

(No Model.)

I. W. LOY & R. O'TOOLE.

AUTOMATIC CIRCUIT CLOSING DEVICE FOR RAILROAD SIGNALS.

No. 445,564.

Patented Feb. 3, 1891.

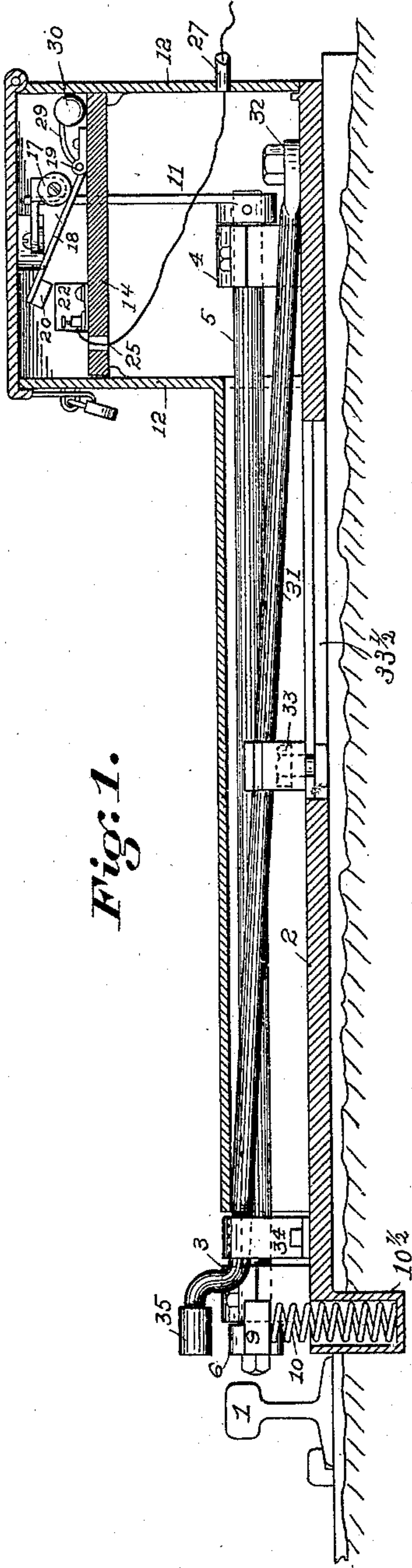


Fig. 1.

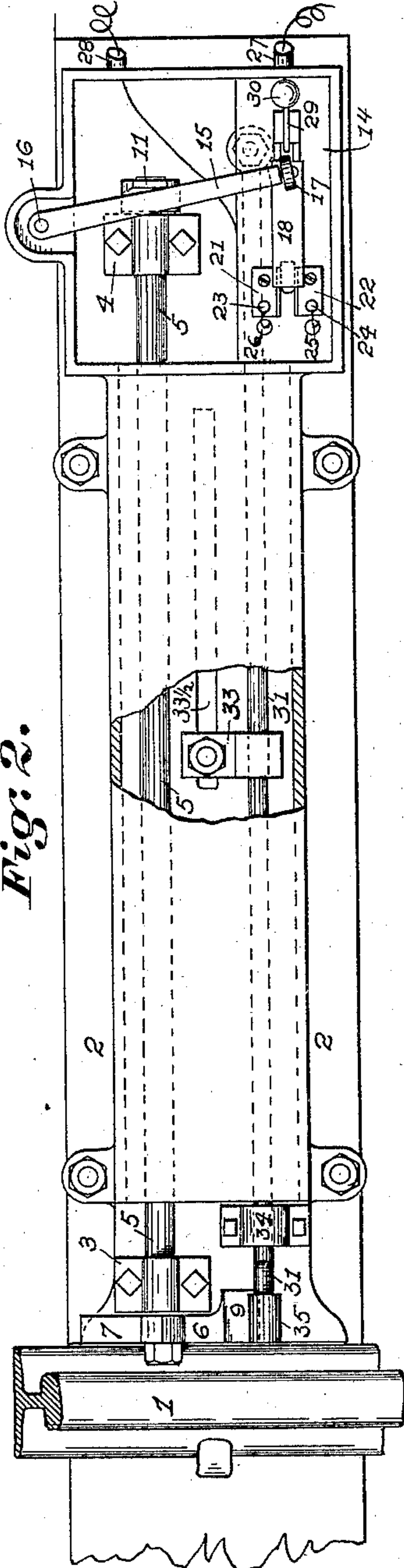


Fig. 2.

