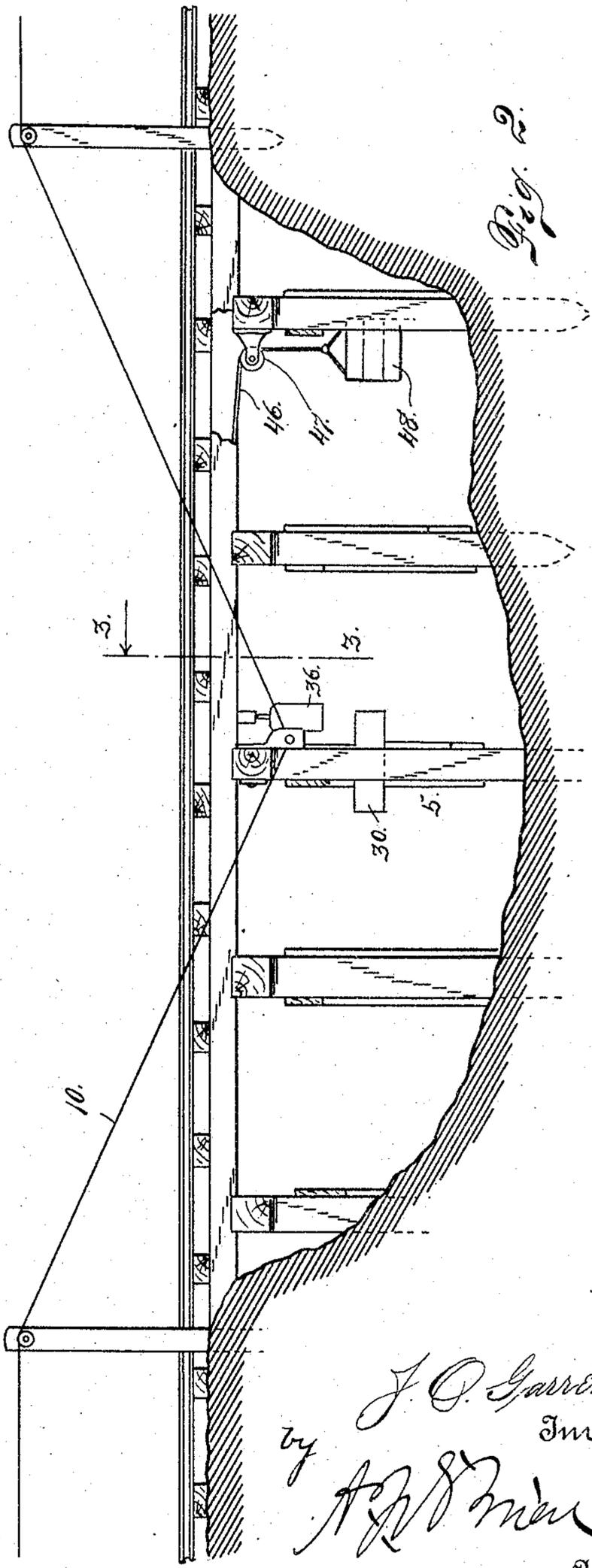
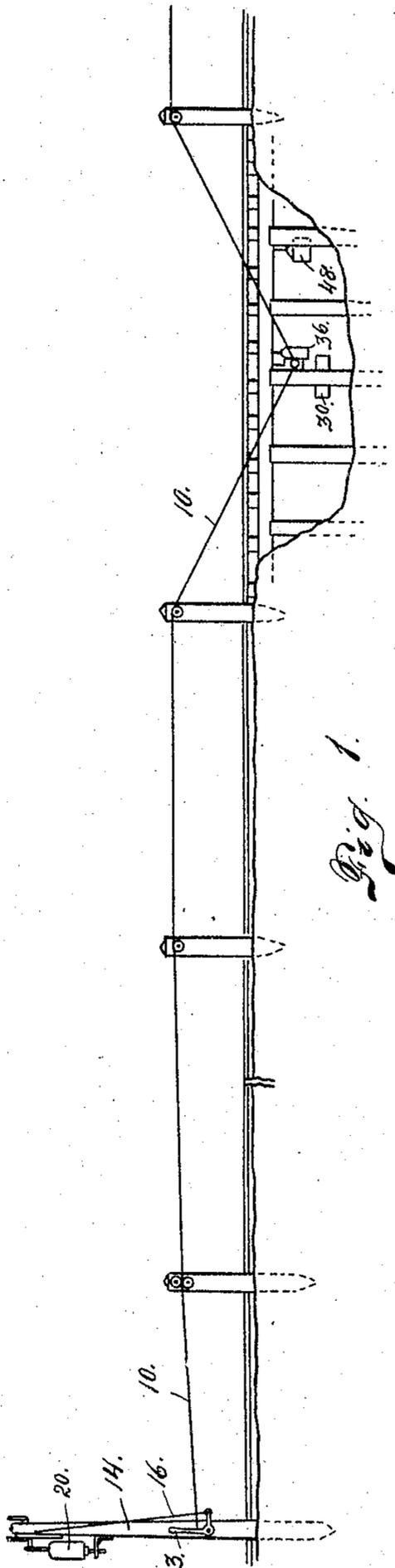


