

(No Model.)

2 Sheets—Sheet 1.

A. G. CUMMINGS.

SEMAPHORE SIGNAL AND SWITCH STAND.

No. 366,306.

Patented July 12, 1887.

Fig. 1.

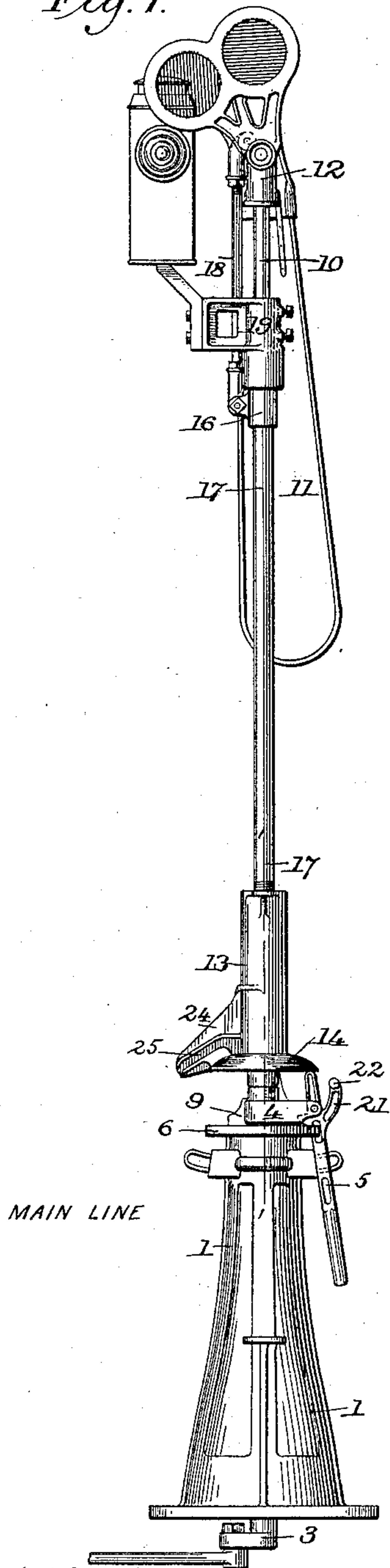


Fig. 2.