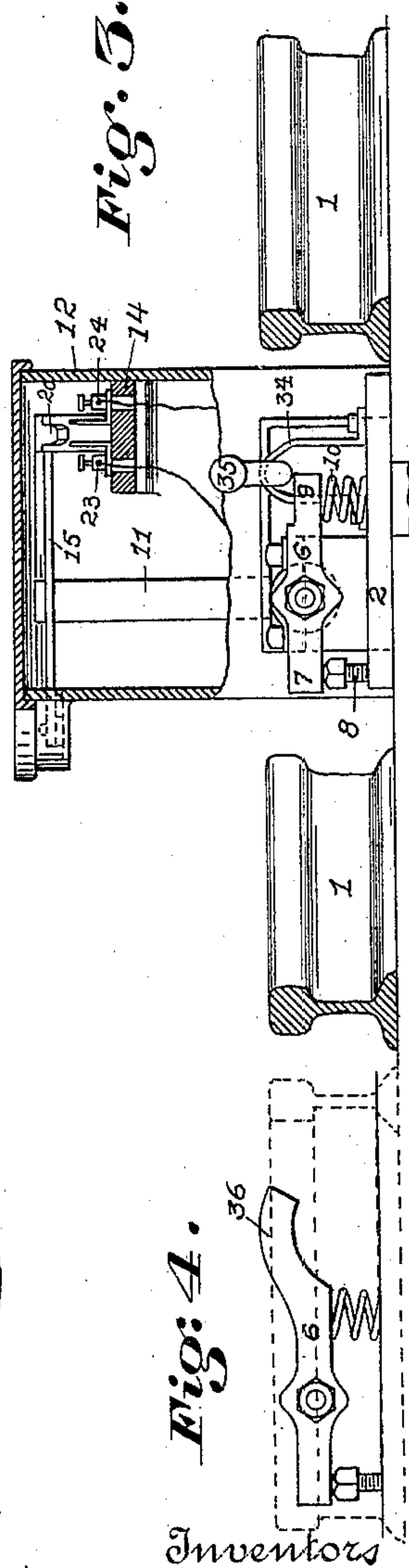
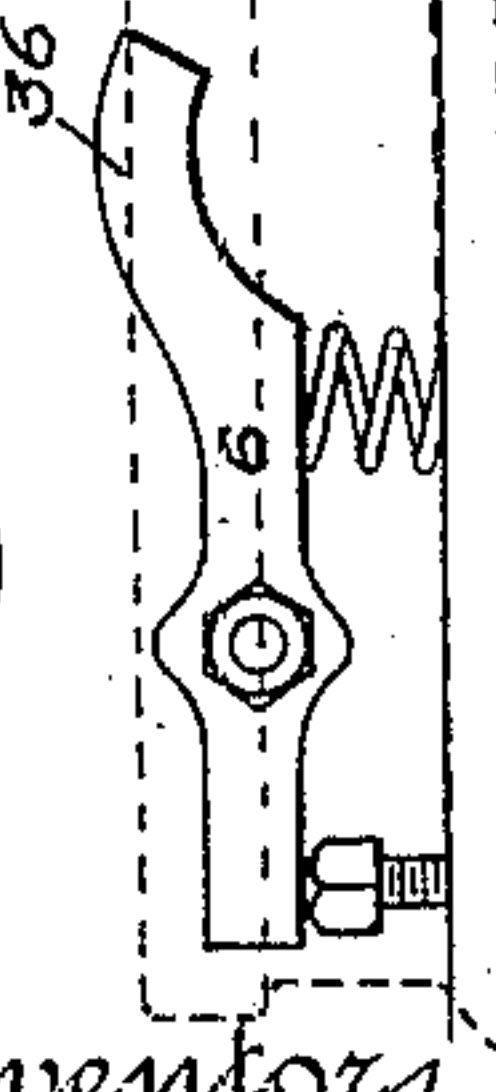


Fig. 3.