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RAILWAY SIGNALING DEVICE.

APPLICATION FILED NOV. 15, 1904.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 3.

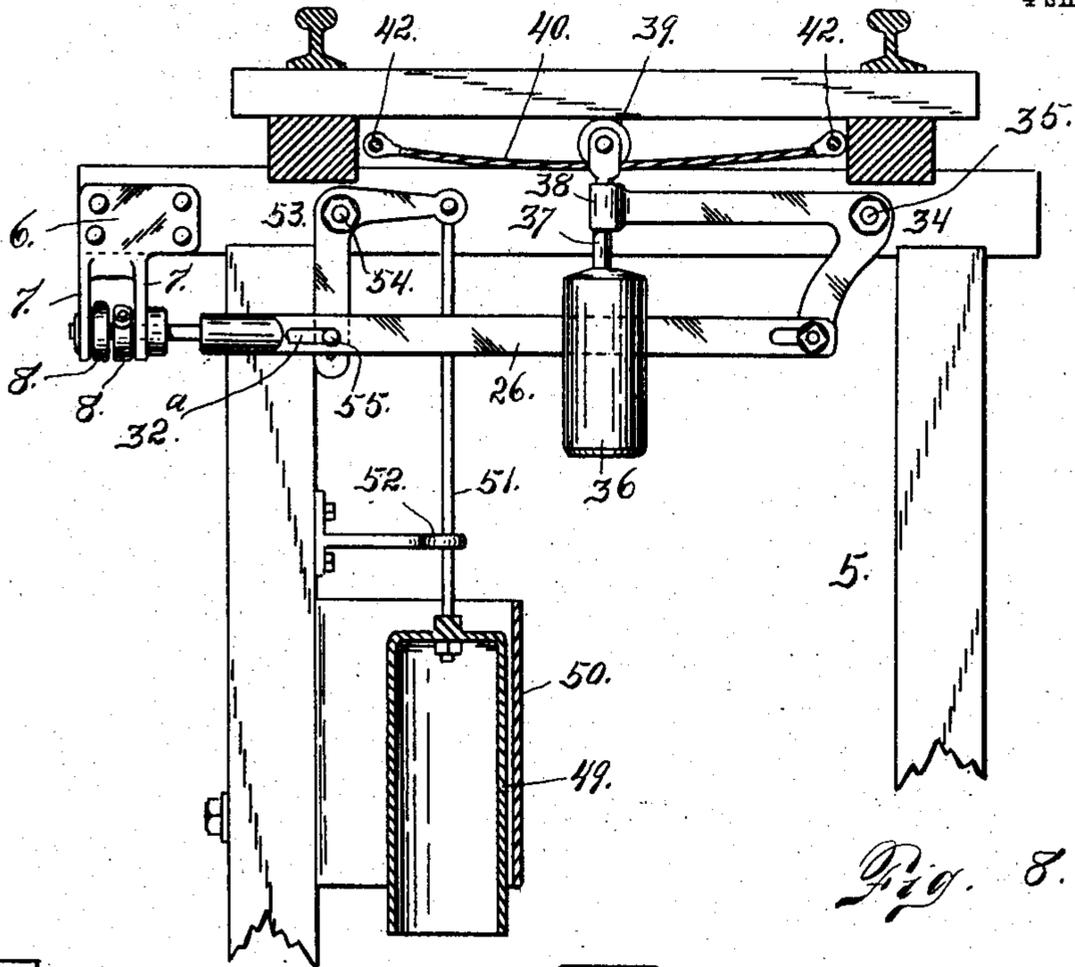


Fig. 8.

