

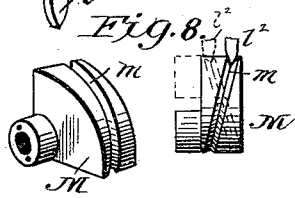
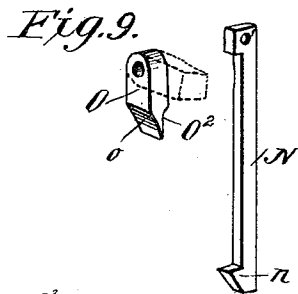
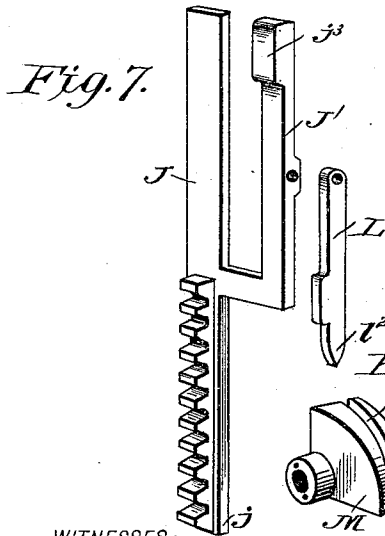
(No Model.)

4 Sheets—Sheet 1.

W. S. MALLARD.
STATION OR STREET INDICATOR.

No. 447,617.

Patented Mar. 3, 1891.



WITNESSES:

Fred G. Dieterich
M. D. Blondel

INVENTOR:

