(No Model.) 2 Sheets—Sheet 1.

J. W. FOWLER.

FARE REGISTER.

No. 487,731. Patented Dec. 13, 1892.

Fig. 1.

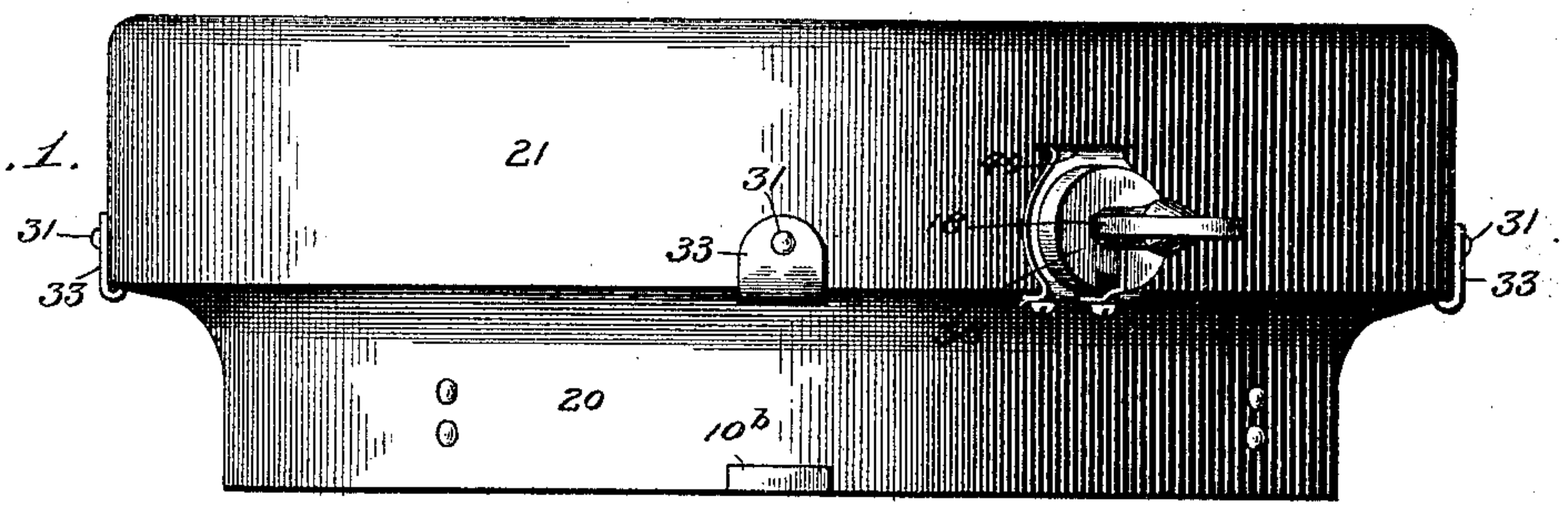


Fig. 8.

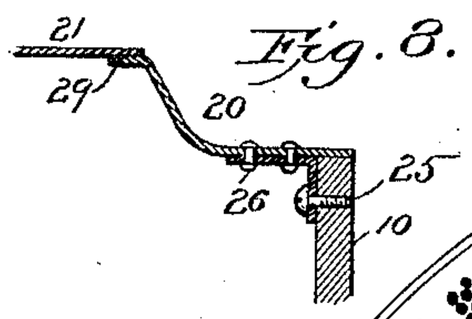


Fig. 2.

Fig. 5.

Fig. 7.

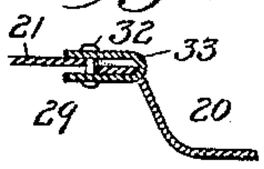


Fig. 4

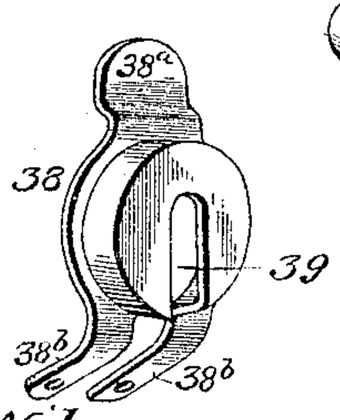


Fig. 3.