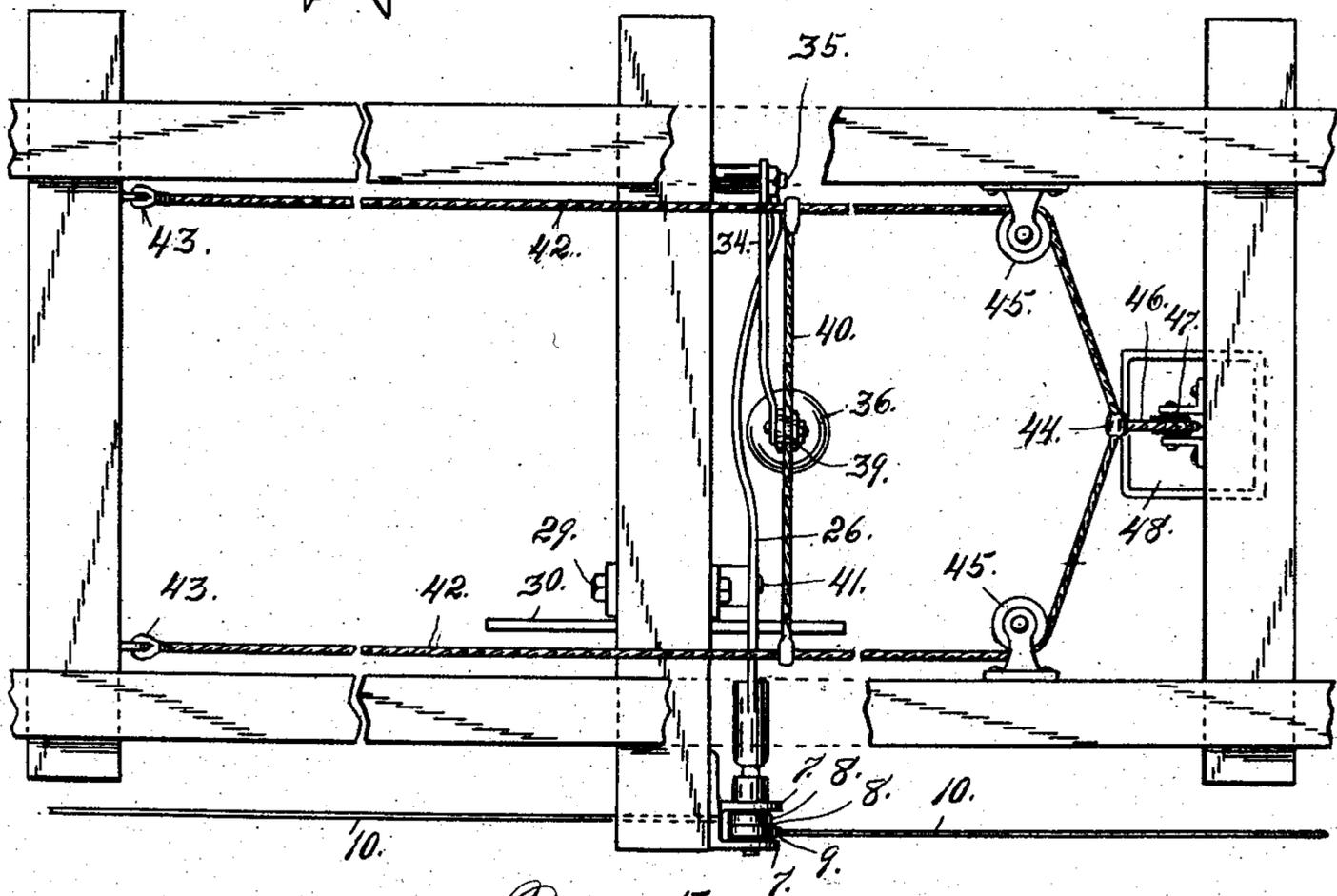


Fig. 5.

