

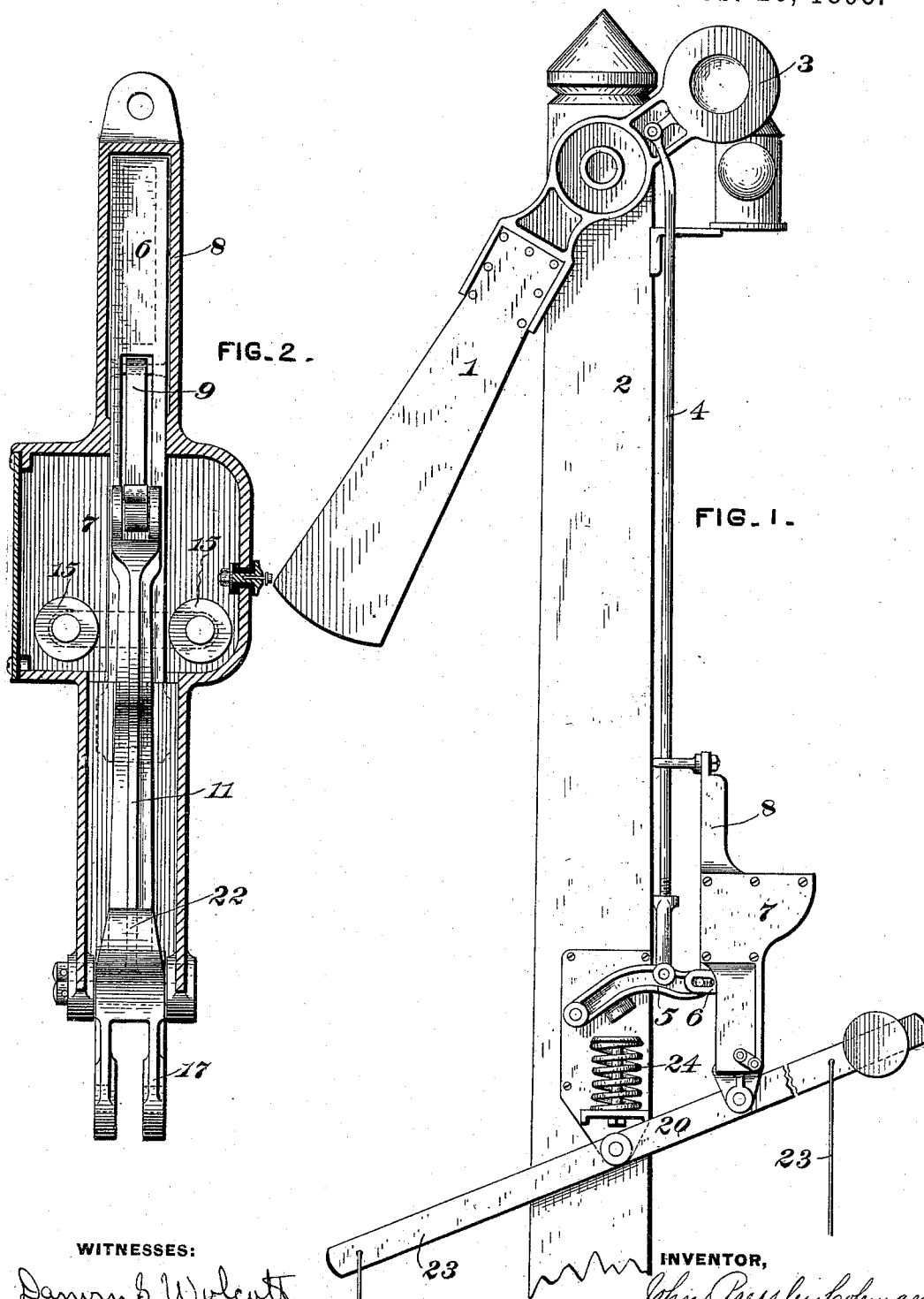
(No Model.)

3 Sheets—Sheet 1

J. P. COLEMAN.
ELECTRIC SLOT FOR SIGNALS.

No. 534,815.

Patented Feb. 26, 1895.