William S. Mallard
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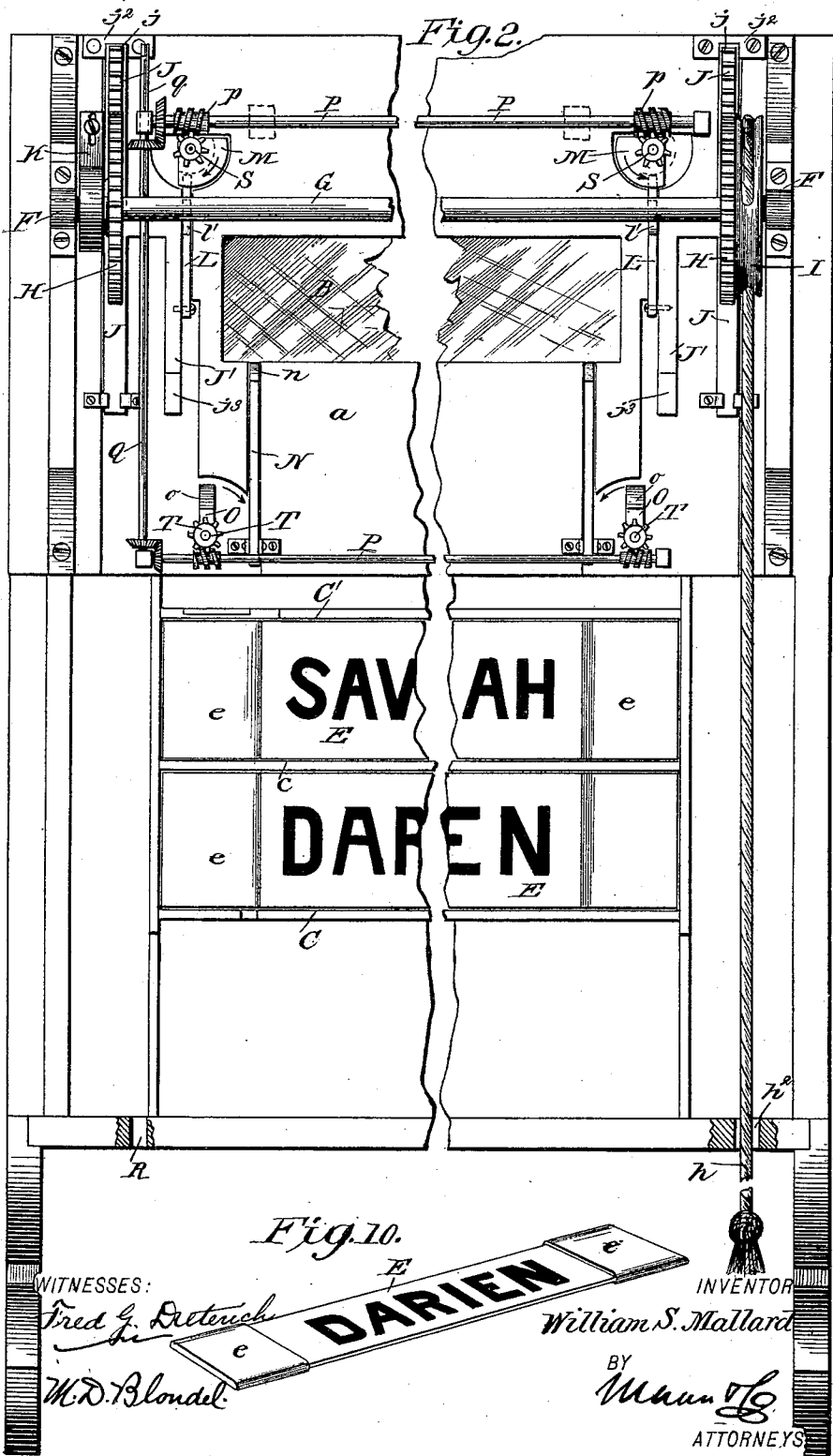
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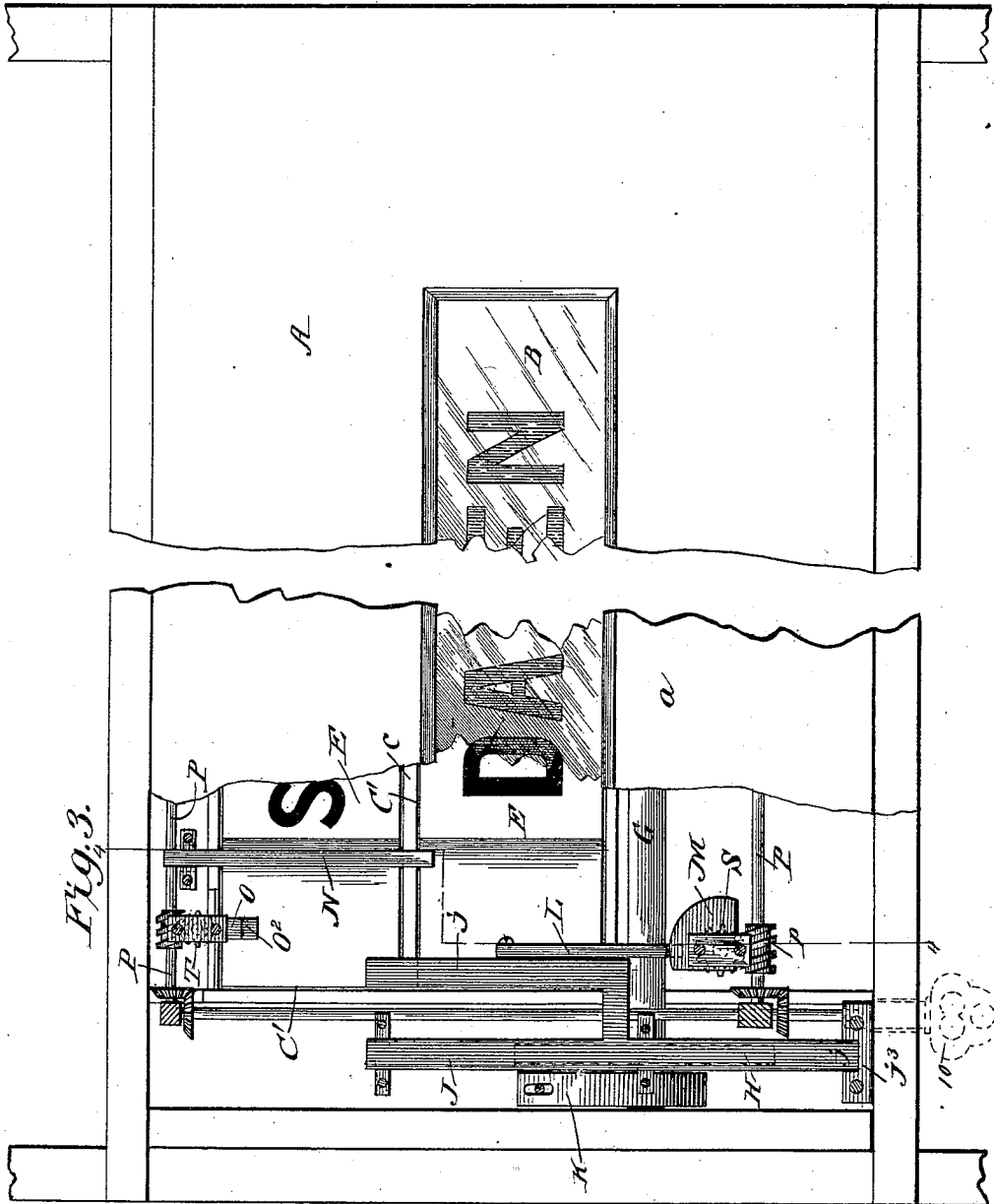
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4 Sheets—Sheet 3.