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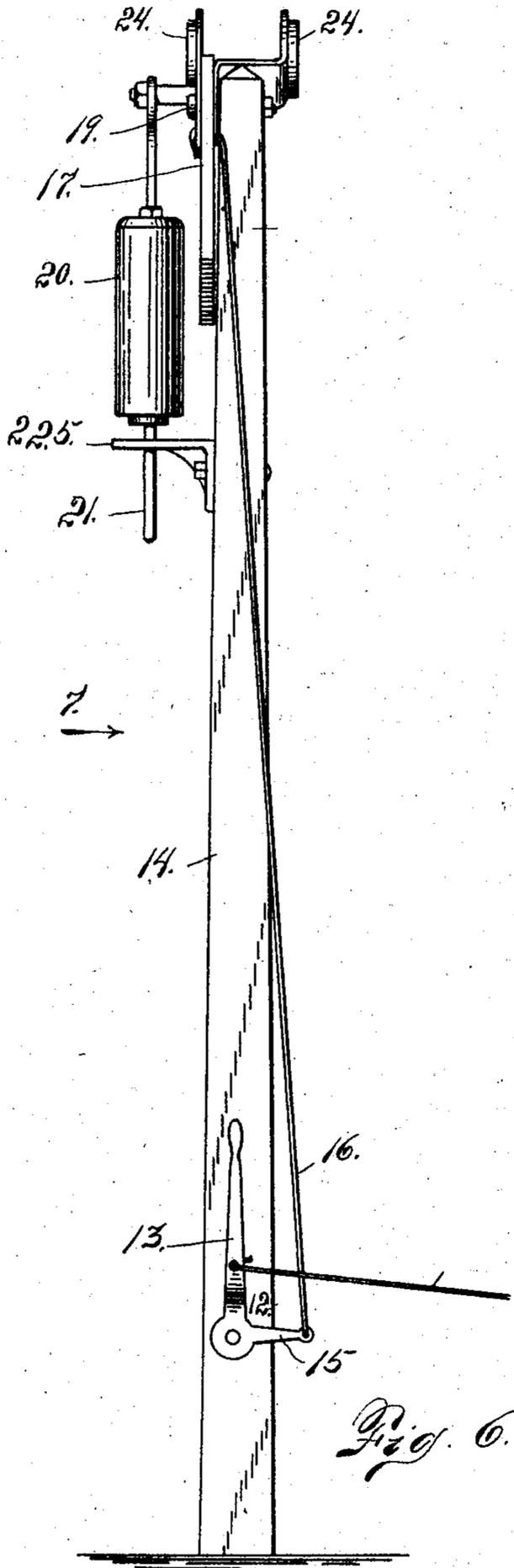


Fig. 6.

