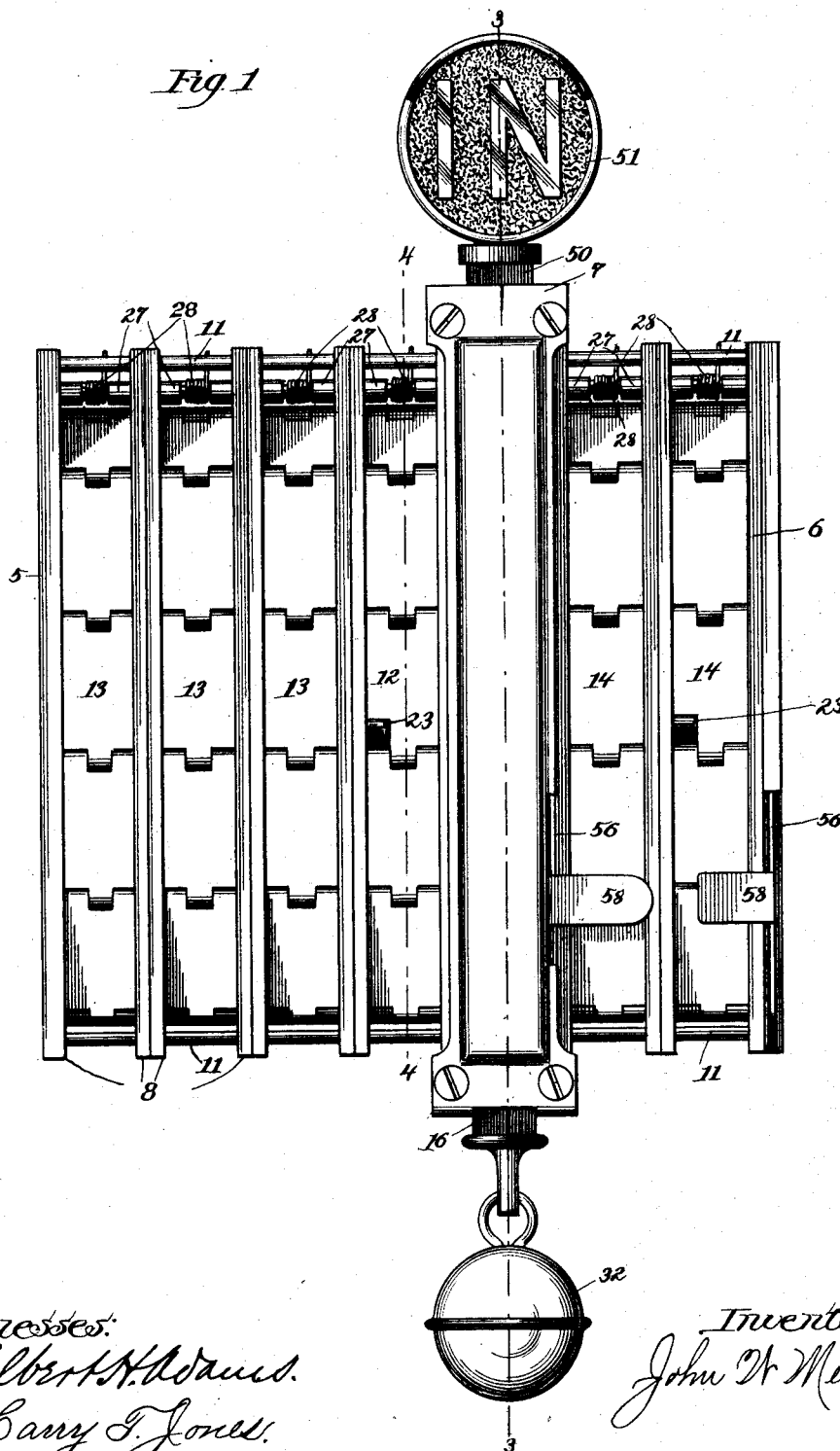


J. W. MEAKER.
FARE REGISTER.

No. 423,436.