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(No Model.)

4 Sheets—Sheet 4.

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Fig. 4.

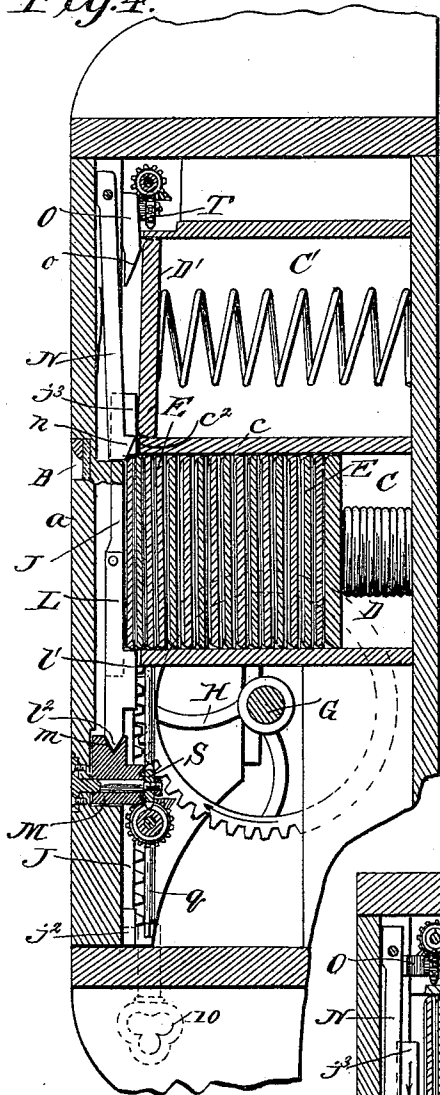


Fig. 5.