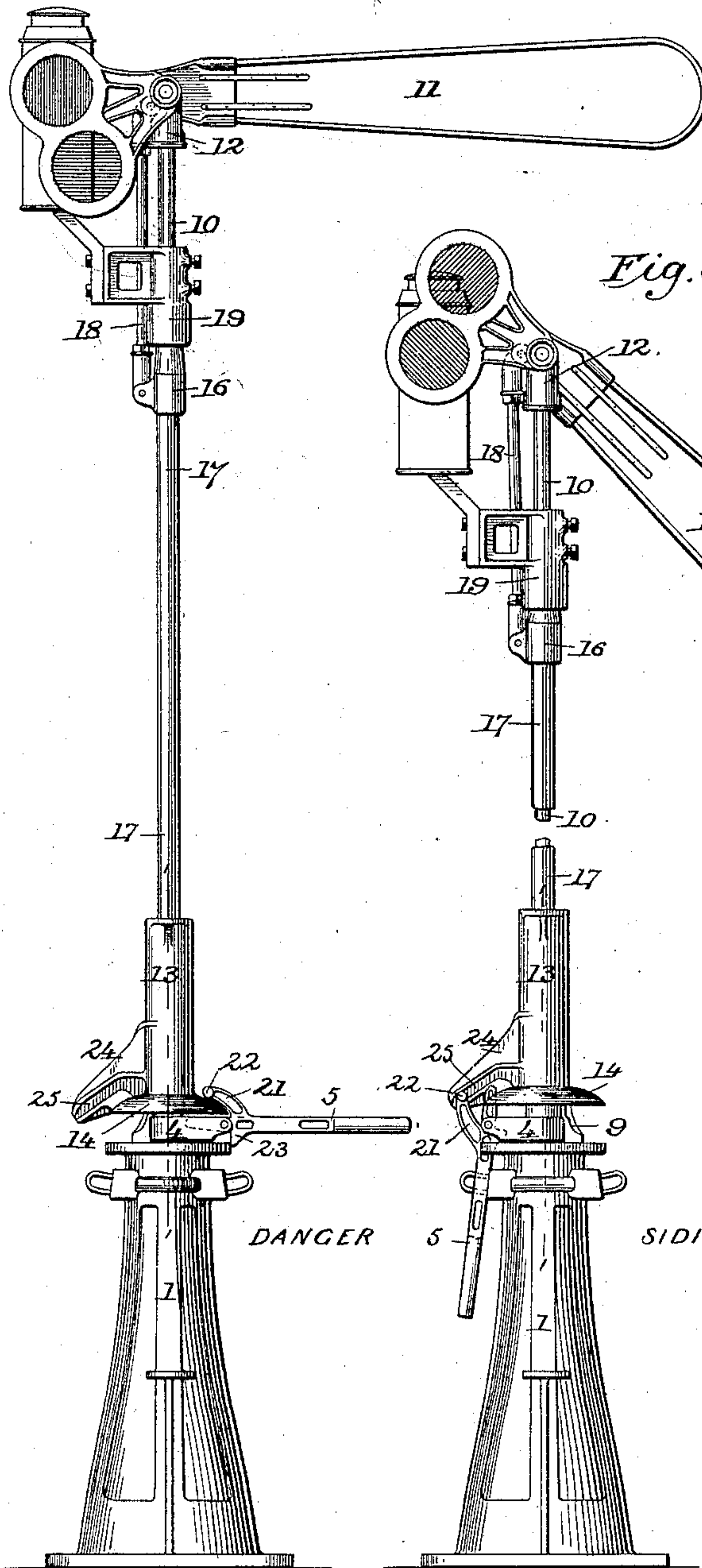
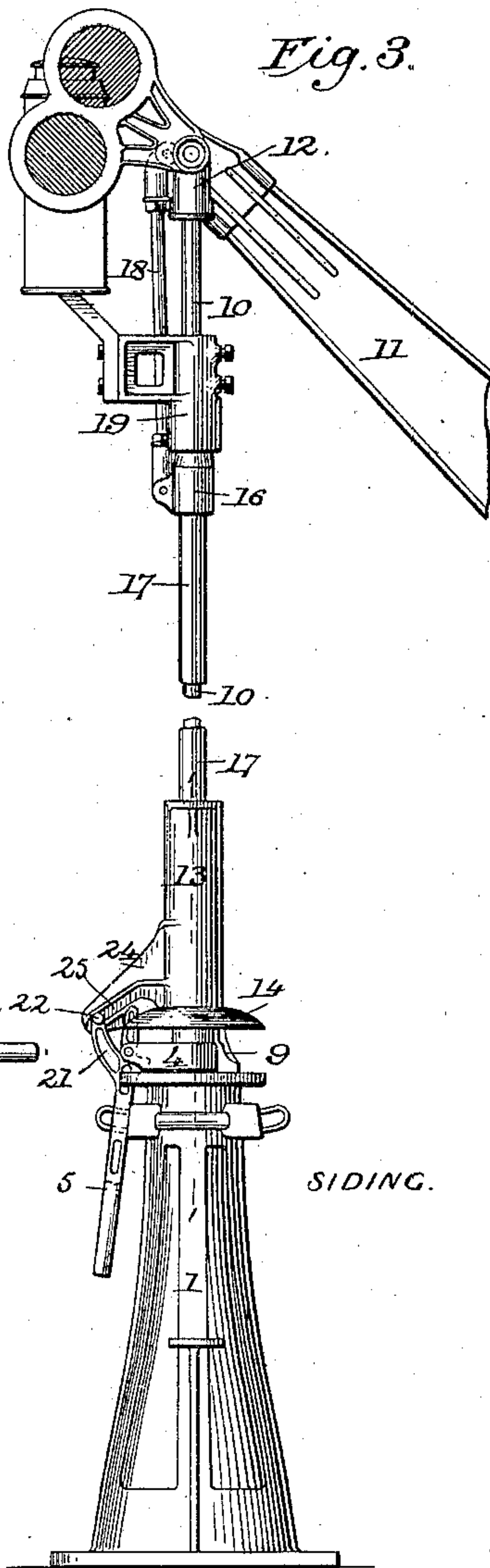


Fig. 3.



Inventor.