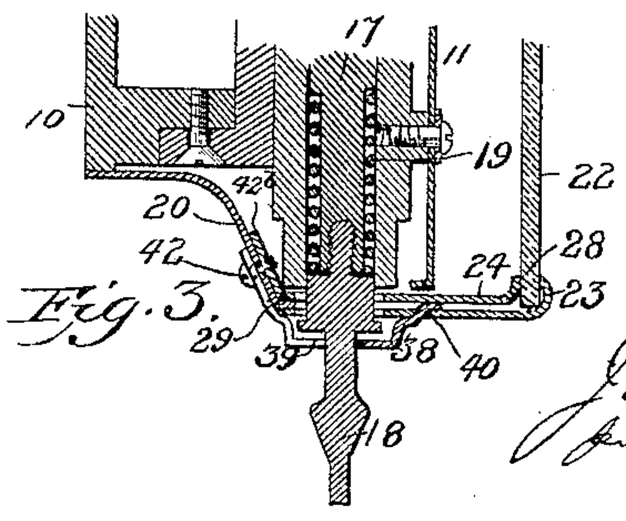
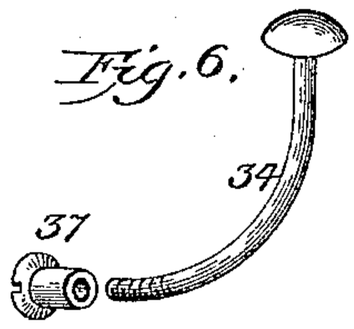


Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

J. W. FOWLER.

FARE REGISTER.

No. 487,731 Patented Dec. 13, 1892.

