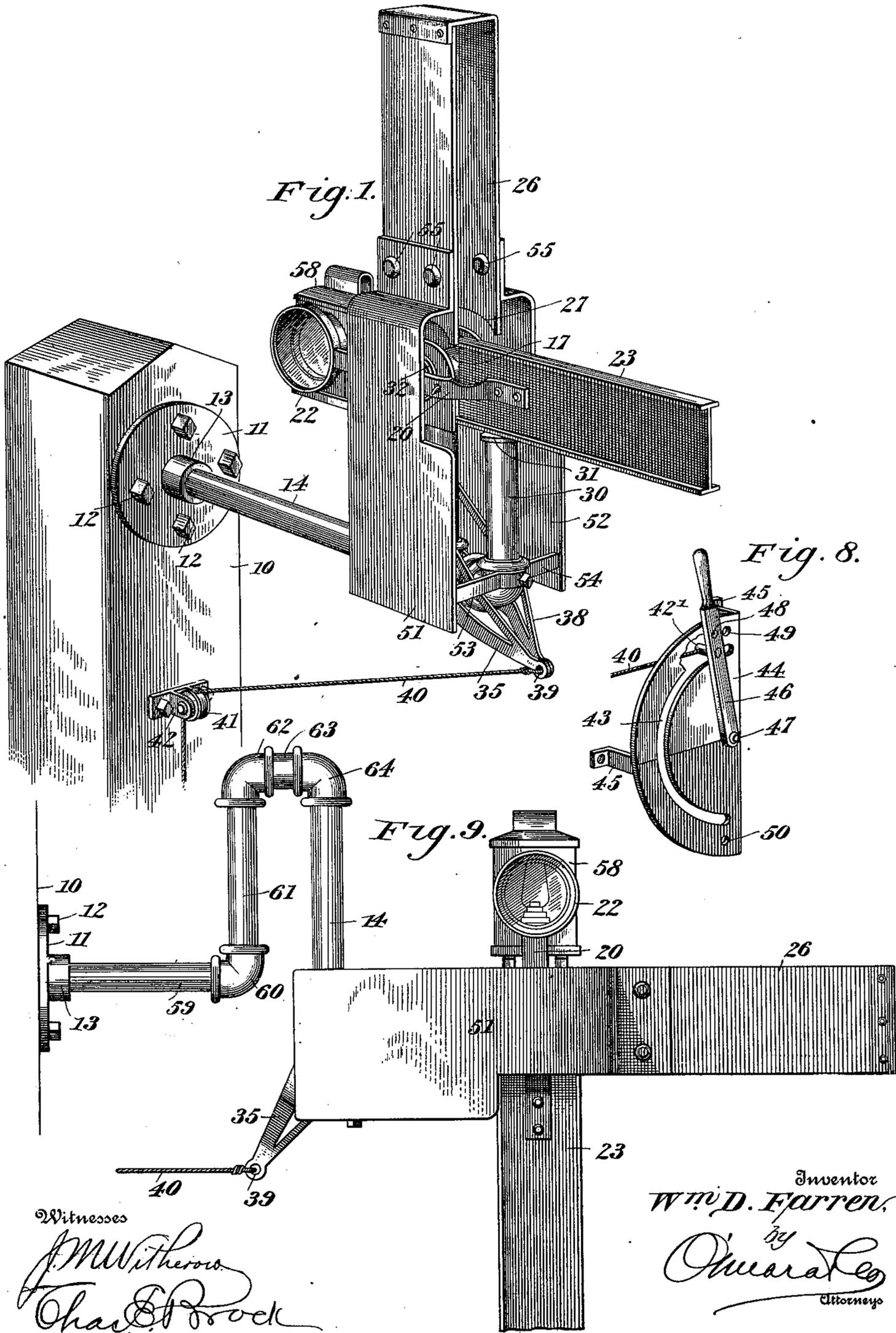


W. D. FARREN.
RAILWAY SIGNAL.

(Application filed Mar. 31, 1898. Renewed Oct. 30, 1900.)

(No Model.)