Patented Mar. 18, 1890.

Fig 1



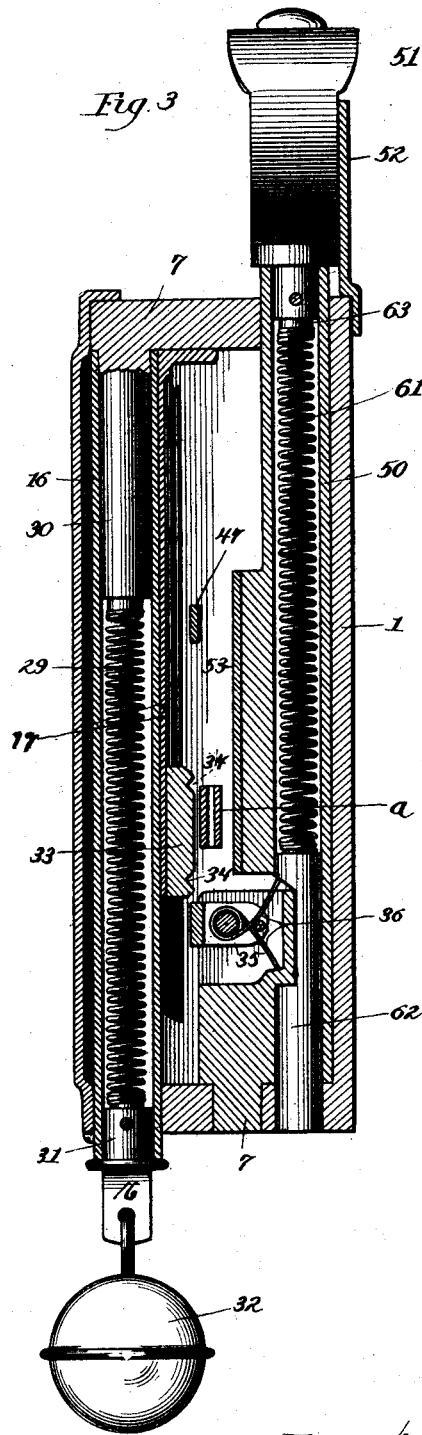
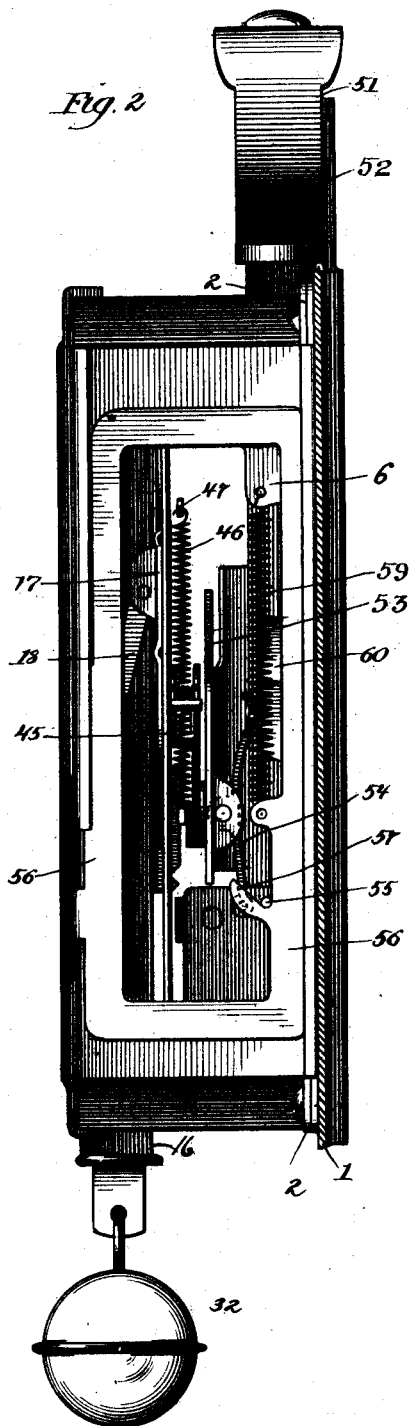
Witnesses:
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Inventor:
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(No Model.)