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Sidney P. Hoelingsworth
W. R. Kennedy

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By his Atty
Phil. T. Dodge.

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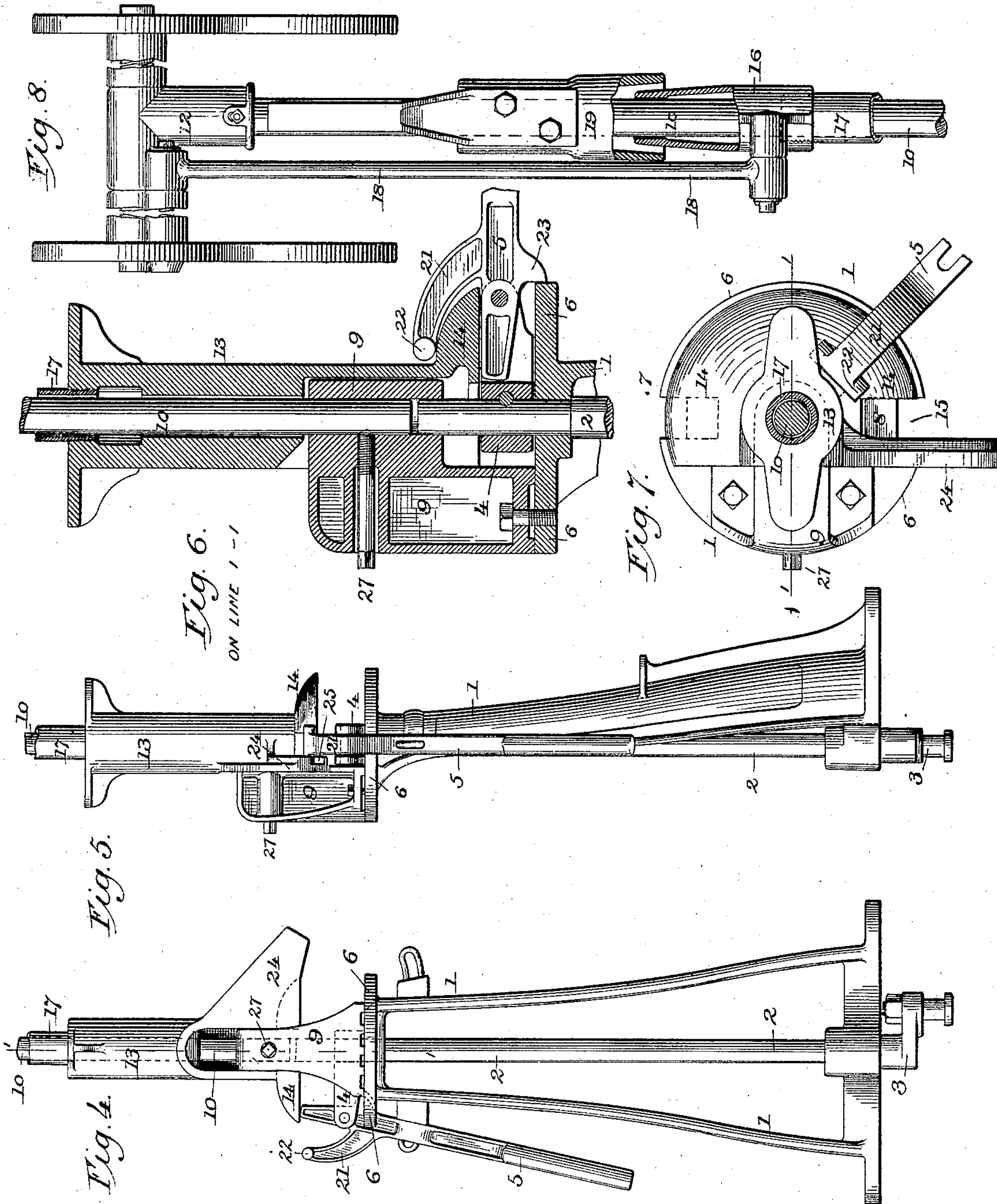
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

ALBERT G. CUMMINGS, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR TO THE
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SEMAPHORE-SIGNAL AND SWITCH STAND.

SPECIFICATION forming part of Letters Patent No. 366,306, dated July 12, 1887.

Application filed October 27, 1886. Serial No. 217,361. (No model.)

