved automatically to extended position and held in this position until it is desired that they be withdrawn.

One of the particular advantages arising from a construction embodying my invention is that of permitting the rollers carrying the strip to be quickly and easily introduced into the casing and withdrawn therefrom at will, without disturbing the operating mechanism. Thus, a car may be equipped at both ends with a casing and operating mechanism, and but one frame 27 be employed, such frame being changed from one casing to the other when such change is desirable, for locating the indicating device in front of the passengers.

Under some conditions in use it is desirable that some means be provided whereby the rollers may be turned in either direction to wind the strip from one roller to the other, by hand, without necessitating such winding of the strip by operating the cord and pulley mechanism, as for instance where the strip, which it is desired be inserted into the casing, is so wound on the rollers as to cause the printed names of the streets, should the rollers be operated by the cord and pulley mechanism, to be successively exposed to view in the reverse order of that required. To permit of such operation of the strip, I provide the roller 20 with a crank-handle 63 which may be turned by hand to turn the rollers in the desired direction, the provision of the cord and pulley mechanism permitting the pulleys to turn against the friction of the cords.

What I claim as new, and desire to secure by Letters Patent, is—

1. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its opposite ends upon said rollers, and means in said casing engaging with said rollers and operating, when actuated,

to shorten the latter for permitting them to be withdrawn from the bearings in the casing.

2. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its ends upon said rollers, means tending to hold said rollers extended, and means operating, when actuated, to shorten the rollers, for the purpose set forth.

3. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its ends upon said rollers, and a frame in said casing formed of movable members engaging with said rollers and operating, when the frame is contracted, to shorten the rollers, for the purpose set forth.

4. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its ends upon said rollers, a frame in said casing formed of movable members engaging with said rollers and operating, when the frame is contracted, to shorten the rollers, and means tending to hold said frame extended, for the purpose set forth.

5. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its opposite ends upon said rollers, and a frame in said casing formed of separate U-shaped members connected together and movable with relation to each other, said frame engaging with said rollers and operating, when said members are drawn toward each other, to shorten the rollers, for the purpose set forth.

6. A device of the character set forth, comprising, in combination, a casing formed with opposed bearings for rollers, a pair of rollers formed of movable parts permitting the rollers to be lengthened or shortened, journaled in said bearings, a strip of flexible material bearing the matter to be displayed rolled at its opposite ends upon said rollers, a frame in said casing formed of separate U-shaped members connected together and movable with relation to each other, said

frame engaging with said rollers and operating, when said members are drawn toward each other, to shorten the rollers, and means tending to hold said frame extended, 5 for the purpose set forth:

7. The combination with an expansible and contractible frame formed of relatively movable members, and means tending to hold said frame expanded, of rollers carried 10 by said frame and adapted to be lengthened and shortened, for the purpose set forth.

8. A frame for the purpose set forth, formed of relatively movable U-shaped-members opening toward each other with 15 two adjacent opposing arms telescoping and its other arms formed with handle-portions, and springs cooperating with said telescoping arms and operating to hold the members normally in expanded condition.

20 9. The combination of a frame formed of

relatively movable parts permitting it to be expanded and contracted, and rollers formed with relatively movable parts supported on said frame in a manner to cause them to be lengthened and shortened when 25 the frame is expanded and contracted respectively.

10. The combination of a frame formed of relatively movable parts permitting it to be expanded and contracted, rollers formed 30 of relatively movable parts supported on said frame in a manner to cause them to be lengthened and shortened when the frame is expanded and contracted respectively, and means tending to hold the frame expanded. 35

DAVID CRELMAN.

In presence of—

W. B. DAVIES,

R. A. SCHAEFER.