4 Sheets—Sheet 3.

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Fig. 4

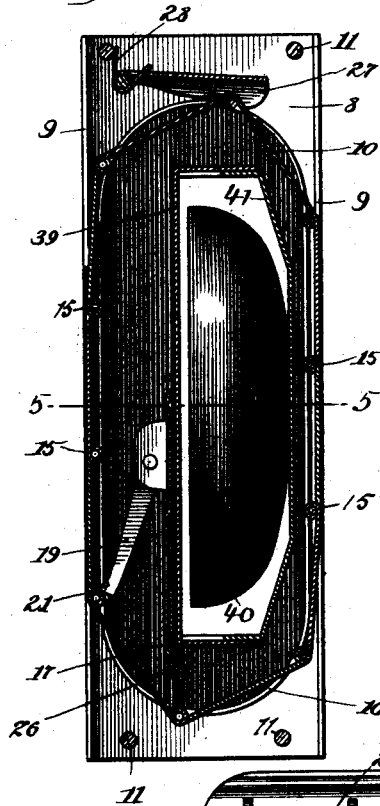


Fig. 5.

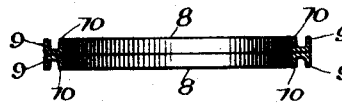
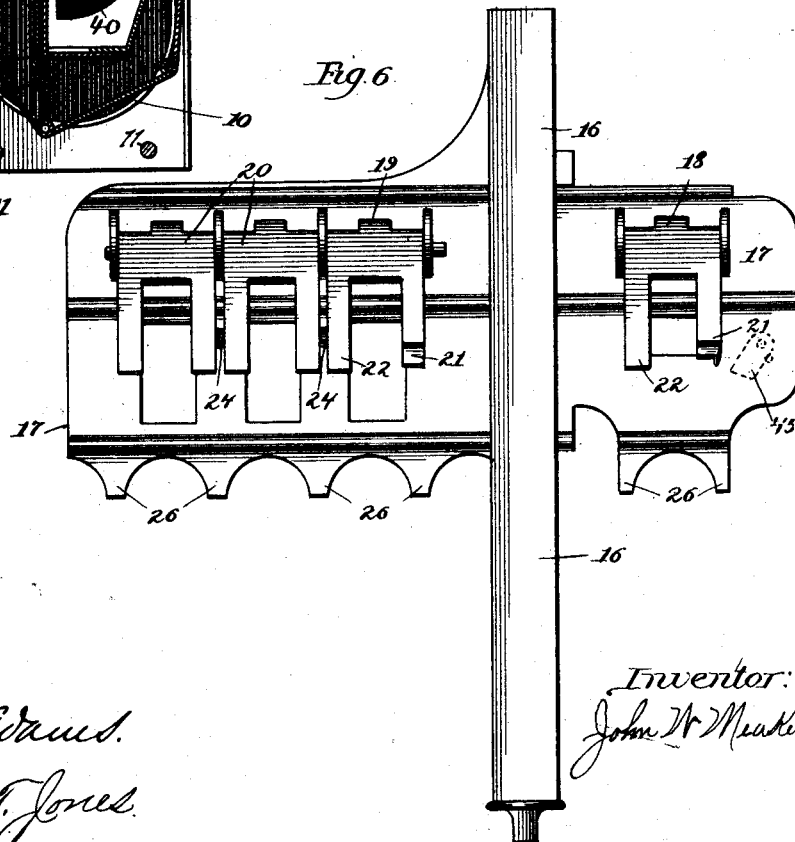