WITNESSES:

Daniel B. Wolcott
C. E. Hunt

INVENTOR,

John Pressley Coleman
by George W. Christy
Att'y

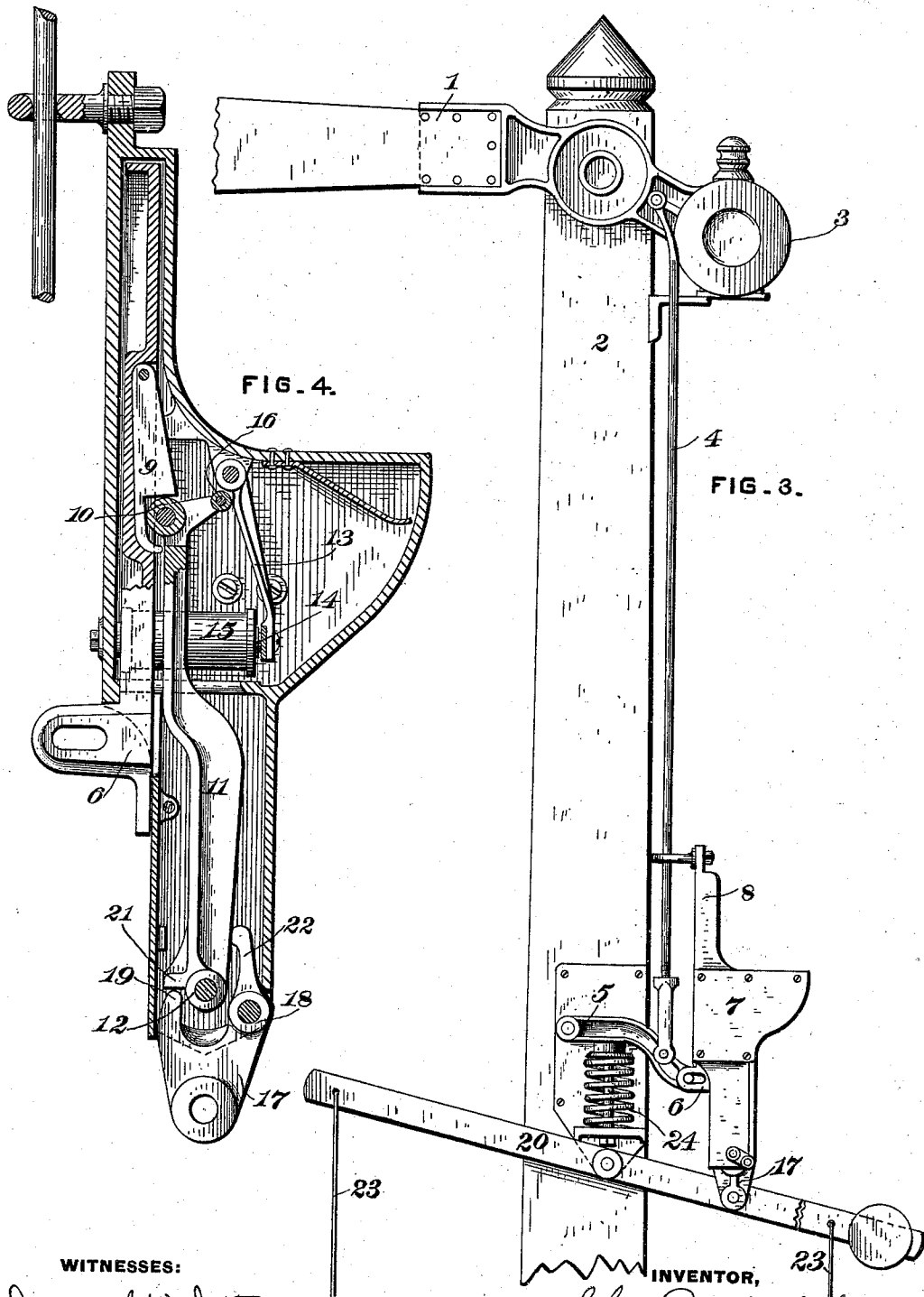
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3 Sheets—Sheet 2.

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No. 534,815.

Patented Feb. 26, 1895.