To all whom it may concern:

Be it known that I, ALBERT G. CUMMINGS, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain
5 Improvements in Semaphore-Signal and Switch Stands, of which the following is a specification.

This invention relates to that class of rail-
way-signals in which a vertically-swinging arm
10 or semaphore connected with a switch is used to indicate by its different positions to approaching trains the condition of the switch, whether opened or closed.

It relates more particularly to means for op-
15 crating the semaphore or signal arm positively and for insuring its adjustment to the "danger" position before the switch can be moved, and keeping it in that position until the said switch has been carried "home," or to
20 the full limit of its movement.

Referring to the accompanying drawings, Figures 1, 2, and 3 are elevations of my signal in the positions indicating, respectively, the
25 "main line," "danger," and "siding." Fig. 4 is an elevation of the base on a larger scale, viewed from the opposite side. Fig. 5 is a side elevation of the same. Fig. 6 is a vertical section on the line 1 1, Figs. 1, 2, 3, 4, and 7. Fig.
30 7 is a top plan view of the base or stand. Fig. 8 is an elevation of the upper or signal portion of the apparatus, viewed from the same side as in Fig. 5.

Referring to the drawings, 1 represents the base of the apparatus, which may be made in
35 the form shown, or in any other suitable form, fastened securely to the cross ties or timbers of the track, and provided at the top and bottom with bearings, in which is journaled a vertical rotating shaft, 2, carrying at its lower
40 end a crank, 3, to which is attached the connecting-rod for moving and holding the switch, in the usual manner.

To the upper end of the shaft 2 is fixed firmly, by a pin or otherwise, a collar, 4, formed
45 on one side to receive a hand-lever, 5, attached thereto by a horizontal pivot, that it may drop from a horizontal to a pendent position. On moving the lever from right to left or from left to right the shaft and crank are caused
50 to operate the switch for directing the trains to the main line or siding, as the case may be. The top 6 of the base 1 is made of flat circular

form, with notches 7 and 8 in opposite sides to receive and hold the operating-lever, which may be turned downward therein when it has
55 reached its extreme limit of motion in either direction. The lever thus engaged in the notches prevents the shaft from rotating and holds the switch securely in position.

To the top of the base or stand is bolted an
60 upright arm or support, 9, of the form shown, its upper part projecting over the center of the stand and acting as a bearing for the upper end of the shaft 2, and also as the support for the lower end of an upright rod, 10, which
65 is fastened thereto by a bolt, 27, or other suitable means. This rigidly-fixed rod 10 rises to a suitable height, and supports at its upper end
67 the semaphore arm or signal 11, usually pivoted to a cap or casting, 12, fixed on the rod.
70 The semaphore has a long arm extending outward from the support for reading by day, and a shorter arm extending in the opposite direction and provided with openings containing the glasses of different colors, or, if
75 preferred, with a single glass, for night signaling in connection with the stationary lantern, in the customary manner.

Loosely surrounding the lower end of the rod 10 is a sleeve, 13, having in one side a
80 vertical slot receiving the projecting side of the support or arm 9, before referred to, by which the rotation of the sleeve is prevented, although it is permitted to slide vertically. At its base the sleeve is provided with a hori-
85 zontal flange, 14, extending slightly more than half-way around the same, this flange being flat on its under side, rounded on its upper side, and provided in one edge with a vertical notch, 15, registering with the notch 8 in
90 the base. From the upper end of the sleeve 13 rises a tube, 17, fixed at its lower end thereto, surrounding the stationary rod 10, and connected at its top by a rod, 18, to the rear end of the semaphore. The sleeve and its
95 connections are of such weight that when released they will overcome the weight of the arm, and, descending, lift the same to a horizontal position indicating "danger." I commonly provide the tube with a head or casting, 16,
100 to which the rod is attached, this head being made of conical form at its upper end and adapted to slide into an opening in the under side of the lantern-bracket 19, which latter

serves the purpose of a cap for the tube to prevent the rain and snow from entering and impairing the working of the apparatus. The lantern-bracket is bolted firmly to the conical stationary rod.