Fig. 6



Witnesses:

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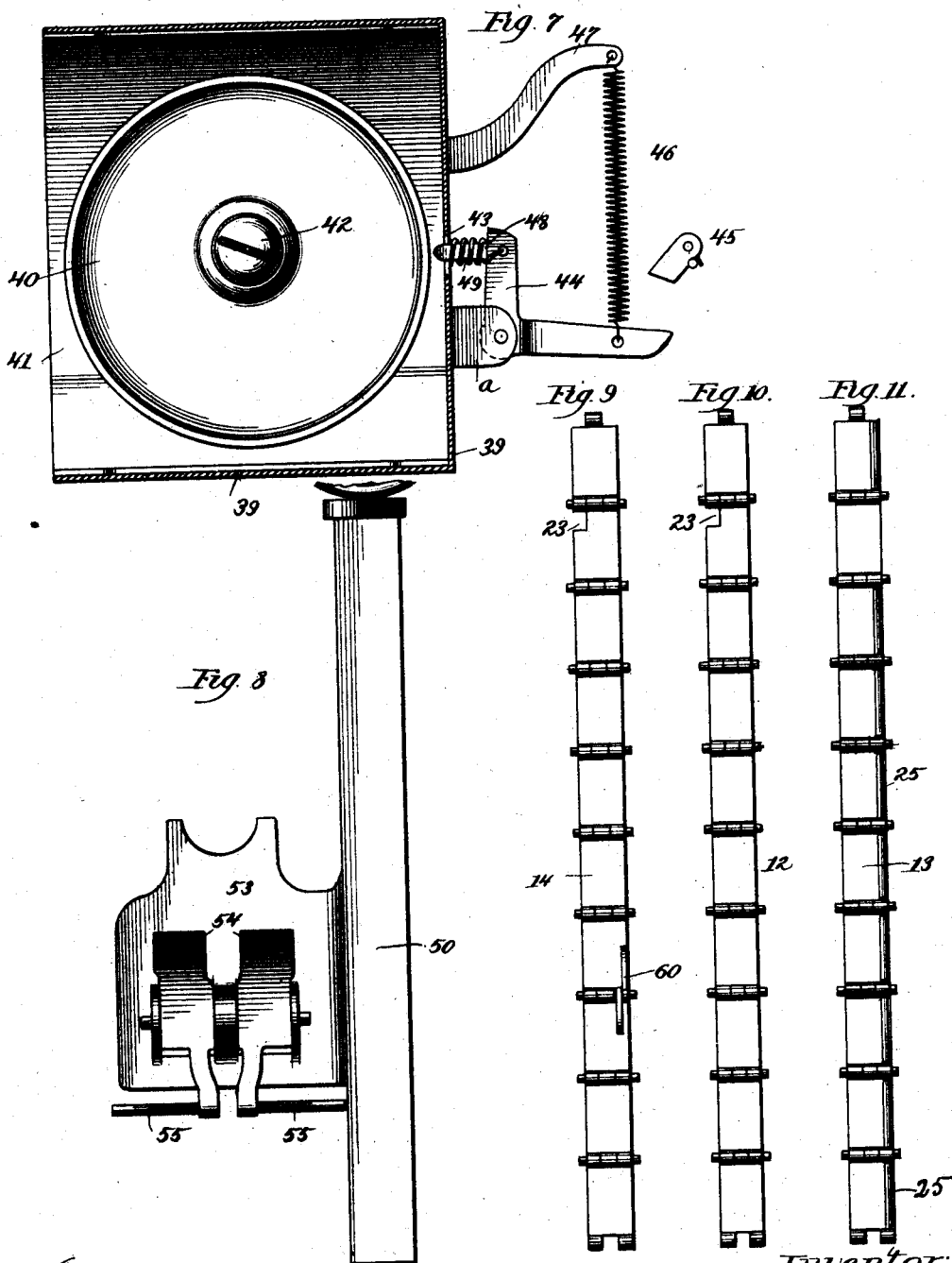
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John W. Meaker

UNITED STATES PATENT OFFICE.