WITNESSES:

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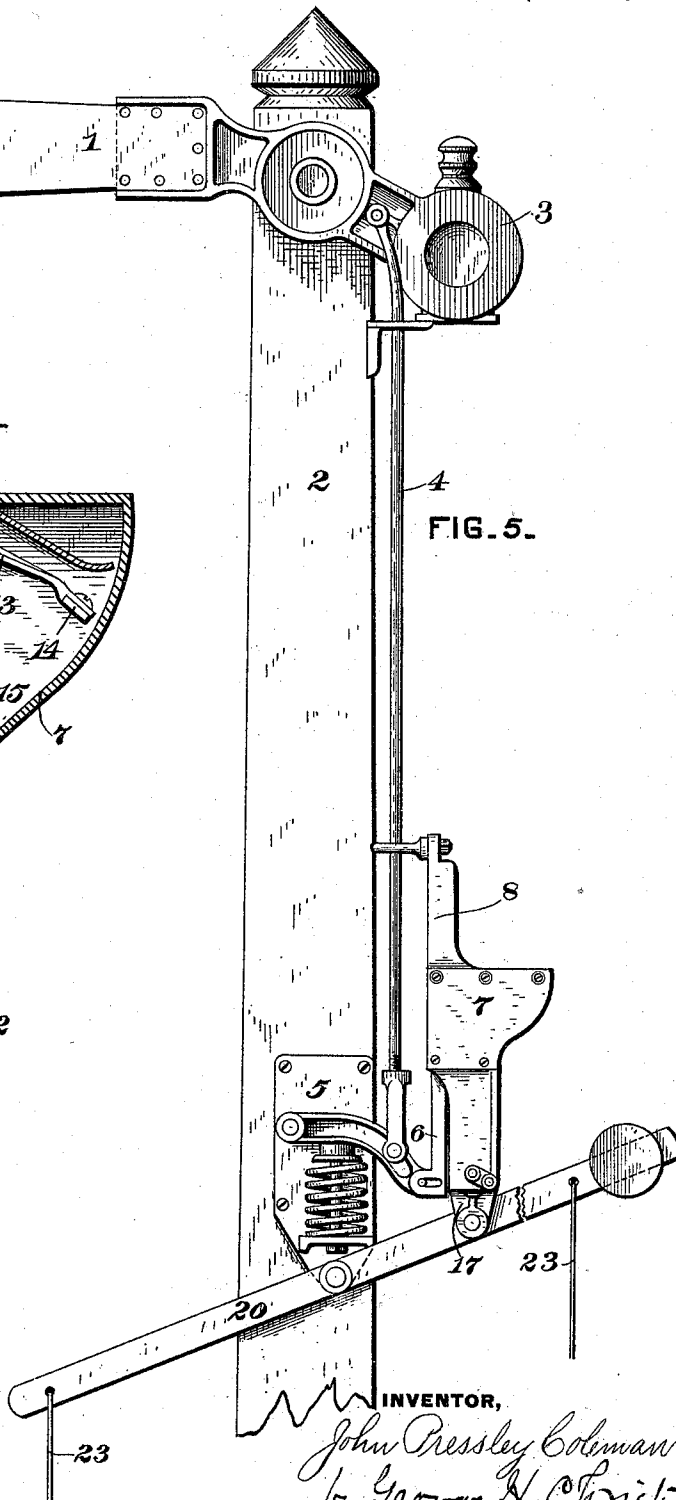
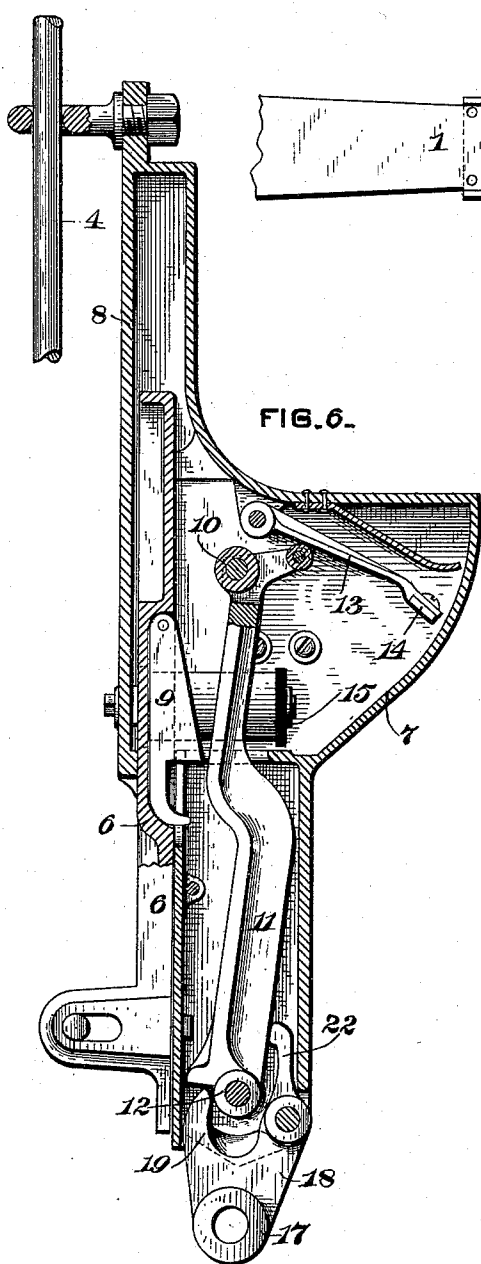
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3 Sheets—Sheet 3.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN PRESSLEY COLEMAN, OF SWISSVALE, PENNSYLVANIA, ASSIGNOR TO
THE UNION SWITCH AND SIGNAL COMPANY, OF SAME PLACE.