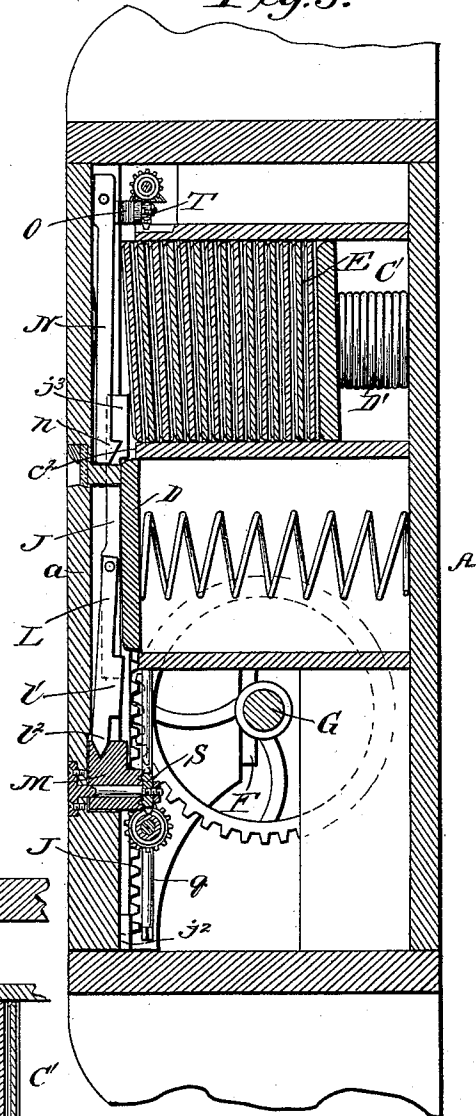
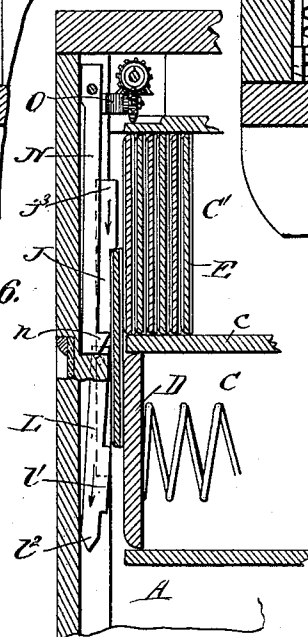


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM S. MALLARD, OF DARIEN, GEORGIA.

STATION OR STREET INDICATOR.

SPECIFICATION forming part of Letters Patent No. 447,617, dated March 3, 1891.

Application filed March 28, 1890. Serial No. 345,719. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. MALLARD, residing at Darien, in the county of McIntosh and State of Georgia, have invented certain new and useful Improvements in Station or Street Indicators, of which the following is a specification.

My invention is in the nature of an indicating device more especially adapted for use on steam or street railway cars, designed to be located in convenient reach of the conductor or brakeman; and it has for its object to provide an indicator which will be easy to manipulate, simple in construction, positive in desired operation, and wherein the same means are employed to operate a series of indicator-signs successively in rotation in case a car is moving in one direction, and to operate said signs successively in a reverse direction in case the car travels in the opposite direction.

To this end my invention consists in providing a suitably-constructed casing formed with two compartments adapted to receive a series of indicator-plates, one of such compartments arranged at the rear of a sight-opening formed in the front of the case, said compartment always carrying the particular indicator-plate in sight, means being employed to automatically hold such plate directly under the sight-opening in the casing.

It also consists in providing suitable means arranged to move said slides successively from one compartment to the other, and also to provide means whereby the indicating shifting mechanism can be set to operate said slides in reverse direction.

Finally, my invention consists in the novel arrangement and combination of the parts hereinafter described in the specification, and then pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a top or face view of my improved indicator. Fig. 2 is a similar view with the front shown thrown back. Fig. 3 is a face view with a portion of the front broken away. Fig. 4 is a vertical section on the line 4 4, Fig. 3. Fig. 5 is a similar view with the parts adjusted to operate in a reverse direction. Fig. 6 is a view illustrating the parts

in the act of moving one of the plates from the upper to the lower compartment. Fig. 7 is a detail view of the rack-bar. Fig. 8 is a similar view of one of the cams for shifting the pivoted finger-bars. Fig. 9 is a detail view of the spring-pawl and its operating-cam, and Fig. 10 illustrates one of the indicator-plates.