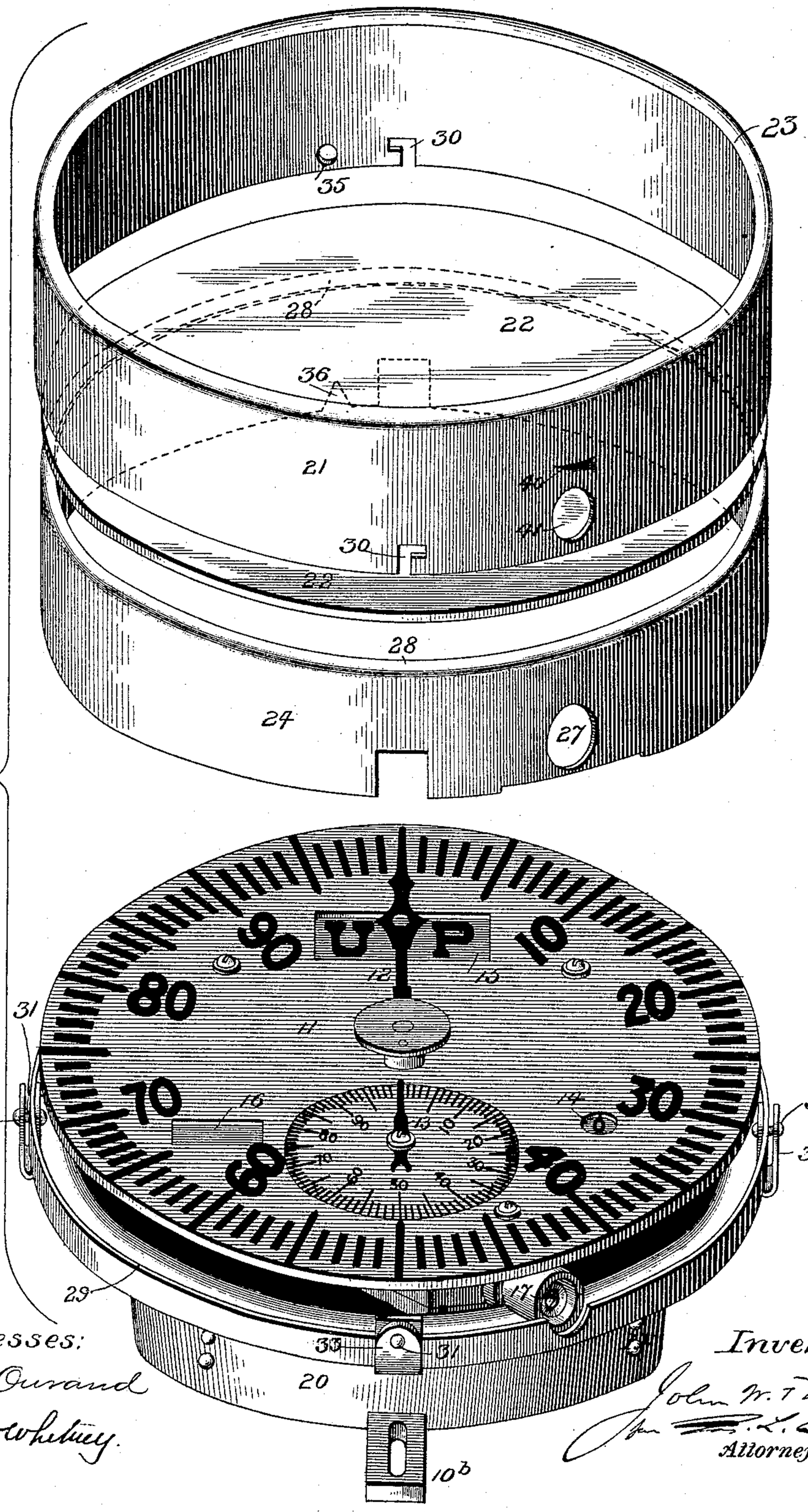

Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN W. FOWLER, OF BROOKLYN, NEW YORK.

FARE-REGISTER.

SPECIFICATION forming part of Letters Patent No. 487,731, dated December 13, 1892.

Application filed March 22, 1892. Serial No. 425,899. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. FOWLER, a citizen of the United States, and a resident of Brooklyn, in the State of New York, have invented a new and useful Improvement in Fare-Registers, of which the following is a specification.

This invention is additional to a series of improvements in registers patented by United States Patent No. 185,740, dated December 6, 1876, on my individual application; Patent No. 190,021, dated April 24, 1877, on an application of myself and others, and Patents No. 206,553, dated July 30, 1878, No. 207,728, dated September 3, 1878; No. 231,161, dated August 17, 1880; Nos. 247,552 and 247,553, dated September 27, 1881; No. 280,925, dated July 10, 1883, and No. 391,702, dated October 23, 1888, on applications of John W. Fowler and Daniel F. Lewis.

The present improvement, in common with all said previous inventions, relates to registers in which a dial is exposed to view in front through a circular face-plate of glass, the mechanism, indicators, and dial are supported by a cast-iron back plate, and a sheet-metal case or drum completes the casing of the dial, the indicators, and the mechanism; and a leading object of this invention, in common with all said previous inventions, is to prevent any fraudulent manipulation of such indicators or any tampering with such mechanism.

The present invention is more particularly additional to a certain part of the invention set forth in said Patent No. 271,977 and claimed in its eighth and ninth claims.

Owing to the indispensableness of the glass face-plate or "glass," as it is hereinafter termed, and its liability to be accidentally broken, it is important that provision be made for quickly replacing the glass and for enabling unskilled persons to do this. It is at the same time essential that the case or drum, hereinafter termed the "drum," should be effectively guarded against being opened by unauthorized persons, and it has been especially desirable to prevent opening the two-part drum set forth and claimed in said Patent No. 271,977 without taking down the register as it hangs in the car and to facilitate quickly opening and closing said drum when the register is down or unhung. It has also been desirable in connection with the radial-shaft "rotary" resetting-mechanism, successive forms of which are set forth in said Patents Nos. 190,021, 207,728, 206,553, 271,977, 273,675, and 280,925, to keep the attached setting key or knob in the form of a simple thumb-screw, now commonly used, from being unscrewed and detached, either accidentally or mischievously.