ELECTRIC SLOT FOR SIGNALS.

SPECIFICATION forming part of Letters Patent No. 534,815, dated February 26, 1895.

Application filed September 27, 1893. Serial No. 486,625. (No model.)

To all whom it may concern:

Be it known that I, JOHN PRESSLEY COLEMAN, a citizen of the United States, residing at Swissvale, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Electric Slots for Signals, of which improvements the following is a specification.

The invention described herein relates to certain improvements in electrically controlled signal operating mechanism of that class or kind generally known as the electric "slot," whereby a signal set to safety may be automatically shifted to danger by a passing train.

The improvements herein described relate more specifically to that class or kind of electric "slots" described and shown in Letters Patent No. 395,315, granted January 1, 1889.

The invention is hereinafter more fully described and particularly claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a view of a signal and its operating mechanism including my improved "slot," the signal being shown at safety. Fig. 2 is a rear sectional elevation of the "slot" mechanism on an enlarged scale. Fig. 3 is a view similar to Fig. 1 the signal being at normal or danger position. Fig. 4 is a sectional side elevation of the "slot" mechanism, showing the position of the parts where the circuit through the magnets is closed. Fig. 5 is a view similar to Fig. 1, showing the operating lever in position to hold the signal at safety, while the signal has been shifted to normal by a break in the circuit of the magnets, and Fig. 6 is a sectional side elevation of the "slot" mechanism showing the position of the parts when untouched by a rupture of the controlling circuit.

In the practice of my invention the signal 1 is pivotally mounted on a post or other support 2, and is provided on the end opposite the blade with a weight 3 whereby when free to move the signal may be shifted and held at normal or danger position. The signal is connected by a rod 4, with an arm 5 having one end pivotally connected to the post 2, while the opposite end is connected to a slotted lug 6^a projecting from the lower end of the

vertically movable slide 6, or if preferred the rod 4 may be connected directly to the lower end of the slide. This slide 6 is arranged within a case or shell 7, which is provided with an extension 8 adapted in connection with an opening in the case or shell to guide the slide 6. A recess is formed in one edge of the slide 6, and within this recess is pivoted a dog 9 provided with a shoulder adapted to rest upon a friction roller 10 mounted on the upper end of an arm 11, having its lower end pivoted on a pin 12 at or near the lower end of the case or shell. The roller on the arm 11 is normally held in engagement with the shoulder on the dog 9, by a finger 13 which is pivotally mounted on the case and has the armature 14 of the electro-magnet 15, secured to its free end. This finger and the electro-magnet are so arranged that when the armature is held against the magnet, its circuit being closed, the finger will bear against a friction roller 16 mounted on lug extending from the upper end of the arm, and hold the latter in the position shown in Fig. 4, the slide being at the upper limit of its independent movement, and the dog resting upon the end of the arm.

It will be observed that the point of contact of the shoulder of the dog and the friction roller is at one side of the pivotal point of the dog as shown in Fig. 4, so that the weight of the slide tends to force the arm out from under the dog.