Referring to the accompanying drawings, 60 A indicates the casing provided with a hinged front *a*, formed with a sight-opening B, beneath which the desired indicator slide or plate will always appear in view. The rear portion of the casing is formed with two longitudinally-disposed chambers or pockets C C', one of which C is disposed beneath the sight-opening B, while the other C' is arranged directly above the pocket C. The partition-wall *c*, arranged between said pockets, has its upper end arranged to stop a short distance from the rear of the front wall *a*, whereby a space *c*² is provided of a size sufficient to admit of the indicator-slides being passed one at a time from one pocket to the other. 75

By reference to Fig. 4 of the drawings it will be seen that I arrange spring-actuated followers D D' in the pockets C C', respectively, such followers serving to press the indicator-slides E against the front wall, for a purpose hereinafter explained. 80

In the construction shown it will be seen that I form each of the indicator-slides with slightly-thickened ends *ee* and form the edges of such slides slightly beveled, as shown, the object of this construction being to decrease the frictional surface of such slides against the front wall of the casing as they are carried from one pocket to the other, and at the same time holding the faces of such slides, upon which the sign or character is placed, from contact with the said front and thereby prevent the said sign being rubbed off. 90

In brackets F F, projected inward from the hinged front, I journal a shaft G, upon the opposite ends of which are secured cog-wheels H H, one of such wheels formed with a grooved pulley I on one face, to which is connected one end of an operating cord or chain, the free end *h* of which extends through an aperture *h*² in the lower end of the casing to within convenient reach of the operator, 100

said wheels being so arranged that when the cord *h* is pulled downward they will serve to operate the devices which shift the indicator-plates from one compartment to the other.

5 In the construction shown I provide rack-bars *J J*, arranged to slide in suitable ways formed on the inner face of the front *a*, said bars engaging the teeth of the wheels *H H*, as most clearly shown in Fig. 4 of the drawings, and being normally held with their ends *j j* against stop-plates *j² j²*, secured near the lower end of the front, as shown, by means of a convolute spring *K*, secured to the shaft and the front *A*.

15 Each of the bars *J* is formed with a parallel member *J'*, disposed to operate just inside of the end walls of the compartments *C C'*, and its upper end formed with an inwardly-projecting finger *j³ j³*, which is arranged to normally project over the upper edge of such indicator-plate, which is held under the sight-opening *B*.

Upon the inner face of each of the members *J' J'* are arranged finger-arms *L L*, pivoted at the inner ends at *l* to the members *J' J'*, their free ends being formed with outwardly-projecting lugs *l' l'*, arranged to normally project over the lower edge of such indicator-plate as may be held under the sight-opening, said free ends being extended beyond said lugs, as at *l² l²*, and arranged to engage cams *M*, in a manner and for the purpose presently described.

N N denote spring-actuated locking-pawls arranged to extend upward from the upper edge of the sight-opening over the upper compartment *C'*, the lower ends of such pawls being provided with hooks *n n*, which project over the partition-wall *c* and serve to hold the indicator-slides when shifted from the lower to the upper compartment from being pulled back as the bars *J J' J'* slide back to their normal position.

So far as described the construction of the several parts is such as to cause the several indicator-slides to be shifted from the lowermost pocket *C* to the upper pocket *C'*, the manner of operating such parts to accomplish this result being as follows: Assuming that "Savannah" is to be the starting-point, the several plates indicating the stations are arranged in the pocket *C* with "Savannah" as the outer plate. Now, supposing "Darien" to be the next stopping station, such place is indicated on the plate under the "Savannah." The conductor or brakeman at the proper time pulls upon the cord *h*, which causes the wheels *H H* and the shaft to revolve and causes the rack-bars *J* to move upward. The lugs *l' l'* of the finger-arms *L L* engaging the lower edge of outermost indicator-plate will carry the same up away from the opening (the slide in its movement serving to depress the spring-controlled pawls *N N*) until it rests over the spring-actuated follower in the pocket *C'*, its upper edge engaging the inclined face *o* of cams *O*, whereby said edge is depressed

to a point below the inner faces of the lugs *j³*. The pawls *N* then spring back in advance of the lower edge of the said moved slide, allowing the next slide, "Darien," in the pocket *C* to be pushed up under the sight-opening. Pull upon the operating-cord having now been released, the spring *K* will cause the parts to move in a reverse direction the lugs on the arms *J'* will press the said plate down in its pocket and pass over the same, the rear end of such lug being of such length, however, as to remain in contact with the lower outer face of said plate.