The present invention consists in certain novel combinations of parts, hereinafter set forth and claimed, intended and adapted to meet the three requirements above stated.

Two sheets of drawings accompany this specification as part thereof.

Figure 1 of the drawings is an edge view of an improved register from beneath. Fig. 2 is a back view of the same. Fig. 3 is a radial section on the line 3 3, Fig. 2. Fig. 4 is a perspective view of the setting-knob keeper detached. Fig. 5 is a radial section on the line 5 5, Fig. 2. Fig. 6 is a perspective view of the drum-locking bolt and its nut shown in Figs. 2 and 5. Figs. 7 and 8 are radial sections on the lines 7 7 and 8 8, Fig. 2, respectively. Fig. 9 is a perspective view of the main parts of the register separated.

The same reference-numbers indicate the same or corresponding parts in the several figures.

The cast-iron back plate 10, as heretofore, is circular, excepting projections 10^a 10^b at top and bottom, whereby the register is hung in the car and secured in place by a padlock in the manner illustrated by Figs 1, 2, and $2^\times$ of said Patent No. 280,925, the hanging board of the car masking and preventing access to the back of the back plate, while the latter in turn covers and protects the screws which attach the hanging board. The mechanism, dial, and indicators carried by said back plate may, for the purpose of this invention, be of any ordinary or improved kind. In Figs. 3 and 9, 11 represents, by way of example, the duplex units-dial, 12 the trip-hand, 13 the permanent units-hand, 14 the permanent hundreds-dial, 15 the trip-signal, 16 the not-set signal, and 17 the inwardly-movable and rotary setting-shaft of an improved register made under said Fowler & Lewis patents, and in Figs. 1, 2, and 3, 18

represents a "setting key" in the shape of a simple thumb-screw screwed into the outer end of said shaft 17, as the external means for moving the latter at will, and thereby resetting said trip-hand, reversing said trip-signal and actuating, in connection with a retracting or projecting spring 19, Fig. 3, the said not-set signal. A two-part sheet-metal drum, the respective parts of which are numbered 20 and 21, made preferably and conveniently of spun brass, divided in a plane parallel to that of the back plate and preferably of two diameters, as shown and as set forth in said Patent 271,977, surrounds the mechanism dial and indicators. The glass 22, through which said dial and indicators are exposed to view, is supported against an inturned flange 23 at the front of said drum part 21 by an inner ring 24, preferably of sheet-zinc, without being fastened within said part, as heretofore. With the back plate 10 and the attached mechanism, dial, and indicators lying as in Fig. 9, the setting-key 18 being detached, the back part 20 of the drum is attached by screws 25, Figs. 2 and 8, inserted into tapped holes in said back plate through little knees 26, riveted fast to the inside of said drum part. The inner ring 24 is next applied, as indicated in Fig. 9, so that its inner edge rests on the shoulder at the top for the time being of said drum part 20, and so that an opening 27 therein exposes the outer ends of said shaft 17 and spring 19. The glass 22 is next loosely adjusted upon the top of said ring 24, which has an inturned edge 28 to provide for slight variations in size or shape. The front part 21 of the drum is then applied, so that its lower edge for the time being overlaps a terminal flange 29 on said drum part 20, and so that L-shaped notches or open slots 30, Fig. 9, in said drum part 21 coincide with radial pins 31, connected with said drum part 20. They are so connected by U-shaped shackles 33, one of which is shown in section in Fig. 7. These shackles are inserted through slots in said drum part 20 and soldered fast to the inside of said flange 29, and the pins are securely riveted in place. A short turn of said drum part 21 to the right simultaneously interlocks the several pins and slots and conceals the latter behind the outer ends of said shackles 33, which thus serve to mask said slots.