A block 17 provided with lugs or projections 18 and 19 is pivotally connected by a pin passing through one of the arms as 18 to the case or shell at or near its lower end, and to one side of the pivot at support of the arm 11 as clearly shown in Figs. 4 and 6. This block is pivotally supported by the signal lever 20, which in turn is pivoted to the signal post 2. The pivotal point of the block is in a plane passing midway between the lugs 18 and 19, so that when the lever 20 is shifted so as to raise the "slot" mechanism and shift the signal to safety, the lug 19 will bear against a projection 21 on the inner side of the arm and tending to push the upper end of the arm out from under the dog 9 as shown in Fig. 4; but when the lever 20 is so shifted as to lower the case or shell either for shifting the signal

to normal or to "pick" up the signal, it having been previously shifted to danger automatically an extension 22 on the lug 18 will bear against the outer side of the arm 11 tending to force the upper end thereof under the dog 9 as shown in Fig. 6.

Wires or chains 23 are connected to the lever 20 and extend to the signal cabin, where they are connected to a lever or other suitable operating mechanism.

When the arm 11 is held by the finger 13 in engagement with the slide, as described, the "slot" mechanism operates as a connection between the lever 20 and the rod 4, and the signal can be shifted to clear or danger as desired by the operator. In case the signal has been shifted to clear as shown in Fig. 1, and the circuit of the magnet 15 broken, the outward pressure exercised by the dog 9 and the arm 19 upon the arm 11 will force the latter out from under the dog, permitting the slide 6 to drop and the signal to go to danger. In order to restore the connection between the slide and the arm 6, the operator shifts the lever as if to restore the signal to normal or danger, and thereby lowers the case or shell until the upper end of the arm is below the shoulder of dog 9. When during this downward movement the case or shell is arrested by contact with an angular extension or lug 6^a, of the slide, the jerk imparted to the block 17 will cause the extension 21 of the block 17 to push the arm 11 in toward the dog so that the upper end of the arm will pass in under the shoulder of the dog. The inward movement of the upper end of the arm 11, permits the finger 13 to swing down until the armature 14 comes within the influence of the magnet 13 which if its circuit has been closed will pull the armature and finger inwardly forcing the upper end of arm under the dog, and holding it in that position. If the circuit of the magnet 15 is not closed when the case is lowered as stated, and the operator should attempt to clear the signal, the upward movement of the case would simply force the arm 11 from under the dog and the signal would not be shifted.

In order to relieve the jar incident to the drop of the slide 6 when the signal goes to danger, a cushioning spring 24 is arranged on the post 2 in such relation to the lever 5, that the latter will strike upon and be cushioned by the spring.

It occasionally happens in that form of "slot mechanism" described and shown in the patent referred to that the roller upon which the slide rests becomes rusted or covered with dust, and will not readily roll from under the shoulder on the slide. Any such resistance to the ready operation of the "slot mechanism"

is avoided by the use of the pivoted dog 9, as the latter will readily move away from the slide with the roller, and further, as the dog and arm move away from the slide, the dog will be more and more effective to force the arm away from the slide.

I claim herein as my invention—

1. In an "electric slot" for signals, the combination of a movable slide connected to the signal, a dog pivoted to the slide and provided with a shoulder, a pivotally mounted arm movable into and out of engagement with said shoulder, and an electro-magnet for holding the arm in engagement with the shoulder, substantially as set forth.

2. In an "electric slot" for signals, the combination of a movable slide connected to the signal, a dog pivoted to the slide and provided with a shoulder, a pivotally mounted arm provided with a friction roller adapted to bear against the shoulder on the dog, said parts being so arranged that the point of bearing of the roller on the dog is one side of the pivotal point of the dog, and an electro-magnet for holding the arm in engagement with the dog, substantially as set forth.

3. In an "electric slot" for signals, the combination of a movable slide connected to the signal, a dog pivoted to the slide and provided with a shoulder, a pivotally mounted arm adapted to bear against the shoulder, a pivotally mounted finger for holding the arm in engagement with the dog, and an electro-magnet for holding the finger against the arm while in engagement with the dog, substantially as set forth.

4. In an "electric slot" the combination of a movable slide connected to the signal, a pivotally mounted arm adapted to engage the slide provided with a lateral projection and a pivotally mounted block connected to the signal lever and provided with an arm adapted to engage the projection on the arm and force the latter out of engagement with the slide, substantially as set forth.

5. In an "electric slot" for signals, the combination of a movable slide connected to the signal, a pivotally mounted arm adapted to engage the slide, a pivotally mounted block provided with an extension adapted to push the arm toward the slide, a signal operating lever connected to the block and an electro-magnet for holding the arm in engagement with the slide, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOHN PRESSLEY COLEMAN.

Witnesses:

J. C. MOCK,
K. H. LUND.