JOHN W. MEAKER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO THE MEAKER MANUFACTURING COMPANY, OF SAME PLACE.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 423,436, dated March 18, 1890.

Application filed August 6, 1889. Serial No. 319,964. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. MEAKER, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Fare-Registers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the registering mechanism removed from its case. Fig. 2 is an elevation of the trip-register side of the register. Fig. 3 is a longitudinal section at line 3 3 of Fig. 1. Fig. 4 is a longitudinal section at line 4 4 of Fig. 1. Fig. 5 is a section at line 5 5 of Fig. 4 through two plates of the chain-frame. Fig. 6 is a detail, being a front view of the main pull-bar and its pawls for advancing the chains of the register. Fig. 7 is a detail showing the alarm mechanism. Fig. 8 is a detail, being a rear view of the resetting pull-bar and its pawls for resetting the trip-register chains to zero. Fig. 9 is a reduced detail showing the inner side of the units-chain of the trip-register. Fig. 10 is a reduced detail showing the inner side of the units-chain of the total-register. Fig. 11 is a reduced detail showing the inner side of the tens or hundreds chain of the total-register.

This invention relates to fare-registers.

Its objects are to improve the construction and operation of fare-registers generally, but more especially of that class of fare-registers shown and described in Letters Patent No. 397,602, dated February 12, 1889, and No. 347,437, dated August 17, 1886, granted to me.

The nature of the invention consists in the several improvements illustrated in the drawings and hereinafter described.

That which I claim as new will be pointed out in the claims.

In the drawings, 1 represents the back of the case of the register. Only the back of the case to which the registering mechanism is secured is shown, as the remainder of the case may be made in any suitable form, such as that shown in my former patents.

5 represents a frame for supporting the chains for the total-register.

6 represents a frame for supporting the chains for the trip-register.

7 represents a frame for supporting the main pull-bar and the resetting pull-bar, which bars are located between the chain-frames 5 and 6, as shown in Fig. 1.

The chain-supporting frames 5 and 6 both consist of several plates 8, as shown in Figs. 1, 4, and 5. Each plate 8 has its upper and lower edges turned over at right angles, as shown in Figs. 4 and 5, forming flanges 9. The center of each plate 8 is cut out, as shown in Fig. 4, and the inner edge of the plate is turned out at right angles, forming a flange 10, as shown in Figs. 4 and 5. These plates 8 are placed together in pairs, as shown in Figs. 1 and 5, and are secured together by pins 11, forming the frames 5 and 6 for supporting the chains. The chain-frames 5 and 6 are secured to the back 1 by means of plates 2, which are screwed to the back 1 of the case, clamping the frames 5 and 6 thereto.

12 represents the units-chain of the total-register; 13, the tens, hundreds, and thousands chains of the total-register, and 14 the chains of the trip-register. Each of these chains consists of ten links secured together by pins 15, which project beyond the side edges of the chains and engage with the flanges 10 on the plates 8, as shown in Fig. 4. By making the chain-frames, as above described, of plates having the central portion cut out and the inner edge turned out a wide bearing is formed for the pins 15 of the chains, giving a broad support to the chains.

16 represents the main pull-bar. This main pull-bar, as shown in Fig. 6, has a plate 17 secured to its under side, on which plate 17 is secured the pawls 18, 19, and 20 for advancing the chains of both the trip-register and the total-register. The pawls 18, 19, and 20 are bifurcated and are each pressed upward by a spring, (not shown,) which causes them to engage with their respective chains, as hereinafter described. The pawl 18 is provided with a point 21, which engages with the hinges of the units-chain 14 of the trip-register and advances the chain one link on each pull of the main pull-bar 16, and the pawl 19 is also provided with a point 21, which engages with the hinges of the units-chain 12 of the total-register and advances that chain one link on each pull of the main pull-bar 16.