The hand-lever is extended inward beyond its pivot with its end in a position to act beneath the sleeve for the purpose of lifting the same and thereby turning the semaphore-arm from a horizontal position downward to the position indicating "siding" or "safety." The lever is provided on its top with a second arm, 21, rising from its upper side in position to override the flange of the sleeve, and thus effect the positive depression of the sleeve and elevation of the signal-arm whenever the hand-lever is raised to a horizontal position. The lever is further provided on its under side with a short arm or shoulder, 23, adapted to bear against the outer edge of the flange at the top of the base, and thus maintain the lever positively in a horizontal position whenever it is carried horizontally out of line with the notches in the base, or, in other words, whenever it stands in any position other than one of the extremes of its horizontal movement, and this for a purpose which will presently appear. The operating-lever can be depressed when opposite either of the notches 7 or 8—that is to say, when the switch is in either of its operative positions. When, however, the lever is turned horizontally to carry the switch the slightest extent from either of its operative positions, the shoulder 23 locks the lever in its horizontal position, and the lever in turn holding the sleeve down locks the signal positively in the position indicating "danger." The arm 21 engaging the sleeve sets the signal positively at "danger" whenever the hand-lever is raised in position to unlock the switch, and this before the movement of the switch can occur. Thus it is that it becomes impossible to either unlock or move the switch until after the signal is set to the "danger" position.

Projecting from the sleeve 13 is an arm, 24, with a cam-groove, 25, formed in one side, as shown in Figs. 1, 2, and 3, to receive the stud 22, formed on the side of the upper arm of the hand-lever. When the lever is carried horizontally to set the switch for the siding, the stud enters the groove, as shown in Fig. 3, and as the lever is depressed to lock the switch the stud, acting through the cam-groove, adjusts the sleeve vertically to an intermediate position, causing the signal to assume the inclined position shown in Fig. 3, indicating the fact that the switch is in position to establish the connection between the main line and siding. This it will be observed is an intermediate position of the arm between the positions indicating "danger" and the "main line."

Having thus described my invention, what I claim is—

1. In combination with the semaphore and its actuating rod or tube 17, the flanged sleeve

attached to the lower end of said rod, the stationary notched plate underlying the sleeve, the intermediate rotary switch-operating collar, and the hand-lever pivoted to the collar and provided with arms to engage the sleeve and the underlying plate, respectively.

2. The vertical switch-operating shaft, the collar secured thereto, and the hand-lever pivoted to the collar to swing vertically and provided with arms 21 and 23, substantially such as described, in combination with the notched stationary plate co-operating with the lever, and the semaphore-operating sleeve which receives a rising-and-falling motion from the lever.

3. In a signal-stand, the stationary base with a flanged notched top, the rod rising therefrom and fixed rigidly thereto, the signal-arm jointed to the top of said rod, the non-rotating vertically-movable sleeve, the operating-rod extending thence to the signal-arm, the rotary collar beneath the sleeve, and the hand-lever pivoted to the collar and provided with arms to engage the base-flange and the sleeve, said parts constructed and combined for joint operation substantially as described.

4. The base having the flange with notches therein and the switch-operating shaft mounted in said base, in combination with the collar fixed to said shaft, the lever united to the collar by a horizontal pivot and provided with the under shoulder and the upper arm with a side stud, and the vertically-movable non-rotating signal-operating sleeve provided with the notched base and the groove to receive the stud of the lever.

5. In combination with the standard or base having the notched top flange and the upright 9, fixed thereon, the signal-sustaining rod secured to the upright, the vertically-sliding sleeve encircling the rod, and the hand-lever provided with an arm acting beneath the sleeve to raise it, and with a second arm riding over the flange of the sleeve to insure its descent.

6. In combination with the vertically-movable signal-operating sleeve provided with the notched flange and the cam-groove, the vertically and horizontally swinging lever having the arm to act beneath and lift the sleeve, and the second arm to enter the cam-groove, whereby the depression of the lever when in different horizontal positions will lift the sleeve different distances and place the signal in different positions.

7. In combination with the stationary rod 10, the lantern-bracket recessed in its lower end, and the signal-operating tube encircling the rod and entering the recess in the bracket, whereby the bracket is caused to exclude snow and rain from the tube.

In testimony whereof I hereunto set my hand in the presence of two attesting witnesses.

ALBERT G. CUMMINGS.

Witnesses:

THOS. S. HARGEST,

WM. H. MIDDLETON.