Fig. 4.



Witnesses

J. K. E. Duffin
C. C. Woolley

Irwin W. Loy and
Richard O'Toole

By their Attorneys

Price & Stewart.

UNITED STATES PATENT OFFICE.

IRVIN W. LOY AND RICHARD O'TOOLE, OF MECHANICSTOWN, ASSIGNORS
OF ONE-THIRD TO JOHN E. MATHEWS, OF BALTIMORE, MARYLAND.

AUTOMATIC CIRCUIT-CLOSING DEVICE FOR RAILROAD-SIGNALS.

SPECIFICATION forming part of Letters Patent No. 445,564, dated February 3, 1891.

Application filed April 12, 1890. Serial No. 347,672. (No model.)

To all whom it may concern:

Be it known that we, IRVIN W. LOY and RICHARD O'TOOLE, of Mechanicstown, in the county of Frederick, in the State of Maryland, have invented certain new and useful Automatic Circuit-Closers for Railroad-Signals, of which the following is a full and complete specification, reference being had to the accompanying drawings.

10 In the drawings, Figure 1 represents a side sectional elevation of our device; Fig. 2, a plan of the same with parts of the casing removed to show the internal parts; Fig. 3, an end elevation with part in section. Fig. 4 is
15 a side elevation of a form of rock-shaft lever used in special cases.

In the drawings, 1 represents a track; 2, the bed of the device, upon which the device rests. 3 is a pillow-block located at the end
20 of said bed next the track; 4, a pillow-block located at the rear end of said casing upon the bed. 5 is a rock-shaft resting upon said pillow-blocks 3 and 4 and extending beyond them on either end.

25 6 is a rock-shaft lever secured to the end of the rock-shaft 5 on the extremity, near the track. 7 is the end of said lever, extending on one side and standing above a set-screw 8, by which said rock-shaft lever is retained in
30 a horizontal position and prevented from being depressed too far. 9 is the other end of said rock-shaft lever.

10 is a spring fitting in a socket 10½ in the bed 2 and bearing against the under side of
35 the end 9 of the rock-shaft lever and maintaining it at as high a point as the set-screw 8 will permit.

11 is a finger-bar secured to the inner end of the rock-shaft lever 5 and extending up-
40 ward vertically.

12 is a box or casing mounted upon the bed 2 and extending over the rock-shaft lever and its extremities at the rear end. It is quite high and extends up above the finger 11. 13 is a
45 cover to said box, hinged to one side and secured by a staple at the other, so that it may be locked when closed. 14 is a shelf extending across said box at one side thereof. 15 is a lever pivoted at 16 to the side of said box
50 12 and extending parallel to the cover there-

of across the top of said box. 17 is a roller secured to a stud on the end of said lever 15.

18 is a lever hinged to the shelf 14 at 19.

20 is a contact-plate, hatchet form, on the lower extremity of the lever 18.

21 is a contact-plate made in the form of an ankle-iron and secured to the upper side of the shelf 14. 22 is another similar plate. These plates are made of copper and upon
55 them are secured the binding-posts 23 and 24. 60

25 and 26 are holes through the shelf 14, through which pass the wires which carry the current, and which are secured to the plates 21 and 22 by the binding-posts 23 and 24.

27 and 28 are outlet-holes through the casing 12, through which the battery-wires pass.

29 is a bar secured to the rear end of the lever 18, to the end of which is secured a counterbalance-weight 30, by which the bar 18 and its contact-plate 20 are kept in an ele-
70 vated position and out of contact with the plates 21 and 22, except when depressed by the roller 17 rolling upon the back of the lever 18.