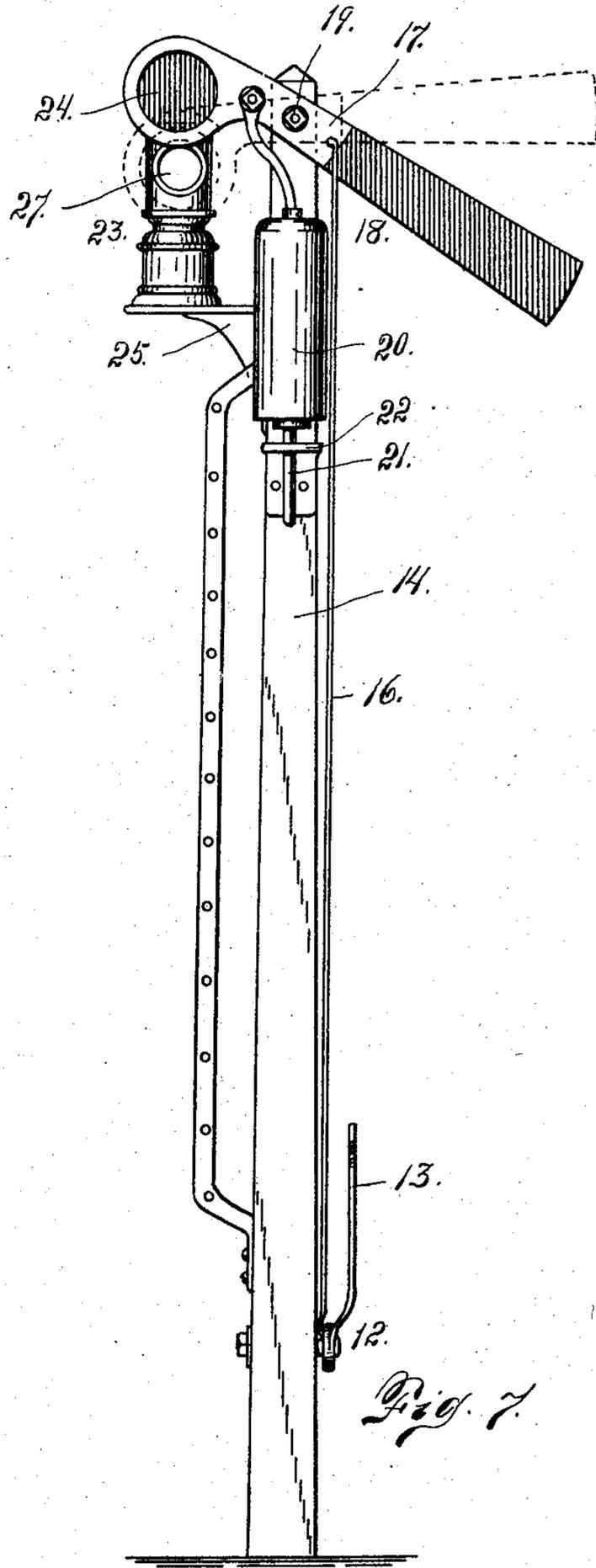


Fig. 7.

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UNITED STATES PATENT OFFICE.

JAMES O. GARRETT, OF DENVER, COLORADO.

RAILWAY SIGNALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 780,483, dated January 17, 1905.

Application filed November 15, 1904. Serial No. 232,823.

To all whom it may concern:

Be it known that I, JAMES O. GARRETT, a citizen of the United States, residing in the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Railway Signaling Devices; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in railway signaling devices of the class set forth in Patent No. 761,825, issued to me June 7, 1904.

My object is to provide an apparatus adapted to signal trains approaching a bridge from either direction in case the bridge has been destroyed or partially destroyed either by fire or water or in case the water is so high as to render it dangerous for a train to cross. These objects are accomplished by mechanism for displaying a danger-signal at opposite ends of the bridge, the signal being allowed to assume the danger position whenever the bridge is rendered unsafe for trains through the instrumentality of mechanism which will be fully understood by reference to the accompanying drawings, in which—

Figure 1 is a view on a small scale illustrating my signaling apparatus in use, the signal being located at a considerable distance from the bridge or culvert. Fig. 2 is a similar view on a larger scale. Fig. 3 is a section taken on the line 3 3, Fig. 2, viewed in the direction of the arrow. Fig. 4 is a section taken on the line 4 4, Fig. 3, looking in the direction of the arrow. Fig. 5 is a top view of the construction shown in Fig. 4 or a view looking in the direction of arrow 5 in said figure. Fig. 6 is a side elevation of the signal proper, shown on a larger scale than in Fig. 1. Fig. 7 is a view looking in the direction of arrow 7 in Fig. 6. Fig. 8 is a view similar to Fig. 3, but showing a modified form of construction.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a bridge located at any suitable point on a line of railway. Upon the framework of this bridge underneath the track is mounted a bracket 6, having two depending apertured arms 7, sufficiently separated to receive two apertured parts 8, which are shown in the drawings as rings, having projecting lugs 9, to which are respectively attached wires, cords, or cables 10, each of which lead to and are connected with an arm 13 of a lever 12, fulcrumed on a post 14, located at any suitable distance from the bridge 5. To the other arm 15 of this lever is attached one extremity of a cord, wire, or rod 16, whose opposite extremity is connected with the arm 17 of a signal-lever 18, fulcrumed on the post, as shown at 19. Connected with the lever on the opposite side of the fulcrum from the connection of the part 16 is a weight 20, whose lower extremity is provided with a stem 21, passing through a guide 22, mounted on the post. The weighted arm of this lever is bifurcated to straddle a lantern 23, the bifurcated parts being provided with red plates of glass 24, whereby when the signal-lever is released its weight causes it to assume a position in which one of the red-glass parts is on each side of the lantern and in position to display a red light to a train approaching from either direction. The lantern is supported upon a bracket 25, mounted on the post 14.