2 Sheets—Sheet 1.

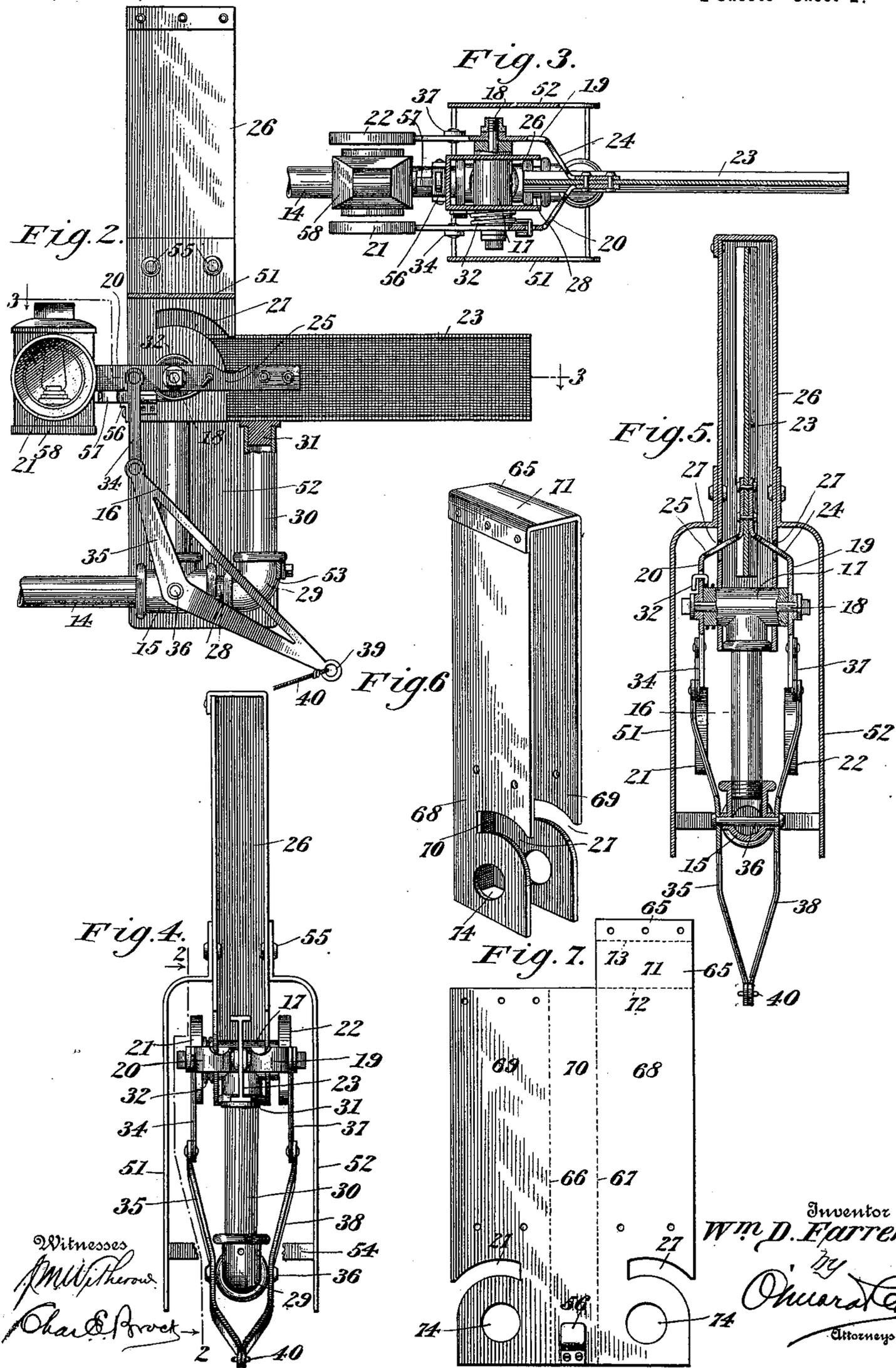


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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

WILLIAM DUNHAM FARREN, OF NEWMAN, CALIFORNIA, ASSIGNOR OF
ONE-FOURTH TO E. T. NEWSOME, OF SAME PLACE.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 675,365, dated May 28, 1901.

Application filed March 31, 1898. Renewed October 30, 1900. Serial No. 34,947. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM DUNHAM FARREN, a citizen of the United States, residing at Newman, in the county of Stanislaus and State of California, have invented a new and useful Railway-Signal, of which the following is a specification.

My invention relates to railway-signals, and more particularly to that class of railway-signals known as "semaphore."

The object of my invention is to simplify, cheapen, and generally improve the construction of such devices and to render them durable as well as automatic and reliable in operation.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts composing a signal of this class, which will be hereinafter fully described and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view illustrating a signal mechanism constructed in accordance with my invention and mounted upon a signal-post in position for actual operation. Fig. 2 is a vertical sectional view on the line 2 2 of Fig. 4. Fig. 3 is a horizontal sectional view on the line 3 3 of Fig. 2. Fig. 4 is a view in front elevation. Fig. 5 is a vertical sectional view with the semaphore-arm raised and hidden from view. Fig. 6 is a detail perspective view of the casing for receiving and concealing the semaphore-arm. Fig. 7 is a view of the blank from which this casing is constructed. Fig. 8 is a detail perspective view of the hand operating-lever to be mounted against the post or station-house. Fig. 9 is a view in side elevation, illustrating the same signaling apparatus mounted upon a modified form of bracket or supporting-arm in order that the semaphore-arm when exposed will stand in a vertical instead of a horizontal position, as illustrated in the other figures.