To keep the drum from being unfastened while it is hung in the car, a curved locking-bolt 34, Figs. 2, 5, and 6, is inserted through holes 35, Figs. 9 and 5, in the back edge of said drum part 21 and in said flange 29 of said drum part 20, and through a notch 36 in said inner ring 24 and a countersunk smooth hole in said back plate 10, and within the hole last named is engaged by a locking-nut 37, which is guarded by the hanging board when the register is in use, as before explained, while the shape of the bolt precludes turning it.

For protecting the setting-key 18 against being accidentally or mischievously unscrewed and detached, as aforesaid, a keeper 38 (shown detached by Fig. 4) is constructed with a hollow-backed circular body loosely fitted to the hub of the key and with attaching projections 38^a 38^b in front and in rear, and is bifurcated by an open slot 39, so as to be readily applied to the contracted shank of the key before the key is screwed fast, said slot being preferably diametrically opposite the front projection 38^a (shown at top in Fig. 4) and between two rear projections 38^b. Said front projection 38^a is inserted in a slot 40, provided therefor in the drum part 21 immediately in front of a circular hole 41, Fig. 9, which exposes the outer end of the setting-shaft 17. The key 18 is then screwed fast, and the keeper 38 is fastened in place by a pair of screws 42, inserted through said rear projections 38^b on both sides of said slot 39, and conveniently screwed through holes in the rim portion of the back drum part 20 of said two-part drum into an internally-attached nut-piece 42^b, Fig. 3, so as to be practically inaccessible when the register is hung. Sound-escape holes 43 are preferably formed in said rim portion of the back drum part 21, as shown in Fig. 2, and a sufficient number of circular groups of small holes requiring no protection, except such location are now preferred; but these and like details form no part nor limitation of the present invention.

Four equidistant sets of the slots 30, pins 31, and shackles 33 are preferred, as shown, but more or less sets may be used as may be considered sufficient, and other like modifications will suggest themselves to those skilled in the art.

Having thus described the said improvement, I claim as my invention and desire to patent under this specification—

1. The combination, with the back plate supporting the mechanism, dial, and indicators of the register, and with the glass through which said dial is exposed to view, of a two-part sheet-metal drum, the back part of which has a circumferential rim, a marginal flange projecting from said rim, and radial interlocking pins connected with said flange, while its front part has an inturned flange in front of the glass and open L-shaped slots at its meeting edge to coact with said pins, and an inner ring supported against said rim within its marginal flange and having an inturned edge by which the glass is supported against said inturned flange in front thereof, substantially as hereinbefore specified.

2. In combinantion with the back plate and glass, the two-part sheet-metal drum, one part of which is provided with open L-shaped slots at its meeting edge and the other part is provided with radial pins which coact with said slots and U-shaped shackles which support said pins and mask said slots and the curved locking-bolt and its countersunk nut fitted, respectively, to holes in overlapping portions of both drum parts and to a countersunk hole

in the back plate, substantially as hereinbefore specified.

3. In combination with a register-drum and a setting-key in the form of a thumb-screw protruding through a hole in said drum and having a contracted shank, a keeper having a circular portion hollow at the back, which embraces the hub of said key, and an open slot to provide for applying it to said shank of the key before the key is screwed fast, and means for securely attaching said keeper to said drum, substantially as hereinbefore specified.

4. In combination with a sheet-metal drum of two diameters and a setting-key in the form of a thumb-screw protruding through a hole in said drum immediately in front of its offset, the within-described keeper having a circular portion, hollow at back, which embraces the hub of said key, an open slot, a diametrically-opposite projection fitted to a slot in the front drum part, and rear projections on both sides of said open slot through which screws are inserted into the rim of the back part of the drum, substantially as hereinbefore specified.

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