Normally the rings or apertured parts 8, connected with the devices 10, as aforesaid, are engaged by a rod 26, whereby the signal-levers are held in the position shown in full lines in Figs. 6 and 7, thus preventing the display of the danger-signal or preventing the bifurcated part of the signal-lever containing the red-glass parts from occupying positions on opposite sides of the eyes or lenses 27 of the lantern. This rod 26 is connected with a lever-like device 28, fulcrumed on the bridge, as shown at 29, and projecting downwardly a suitable distance below the bridge, the said distance being sufficient to engage the water when the latter rises to a height whereby it

becomes dangerous for trains to cross the bridge. The lower extremity of the device 28 is preferably provided with a cross-piece 30 of considerable area in order to form a better surface for the action of the water. As shown in Fig. 3, this part 30 of the lever-like device is normally locked in place by a log 31 or other device, which when the water rises will float and allow the lever 28 to be actuated. This part 31, as shown in the drawings, is supported by a device 31^a, secured to the bridge. The object of the locking device 31 is to make it difficult for animals or evilly-disposed persons to move the part 28 or tamper with the signaling apparatus. This log or part 31 may be of sufficient weight to make it difficult for animals or persons to move it, but yet be light enough to be quickly raised and washed away by a flood, which usually possesses great force. The rod or bar 26 is slotted, as shown at 32, and engages a pin 33, which passes through the slot. This pin is connected with one arm of a bell-crank lever 34, fulcrumed on the frame of the bridge, as shown at 35, its other arm being connected with a weight 36. The upper extremity of this weight is provided with a stem 37, which passes through an eye 38, formed on the bell-crank-lever arm. The upper extremity of the stem above the eye is provided with a pulley 39, which engages a support 40, composed of any combustible material. This may be either an ordinary hemp rope or it may consist of some non-stretchable combustible material, as may be desired. In the drawings I have illustrated means for taking up the slack of a stretchable cord or rope, whereby the latter is held taut at all times and the part 40 prevented from slacking. This part 40 normally supports the weight 36 in such position that the weight will not act upon the lever 34 to withdraw the rod 26 from engagement with the apertured parts 8 of the wires connected with the levers on the signal-post. It will be observed that the device 28 must be so mounted on the bridge that it will be allowed to move in the direction in which the water flows beneath the bridge and when moved in that direction, being that indicated by the arrow A in Fig. 3, will actuate the rod 26, the part 28 being connected with the said rod, as shown at 41, sufficiently to disengage the rod from the parts 8 of the wires 10. When the weight 36 is released and allowed to operate this lever 34, the lever will also actuate the rod 26 to withdraw it from the parts 8. The slot 32 in the rod allows the latter to move in response to the movement of the part 28, while the lever 34 remains stationary. The rod or bar 26 is also provided with a slot 32^a to allow the rod to move in response to the action of the lever 34, while the device 28 remains stationary or in the position held by the log 31.

In order to prevent the part 40 from stretching sufficiently to allow the weight 36 to act,

its extremities are connected with cord or rope members 42, each of which has one extremity secured to a timber of the bridge, as shown at 43, their opposite extremities being connected, as shown at 44, the members 42 passing around guide-pulleys 45. From the connection 44 a rope part 46 passes over a pulley 47. To the lower extremity of the part 46 is attached a weight 48 of sufficient gravity to keep the members 42 taut, and consequently the part 48 taut at all times. It is believed preferable, however, to make the part 40 of some non-stretchable material, which is at the same time readily combustible, since by so doing the necessity for taking up the slack in the part 40 will be overcome.

From the foregoing description the use and operation of my improved device as thus far described is as follows: Assuming that the water rises beneath the bridge high enough to make the latter dangerous for the passage of trains, the action of the water will raise the log 31 and the water acting on the device 28 will move the rod 26 sufficiently to disengage the apertured parts 8, whereby the weighted signal-levers will assume the dotted-line position in Fig. 7, whereby the red-glass parts are brought on opposite sides of the two eyes 27 of the lantern 23, whereby a red light or danger-signal will be displayed to trains approaching from either direction. On the other hand, in case the bridge is on fire as soon as the combustible part 40 is burned in two the weight 36 will act on the lever 34, which in turn will act on the rod 26 to release the parts 8, with the same result as heretofore explained when the rod is actuated by the part 28.