To provide a simple means for feeding the slides in reverse direction, I arrange the cams *M*, journaled upon short stud-axes projected inward from the front wall and (adapted for a quarter-revolution on their axes) with cam-grooves *m*, formed diagonally, as most clearly shown in Fig. 8 of the drawings, by reference to which it will be seen that when the cams are turned in the position shown in full lines the ends *l²* of the arms *L* will be in the upper part of the groove and the said arms adjusted to operate the plates, as before described, and by turning the cams into the position shown in dotted lines the ends *l²* will be in the inner portion of the groove, and thereby pull the said arms inward out of line with the outer face of the uppermost indicator-plates.

O O denote cam-levers adapted to be turned into engagement with the rear ends of the arms *N N* and pull their forward ends out of the path of the movement of the indicator-plates, said cams being provided with inclined faces *O² O²*, which project over the upper portion of the pocket *C'* and serve to depress the upper ends of the slides when pushed in place, as before described. By this construction it will be seen that when the cams *M M* and *O O* have been adjusted to pull the arms *L* and *N* out of operative position and it is desired to feed the indicators in a reverse direction, the operator pulls upon the cord *h*, which causes the bars *J' J'* to pass over the outer plate in the pocket *C'* until its lug *j²* passes beyond the upper edge of said plate, and the cam *O* having been turned so its incline *o* is out of contact with said plate permits the upper edge of such plate to spring up in advance of the lugs *j²*. Now as the pull upon the cord is released the bars *J'* in their reverse motion will engage said plate and pull it back over the pocket *C*, the beveled edges of the plates serving to cause the moving plates to squeeze between the previously-moved indicator-plate or the follower *D* and the front.

To form a convenient means whereby the several cams *M* and *O* can be adjusted at one time, I provide the longitudinal shafts *P P* and a transverse shaft *Q*, journaled in bearings on the inner side of the front, such shafts geared with each other, as shown, the transverse shaft *Q* being formed with an extension *q*, having a squared end, such end being disposed just inside of an aperture *R*, formed

in the lower wall of the casing, through which a key can be passed to engage said end and turn the shafts in the directions indicated by the several arrows. The longitudinal shafts are formed with worm-threads p , which engage worm-wheels S T, formed on the cams M and O, respectively, whereby when desired all the cams can be simultaneously adjusted by means of the key 10, the several bevel-gears, worm-threads, and the worm-wheels being disposed as most clearly shown in Fig. 2, whereby the several cams will be turned to the required positions.

From the foregoing description, taken in connection with the drawings, the advantages of my improvements will readily appear. It will be seen that the same is exceedingly simple in construction, and can be manufactured at a small cost.

In the practical application of my improvements I arrange a suitable gong within the casing, which is rung at each change of the slides.

While I describe my invention as being especially adapted for railway and street cars it is manifest that it is applicable for use as an indicator for depots to indicate the arrival and departure of trains, &c. It is also manifest that, instead of employing the means shown for operating the shaft, a suitable electric motor may be employed to operate the devices.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A street or station indicator consisting of a casing formed with a sight-opening and two pockets arranged one above the other, one to the rear of said sight-opening, a series of automatical outwardly-pressed indicator-plates adapted to be held in said pockets, shifting devices arranged within the casing adapted to move each of the indicator-plates out of one of the pockets into the other in one direction of movement and back into the first pocket in the reverse direction of movement, an operating-shaft extended without the casing, and a train of gearing intermediate said shaft and the shifting devices, whereby said devices can at any time be set for reverse movements of the indicator-slides, substantially as and for the purpose described.