The point 21 of each of these pawls is higher than the ends of the other arm 22 of the pawl, so that the arms 22 will not engage with the tens-chains. When the link bearing the numeral 9 of either the total or the trip register chains is exposed to view at the sight-openings, and the tens-chain is to be advanced one link, with the units-chain upon the next registration, the point 21 upon the pawls 18 or 19 drops into the notch 23 in the link, with which the pawl engages upon the next registration, which allows the arm 22 of the pawl 18 or 19 to engage with the tens-chain, and when the main pull is advanced the pawl will advance the tens-chains one link simultaneously with the units-chain. This construction of chains dispenses with the use of the bridges heretofore used for holding out of engagement the pawls which have been heretofore used for advancing the tens-chains at the proper time. The link in which the notch 23 is made will depend upon the position of the sight-opening in relation to the pawls for advancing the chains. The pawl 19 is provided with a lip 24, which holds the adjoining pawl 20 out of engagement with its chain, except when the pawl 19 is advancing both the units and tens chains.

The tens and hundreds chains 13 of the total-register are each provided with bridges 25, as shown in Fig. 11, on nine of their links, while the tenth link is plain. These bridges 25 hold the pawls 20 out of engagement with the links of their chains, except when the pawls engage with the plain link, when the pawl 20 engages with the next higher chain and advances it one link upon the next registration. The highest chain, which in this instance is the thousands-chain, need not be provided with bridges 25.

The plate 17 is provided with a series of projections 26, as shown in Fig. 6, which enter the angle between two adjoining links of the registering-chains, as shown in Fig. 4, when the main pull-bar 16 and plate 17 are advanced, thereby preventing the chains from being advanced more than the length of one link upon a single registration by jerking the pull-bar.

27 represents a series of pawls, one for each registering-chain, adapted to engage with the pins 15 and prevent the chains from being moved backward and from being moved forward except as advanced by the advancing pawls. The pawls 27 are held against the pins 15 by springs 28, as shown in Figs. 1 and 4.

The pull-bar 16 is hollow, as shown in Fig. 3, and within it is placed a coiled spring 29, which is secured at one end to a plug 30, on which the pull-bar 16 slides, and at its other end to a plug 31, secured in the outer end of the pull-bar. The spring 29 returns the pull-bar 16 to its normal position after each registration, and being situated within the pull-bar, a very long spring can be used, and the spring will not interfere with any of the other parts of the register.

The pull-bar 16 is provided with a thumb piece or ball 32, as usual.

To the rear side of the pull-bar 16 is secured a block 33, as shown in Fig. 3, which is provided with a notch 34 near each end. A pawl 35, having rectangular corners at its free end, is pivoted in the frame 7 in such position that one of its corners will be pressed against the lower edge of the block 33 by a spring 36 when the pull-bar is pulled outward, the engagement of the corner with one of the notches 34 preventing the return of the pull-bar until the block 33 has passed the pawl 35. After the block 33 has passed the pawl 35 on its outward pull the pull-bar can be returned by the spring 29, the other corner of the pawl 35 engaging with the lower edge of the block 33, preventing a second pull until after the pull-bar has been returned to its normal position after each registration.

39 is a plate secured within the cut-out portions of the plates 8, which form the track for the chains. This plate 39 forms a chamber to receive the bell.

40 is the bell. This bell is circular and is secured to a plate 41 by a screw, which passes through the bell at a short distance from the center of the bell, as shown in Fig. 7. The plate 41 is adapted to slide into the chamber formed by the plate 39, and the inner wall of the bell-chamber 39 is provided with an opening 43, through which the bell-hammer can strike the bell, as shown in Fig. 7. The bell is secured to the plate eccentrically, so that by loosening the screw 42 it may be turned to bring its edge nearer to or farther from the opening 43 and the screw 42 set again, thereby adjusting the bell so that it will be struck by the bell-hammer properly.