In the form of construction shown in Fig. 8 the rod or bar 26 is actuated by a float 49, located in a casing 50. To the upper extremity of this float is attached a rod 51, passing through a guide 52, mounted on the bridge. The upper extremity of this rod 51 is connected with one arm of a bell-crank lever 53, fulcrumed, as shown, at 54. The other arm of this lever is provided with a pin 55, which passes through the slot 32^a of the rod 26. The float 49, as shown in the drawings, is hollow and should be so located that when the water rises to a height sufficient to make the bridge dangerous for trains the water will act to raise the float, which moving upwardly actuates the bell-crank lever 53 and moves the rod 26 in a direction to release the parts 8, whereby the signal is allowed to assume the danger position, as heretofore explained.

Having thus described my invention, what I claim is—

1. In a signaling device, the combination with a bridge or support, and a signal proper normally having a tendency to assume the danger position, of a rod movably mounted on the bridge or support, an apertured part engaged by the rod, and a connection between the apertured part and the signal whereby

when the rod engages the said part the signal is held out of the danger position, and a lever-like device mounted on the support and projecting downwardly therefrom a suitable distance, said device being connected with the rod for the purpose set forth.

2. The combination with a bridge or suitable support, and a signal normally having a tendency to assume the danger position, a rod slidably mounted on the support, an apertured part engaged by the rod, a connection between the apertured part and the signal whereby the latter is held out of the danger position when the rod engages the apertured part, a depending lever-like device mounted on the bridge or support and connected with the rod in operative relation, a lever also fulcrumed on the support and connected with the rod in operative relation, a weight connected with the lever, and a combustible part normally supporting the weight to prevent its action on the lever for the purpose set forth.

3. The combination with a signal device normally having a tendency to assume the danger position, of a part connected with the signal device, a rod movably mounted and connected to retain and hold the said part whereby the signal device is prevented from assuming the danger position, and two devices for operating the rod to release the said part whereby the signal is allowed to assume the danger position, the said devices being connected with the rod to actuate the latter independently of each other.

4. The combination with a signal device normally having a tendency to assume the danger position, of an apertured part connected with the signal device, a rod movably mounted and engaging the apertured part whereby the signal device is prevented from assuming the danger position, and two devices for operating the rod to release the apertured part, the said devices being connected with the rod to actuate the latter independently of each other.

5. The combination with a signal device normally having a tendency to assume the danger position, of a part connected with the signal device, a rod movably mounted and connected to retain and hold the said part whereby the signal device is prevented from assuming the danger position, the rod being provided with two slots, and two devices provided with pins engaging the slots of the rod in operative relation, whereby as the devices are actuated, the rod is operated to release the said part to allow the signal to assume the danger position, the slots of the rod permitting the said devices to actuate the rod independently of each other.

6. The combination with a signal device, of a part connected with the signal device in op-

erative relation, a rod movably mounted and connected to retain and hold the part whereby the signal device is held in a predetermined position, two devices connected with the rod to operate the latter independently of each other, and means for normally holding the rod-operating devices inactive for the purpose set forth.

7. The combination with a signal device, of a part connected with the signal device, a rod movably mounted and connected to retain and hold the said part whereby the signal device is held in a predetermined position, a lever-like device connected with the rod in operative relation, means for normally holding the lever-like device against movement, a bell-crank lever having one arm connected with the rod in operative relation, a weight connected with the other arm and normally having a tendency to operate the lever to actuate the rod, and combustible means for supporting the weight to render the lever inactive.

8. The combination with a signal device, of a part connected with the signal device, a rod movably mounted and connected to retain and hold the said part whereby the signal device is held in a predetermined position, a depending lever-like device connected with the rod to actuate the latter sufficiently to release the said part when the lever-like device is actuated, and a float for normally holding the lever-like device against movement.

9. The combination with a signal device, of a part connected with the signal device, a rod movably mounted and connected with the said part to hold the signal device in a predetermined position, a lever connected in operative relation with the rod, whereby as the lever is actuated the rod will be moved to release the part connected with the signal, a weight connected with the lever to operate the same, and combustible means for supporting the weight in the inoperative position.

10. The combination with a signal device, of a part connected with the signal device, a rod movably mounted and connected with the said part to hold the signal device in a predetermined position, a lever connected in operative relation with the rod, whereby as the lever is actuated the rod will be moved to release the part connected with the signal, and a device connected with the lever and projecting downwardly into position to be moved by the water to actuate the lever.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES O. GARRETT.

Witnesses:

DENA NELSON,
A. J. O'BRIEN.