2. In a street or railway indicator, the combination, with a casing formed with a sight-opening, pockets arranged one above the other to the rear of the sight-opening, a series of outwardly spring-pressed indicator-plates adapted to be held in said pockets, of shifting devices arranged within the casing, a spring-actuated rock-shaft mounted within said casing and connected with the shifting devices, an operating cord or handle extended without the casing, said shaft and shifting devices adapted to move the slides from the lower to the upper pocket when the said cord is pulled downward by hand and from the

upper to the lower compartment by the automatic reverse movement of the shaft, and means for setting the said devices for reverse movement at any point between the first and last indicator-plate, substantially as and for the purpose described.

3. In an indicator device for the purpose described, the combination of the casing provided with a sight-opening, two pockets C C', arranged one above the other and one to the rear of said sight-opening, a series of outwardly spring-pressed indicator-slides held in said pockets, shifting devices held within the casing, arranged to move said slides successively from the lower to the upper pocket on their forward movement, and a hand-operated shaft extended without the casing and connected to the shifting devices, adapted to set said devices at any point intermediate the first and last slides (when on their backward movement) will operate the said slides in a reverse direction, substantially as and for the purpose described.

4. An indicator for the purposes described, comprising a box formed with a sight-opening, pockets C C', arranged therein, one above the other and one to the rear of the sight-opening, a series of outwardly spring-pressed indicator-slides held in said pockets, whereby the outer slide is normally projected beyond said pockets, a rock-shaft journaled in the casing, means for rocking said shaft by hand in one direction of movement, a spring for operating it in reverse direction, rack-bars J J, operated by the rock-shaft formed with arms J' J', the fingers L L, pivoted to said arms J', adapted to engage the indicator-slides and move same from the lower to the upper compartment, and means for holding said slides from reverse movement, substantially as and for the purpose described.

5. The combination of the casing provided with a sight-opening and pockets C C', arranged one to the rear of said opening, indicator-slides held in said pockets, means for pressing said slides outward, the outermost slide normally disposed beyond the outer edge of the pockets of the reciprocating shifting devices held within the casing, said devices consisting of a rock-shaft G, formed with a gear-wheel H, said shaft spring-actuated in one direction of movement, the rack-bars J, connected with said gears H, the arms J' J', formed thereon, provided with enlargements j^3 , the finger-bars L, pivoted to said arms J', formed with projections l' , the spring-actuated retaining-pawls N for holding the slides from reverse movement, and means for setting said shifting devices for reverse movements, substantially as and for the purpose described.

6. In an indicator substantially as described, the combination, with the pockets C C', the spring-actuated followers therein, and the indicator-slides held thereon, of the reciprocating rack-bars J J, formed with lateral members J' J', provided with lugs j^3 , projected

normally over the upper pocket, the finger-
bars L L, pivoted to the arms J' J', formed
with lugs l', projected normally over the lower
edge of the lower set of slides, the spring-
5 actuated holding-pawls N, projected nor-
mally over the lower edge of the upper pocket
and adapted to be automatically pushed out
of the path of the movement by the moving
indicator-plate, and the rock-shaft connected
10 with the rack-bars adapted to be rocked in
one direction by hand and in the opposite
direction by the spring K, substantially as
and for the purpose described.

7. The combination of the casing, the pock-
15 ets C C', disposed therein, a series of inde-
pendent indicator-slides held in said pockets
and adapted to be automatically held against
the front wall of said casing, the rack-bars J,
the members J', secured thereto, provided

with lugs l², the pivoted fingers L, formed 20
with lugs l² and projecting ends l³, the spring-
pawls N, arranged as shown, the rotatable
cams M, formed each with a diagonally-dis-
posed groove in its periphery, adapted to re-
ceive the ends l³ of arms L, and the cams O, 25
formed with inclined faces adapted when
turned in one of their positions to project over
the upper pocket and depress the upper end of
the plates when fed into such pocket, said cams
O adapted when turned into their other posi- 30
tion to pull the pawls N out of operative posi-
tion, and means for operating the said cams,
substantially as shown and described.

WILLIAM S. MALLARD.

Witnesses:

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SOLON C. KEMON.