44 (see Fig. 7) is an elbow-lever mounted in a bracket *a* on the inner wall of the chamber 39 in such position that it will be back of the plate 17, so that the spring-pawl 45, which is mounted on the rear side of the plate 17, will engage with the outer end of the lever 44 on each pull of the pull-bar 16.

46 is a spring, one end of which is secured to the outer end of the lever 44 and the other end to an arm 47, secured to the inner wall of the chamber 39, as shown in Fig. 7. Each pull of the pull-bar 16 advances the plate 17 and pawl 45, which swings the outer end of the lever 44 backward until the pawl 45 slips past the lever 44, when the spring 46 will cause the lever 44 to spring back and the hammer 48 on its inner end to strike the bell 40 through the opening 43. The spring of the pawl 45 will allow it to pass the lever 44 on the return of the pull-bar 16 after each registration.

The hammer 48 is provided with a spring 49, which bears against the inner wall of the chamber 39, preventing the hammer from rebounding after each alarm and causing a double alarm upon a single registration.

50 is the resetting pull-bar. This resetting pull-bar 50 is supported in the frame 7, as

shown in Fig. 3, and on its outer end is pivoted a thumb-piece 51. This thumb-piece 51 has on its opposite faces the words "in" and "out" or other similar words indicating the direction of travel of the car. To the back 1 of the case is secured a plate 52, which prevents the thumb-piece from being turned on its pivot except when the pull-bar 50 is pulled out.

53 is a plate secured to the front side of the resetting pull-bar 50, as shown in Figs. 3 and 8. To the rear side of the plate 53 are pivoted two spring-pawls 54, adapted to engage with the links of the units and tens chains, respectively, of the trip-register. Each pawl 54 is provided with an arm 55, which projects laterally therefrom.

56 are two plates, one on each side of the trip-register-chain frame 6, as shown in Fig. 1. Each plate 56 is adapted to slide in guides secured to the chain-frame 6 and is provided with a hook 57, as shown in Fig. 2, adapted to engage, one with each of the arms 55, on the pawls 54, as shown in Fig. 2. Each plate 56 is provided with a canceler-plate 58, which projects over the trip-register chains 14, as shown in Fig. 1.

59 is a spring attached at one end to the chain-frame 6 and at its other end to the sliding plate 56, as shown in Fig. 2. A similar spring is attached to the plate on the inner sliding plate 56, which is not shown in the drawings, the construction and operation of the parts being the same.

Each chain 14 of the trip-register is provided with a cam or cams 60, as shown in Figs. 2 and 9. The cam or cams 60 are placed on the link or links of the chains 14, which will be beneath the pawls 54 when the zero-links of the chains are exposed to view at the sight-openings for the trip-register.

The parts of the canceling device above described are normally in the position shown in Fig. 3 while the fares are being registered and are not affected by the operation of the main pull.

When it is desired to return the trip-register to zero, as at the end of a half-trip, the conductor must advance the trip-register chains 14 to expose the zero-links at the sight-opening by pulling on the resetting pull-bar 50, which advances both chains one link at a time until the pawls 54 ride upon the cams 60 on the chains 14, which throws the pawls out of action, leaving the trip-register chains stationary with the zero-links at the sight-opening. When the conductor pulls on the resetting pull-bar, the movement of the plate 53 carries the pawls 54 and their arms 55 away from the hooks 57, which allows the upper ends of the pawls 54 to drop down into engagement with the chains 14 and permits the springs 59 to draw the plates 56 upward, bringing the canceling-plates 58 across the sight-opening of the trip-register. Both canceling-plates will remain across the sight-opening until the trip-register chains 14 are

returned to zero, at which time the cams 60 will raise the pawls 54 out of engagement with the chains, causing the arms 55 to swing backward beneath the hooks 57. The engagement of the arms 55 with the hooks 57 moves the sliding plates 56 downward and their canceling-plates 58 out of view at the sight-opening. Any movement of the resetting pull-bar after the trip-register chains are returned to zero will not affect the chains 14, because the pawls 54 will ride upon the cams 60 and cannot engage with the links of the chain. If either of the chains 14 is returned to zero before the other one, it will not be moved by the movements of the resetting pull-bar in bringing the other chain to zero, because its coacting pawl is held up out of engagement by the cam 60.