Like numerals of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by numerals, 10 indicates the post upon which all the mechanism is supported. Although illustrated in this instance as a post, it will be obvious that the support may consist of the side of a house when available for this purpose. To the post is secured a metal plate 11 by means of screws 12, a socket 13 projecting horizontally from said plate. The supporting-bracket, which is preferably made of pipe or tubing, comprises a horizontal pipe 14, the inner end of which is secured in the socket 13, a T-coupling 15 being secured upon its outer end. From the stem of the T-coupling, which is turned to a vertical position, a vertical pipe 16 projects upward and is provided at its upper end with a T-fitting 17, which is plugged up and bored to receive a pin or shaft 18, upon which adjacent to the outer ends of the T-fitting are secured arms 19 and 20, which at their rear ends carry disks 21 and 22 and at their front ends embrace and are rigidly secured to the semaphore-arm 23, the said arms 19 and 20 being bent inward at 24 and 25 to bring their ends together.

A casing 26 is rigidly secured to the T-fitting 17 and projects upward in a position to receive the semaphore-arm and conceal it when the arm is raised to a vertical position. Slots 27, curved on the arc of a circle with the pin or shaft 18 as a center, are formed in the side of the casing 26 to permit of the passage of the bent portions 24 and 25 of the arms 19 and 20 during the operation of raising the semaphore-arm to a vertical position.

The bracket or supporting-arm is continued in a horizontal direction by means of a small section of pipe 28, secured in the outer end of the T-fitting 15. To this section 28 is secured an elbow 29, the outer end of which is turned upward and receives the lower end of a vertical section 30 of pipe, in the upper end of which is fitted a flat-headed plug 31, which serves to support the semaphore-arm when in its horizontal position.

A spring 32, coiled about one end of the T-fitting 17, has its inner end secured to the casing 26 and its outer end secured in a hole 33

in the arm 20. Its tendency is to uncoil itself, thereby normally holding the arm 20 and the semaphore-arm 23 in their horizontal positions.

5 In its normal horizontal position the semaphore-arm is exposed, and in order to conceal it the following mechanism is provided:

34 indicates a link pivotally connected to the arm 20 in the rear of its pivot, the lower
10 end of this link being pivotally connected to a trussed lever 35, pivoted upon a pin 36, mounted in the T-fitting 15. A similar link 37 connects the arm 19 with a similar trussed lever 38, the two trussed levers being pivoted
15 upon the same pin 36 and being bent inward and secured together at their lower ends, where they are formed with an eye 39, in which is secured a rope or cable 40, which passes around a pulley 41, journaled in a
20 bracket 42, secured to the support 10, the cord or cable then passing downward (and being guided over other pulleys, if necessary) in order to carry its outer end to a pin 42', projecting through a slot 43 in a plate 44, se-
25 cured, by means of brackets 45, to any suitable support. The pin 42 projects inward from a hand-lever 46, pivoted to the plate 44, at the center of the circle, upon the arc of which the curved slot 43 is cut by means of
30 a pin 47. A second pin 48 projects inward from the hand-lever 46 and bears upon the surface of the plate 44 during the movement of the hand-lever upon its pivot, but engages in holes 49 and 50 in the plate 44 at the op-
35 posite ends of the movement of the hand-lever to lock the lever in either position. By the movement of the hand-lever the cord 40 is caused to draw the lower ends of the
40 trussed levers 35 and 38 toward the support, moving its upper end in the opposite direction and, by means of its connection with the arms 19 and 20 by the link 34, drawing the rear ends of the arms 19 and 20 downward and throwing their forward ends and the sema-
45 phore-arm upward into the casing 26, thus concealing it from view, the movement of the semaphore-arm being against the pressure of the spring 32.

51 and 52 indicate two plates secured at
50 their lower ends by bars 53 and 54 to the supporting-bracket and bent inward and upward at their upper ends to lie against the sides of the casing 26, to which they are secured by rivets 55. These bars serve to partially cover
55 and protect the working mechanism.

56 indicates a bracket secured upon the rear of the casing 26, upon the upper end of which the supporting-arm 57 of a lantern 58
60 may be hung, the lantern when thus supported being in position to allow its rays to pass through the disks 21 and 22, which will be of glass of the same color as the semaphore-arm.

When the semaphore-arm is raised and concealed in the casing 26, the disks will be con-
65 cealed by the side plates 51 and 52 and the lantern will show its ordinary or white light.