31 is a spring-bar secured at one end to the bed-plate of the device at 32 within the box 12 and held in position by a staple 33, which
75 staple is movable in a slot, so as to give said bar any elevation which may be desired. The slot is marked 33½ and is in the bed-plate 2. 80
Said staple is secured by a locking-bolt which may be moved freely up and down in the slot 33½, and by which the staple may be secured at any desired point.

34 is a staple secured to the bed-plate 2, 85 and within which the bar 31 moves freely. 35 is the end of said bar, as shown in the drawings. It is in the form of a goose-neck and somewhat larger than the balance of the
90 bar. This, however, is unnecessary, as the bar may be made perfectly straight. It is only necessary that the end of this bar should stand somewhat above the level of the track,

so that it may be struck by car-wheels passing over the track. The staple 34 is made
95 round and larger than the bar 31, so that when a car-wheel strikes upon the end 35 of the spring-bar 31 it will be pushed sidewise and downward. When the wheel is moving in the direction from the spring-bar 31 toward 100

the rock-shaft, said bar will be pushed side-
wise until it will strike upon the end 9 of the
rock-shaft lever 6 and will depress said lever
as the end 35 is depressed by a car-wheel. If,
5 on the contrary, the wheel be moving in the
opposite direction, the end of the bar 31 will
be moved sidewise and downward as far as
the staple will permit and will escape the end
of the rock-shaft lever 6, and not operate the
10 apparatus.

Fig. 4 shows a device in which the rock-
shaft lever is a different form and the bar 31
is dispensed with. In this form of a rock-
shaft lever, one end of which is extended up-
15 ward until it is above the track, and is marked
36, this end is depressed whenever the train
passes over the track. This is for use upon
a double-tracked railroad, so that signals may
be given in either direction, whether the train
20 be coming up or going down.

The operation of the device is as follows:
When a train strikes upon the end 35 of the
bar 31, if moving in the direction of the rock-
shaft lever, it will depress said lever and
25 throw it upon the end 9 of the rock-shaft le-
ver. This will rock the shaft 5, press the fin-
ger 11 against the side lever 15, push said le-
ver to one side, cause the roller 17 to roll upon
the top of the lever 18, and force said lever
30 down until the contact-plate 20 makes con-
tact between the plates 21 and 22, when a cir-
cuit will be closed through said plates and a
signal given to notify those at a station of
the approach of a train.

35 Having thus described our invention, what
we claim, and desire to secure by Letters Pat-
ent, is—

1. In a circuit-closing device for railroad
signaling apparatus, the combination of a
40 rock-shaft mounted in suitable bearings and
located near a railroad-track and provided
on the end nearest the track with a rock-

shaft lever secured to the rock-shaft, elastic
means for maintaining said lever in any
adjusted position, a finger-bar secured to the 45
other end of said rock-shaft, a lever piv-
oted at about right angles to the finger-bar
and engaged and operated by said finger-
bar, a contact-lever engaged and operated
by said pivoted lever, and electrical contact- 50
plates which are arranged to co-operate with
the contact-lever to close an electrical circuit,
substantially as described.

2. In a device for automatically operating
a railroad signaling device, the combination 55
of a rock-shaft suitably journaled, located
near a railroad-track, and provided on the
end next the track with a transverse lever se-
cured to said rock-shaft and a spring-treadle-
bar, one end of which is secured to the bed 60
of the device, while the other end is free
and extends to the edge of the track and
stands somewhat above it and in the path of
a locomotive driving-wheel, a staple or other
equivalent device limiting its motion, and 65
which is so located that when the treadle-bar
is struck by a locomotive driving-wheel mov-
ing in the direction from the treadle to the
rock-shaft it will cause the end of the treadle
to move with said wheel and downward to a 70
sufficient extent to strike the end of the rock-
shaft lever and depress it, while when the
wheel is moving in the opposite direction the
treadle-lever will be moved with the wheel a
sufficient extent to escape the end of the rock- 75
shaft lever, thus operating the signaling de-
vice when moving in one direction, but not in
the other.

IRVIN W. LOY.
RICHARD O'TOOLE.

Witnesses:

ARTHUR STEUART,
JNO. T. MADDOX.