61 is a spring placed within the hollow resetting pull-bar 50 and attached at one end to a plug 62, on which the pull-bar 50 slides, and at its other end to a plug 63, secured in the outer end of the pull-bar. The spring 61 returns the resetting pull-bar 50 to its normal position after each outward pull.

The manipulation of the register by the conductor in use is the same as that of the registers shown in my said former patents.

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

1. The combination, with a registering-chain composed of a series of links, only one of which is provided with a notch, of the actuating mechanism comprising a pawl to engage the single notch of said chain, substantially as described.

2. The combination, with a registering-chain composed of a series of links, only one of which is provided with the notch 23, of actuating mechanism comprising a bifurcated pawl to engage the single notch of said chain, substantially as and for the purposes specified.

3. A frame for supporting the chains of a register, consisting of plates 8, each having its upper and lower edges turned out, its central portion cut out, and its inner edges turned out at right angles, substantially as and for the purpose specified.

4. The combination, with registering-chains, of a pull-bar, a plate 17, and a series of projections 26 on said plate, substantially as and for the purpose specified.

5. The combination, with the registering-chains and a hollow pull-bar, of a plate 17, having a series of projections 26, pawls mounted on said plate to advance the chains of both the trip-register and the total-register, and a plug on which the pull-bar slides to prevent said bar from being drawn out of line by the side draft of the pawls, substantially as described.

6. The combination of the bell-chamber 39, having an opening 43, the plate 41, adapted to slide into the bell-chamber, the bell 40, secured to said plate eccentrically, whereby the bell may be turned to bring its edge nearer to or farther from the opening in the bell-

chamber, and a hammer adapted to act on the bell through said opening, substantially as specified.

7. The combination, with the registering mechanism, of the bell-chamber 39, having opening 43, the bell 40, the lever 44, pivotally supported on one of the walls of the bell-chamber and actuated by the registering mechanism, the bell-hammer 48, carried by said lever, and the spring 49, secured to the hammer and abutting against the wall of the bell-chamber, substantially as described.

8. In a fare-register, the combination of the pull-bar 16, the plate 17, carried by said pull-bar and provided with the spring-pawl 45, the bell-chamber 39, the elbow-lever 44, the hammer 48, carried by said lever, and the bell 40, substantially as described.

9. In a fare-register, the combination, with a pull-bar having a block 33 secured thereon and provided with notches 34, of the spring-pawl 35, provided with rectangular corners adapted to engage the lower edge of the block 33 and its notches 34 to prevent a second pull until after the pull-bar has been returned to

its normal position after each registration, substantially as described.

10. In a fare-register, the combination, with a trip-register chain, the resetting pull-bar, and resetting pawls, of a canceling-plate operating independent of the register-chain and held out of view by the resetting-pawls when in their normal position, and released by the movement of the resetting pull-bar, substantially as described.

11. The combination, with a trip-register chain in a fare-register, of a sliding plate carrying a canceling-plate and a hook 54, a spring 59, a resetting pull-bar, and pawls 54, having arms 55, substantially as specified.

12. The combination, with chains 14, each having a cam or cams 60, sliding plates 56, each carrying a canceling-plate and a hook, and springs 59, of a resetting pull-bar 50 and spring-pawls 54, having arms 55, substantially as and for the purpose specified.

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Witnesses:

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