In Fig. 9 I have shown how the supporting-

arm may be modified in form to bring the casing 26 and plates 51 and 52 normally into
70 horizontal instead of vertical positions. In this construction a pipe 59 takes the place of the pipe 14, being secured in the socket 13. An elbow 60 is placed at the end of the pipe
75 59 and turned vertically to receive an upright section 61, on the upper end of which is an elbow 62, from which projects a horizontal section 63, having a downwardly-turned el-
80 bow 64 at its outer end, which elbow, taking the place of the socket 13, receives the inner end of the pipe 14, which then projects downward, bringing the branch pipes 16 and 30, as
85 well as all of the upright parts of the signaling mechanism, to horizontal positions.

In Fig. 7 I have shown the sheet-metal blank out of which I form the casing 26. It
85 is substantially rectangular in form, except a projecting piece 65 at one corner. The dotted lines 66 and 67 indicate where the metal is to be bent to form the sides and back of the casing, the parts 68 and 69 forming the
90 sides and the part 70 the back. The blank is bent with the parts 68 and 69 parallel with each other and the part 70 at right angles thereto, after which the part 71 is bent on the
95 dotted line 72 to form the top of the casing and again on the dotted line 73 to form a flange to overlap and be riveted on the upper end of the side formed by the part 69. The
100 curved slots 27, before referred to, and the openings 74, through which the ends of the T-fitting 17 project, are formed before the blank is bent, the whole blank and these open-
105 ings being cut out by means of a die in one operation, if found desirable.

Obvious modifications of my invention
105 would be to use ball-bearings for the pin or shaft 18 and to substitute triangular plates or elbow-levers for the pulley 41 and metal rods for the cord or cable 40.

From the foregoing it will be seen that I
110 have provided improved signaling mechanism in which the danger-signal will be displayed either day or night when the parts are in their normal position, it requiring an operation of the devices by means of which the
115 semaphore-arm is operated to bring the semaphore-arm and glass disks to their position of safety, so that should the safety-signal be displayed there must have been an operation
120 by the attendant to bring it to that position.

Having thus fully described my invention, what I claim as new, and desire to secure by
Letters Patent of the United States, is—

1. The combination in a signaling mechanism, of a supporting arm or bracket, composed
125 of tubing, having two upright branches, a semaphore-arm, pivotally connected to the top of one of said branches and resting upon the top of the other branch when in its normal display position, and means for operating
130 the semaphore-arm on its pivot, substantially as described.

2. A supporting arm or bracket for signaling devices, consisting of a socket secured to

a support, a horizontal pipe projecting from said socket, a T-fitting on the pipe, a vertical branch pipe extending upwardly from said T-fitting, a short section of pipe extending horizontally from the T-fitting, and an elbow at the end of the short section and an upright section extending from said elbow, in combination with a semaphore-arm pivotally connected to the upper end of the first upright section and normally resting upon the top of the second upright section, substantially as described.

3. The combination with the casing, having an open front and bottom and provided with circular openings and curved slots in its sides, of an upright pipe-section, a T-fitting on the upper end thereof, projecting through the circular opening, a pair of arms pivotally connected on the T-fitting, carrying glass disks at their rear end, and a semaphore-arm, clamped between the front ends of the pivotal arms, being bent inward for that purpose, substantially as described.

4. The combination with the casing and the side plates secured thereto, of the upright pipe-section, having a T-fitting at its top, the disk-arms, pivoted on the T-fitting and carrying the semaphore-arm, the bracket on the rear of the frame to support the lantern, and a spring to maintain the semaphore arm and disks in position to display the light of the lantern through the disks by night and the

color of the semaphore-arm by day, substantially as described.

5. The combination in a signaling mechanism, of an upright pipe-section, a T-fitting on the upper end thereof, a pair of arms pivotally connected on the T-fitting, carrying disks at one end and a semaphore-arm at the other, a spring to normally hold the disks and semaphore-arm in display position, trussed arms or levers, pivoted to the supporting-bracket and secured together at their lower ends, links connecting the disk-arms with the upper ends of the trussed arms, and a cord leading from the lower ends of the trussed arms to the operating-lever, substantially as described.

6. The combination with the semicircular plate, provided with a semicircular groove and an opening beyond the groove near each end of the diametrical side, of a hand-lever, centrally pivoted to the plate, a pin projecting from the hand-lever through the semicircular groove, to which to attach the operating cord or cable, and a second pin, projecting from the hand-lever, adapted to ride over the surface of the plate and to engage either of the holes or openings therein, substantially as described.

WILLIAM DUNHAM FARREN.

Witnesses:

E. T. NEWSOME,
A. E. HARP.