

No. 608,280.

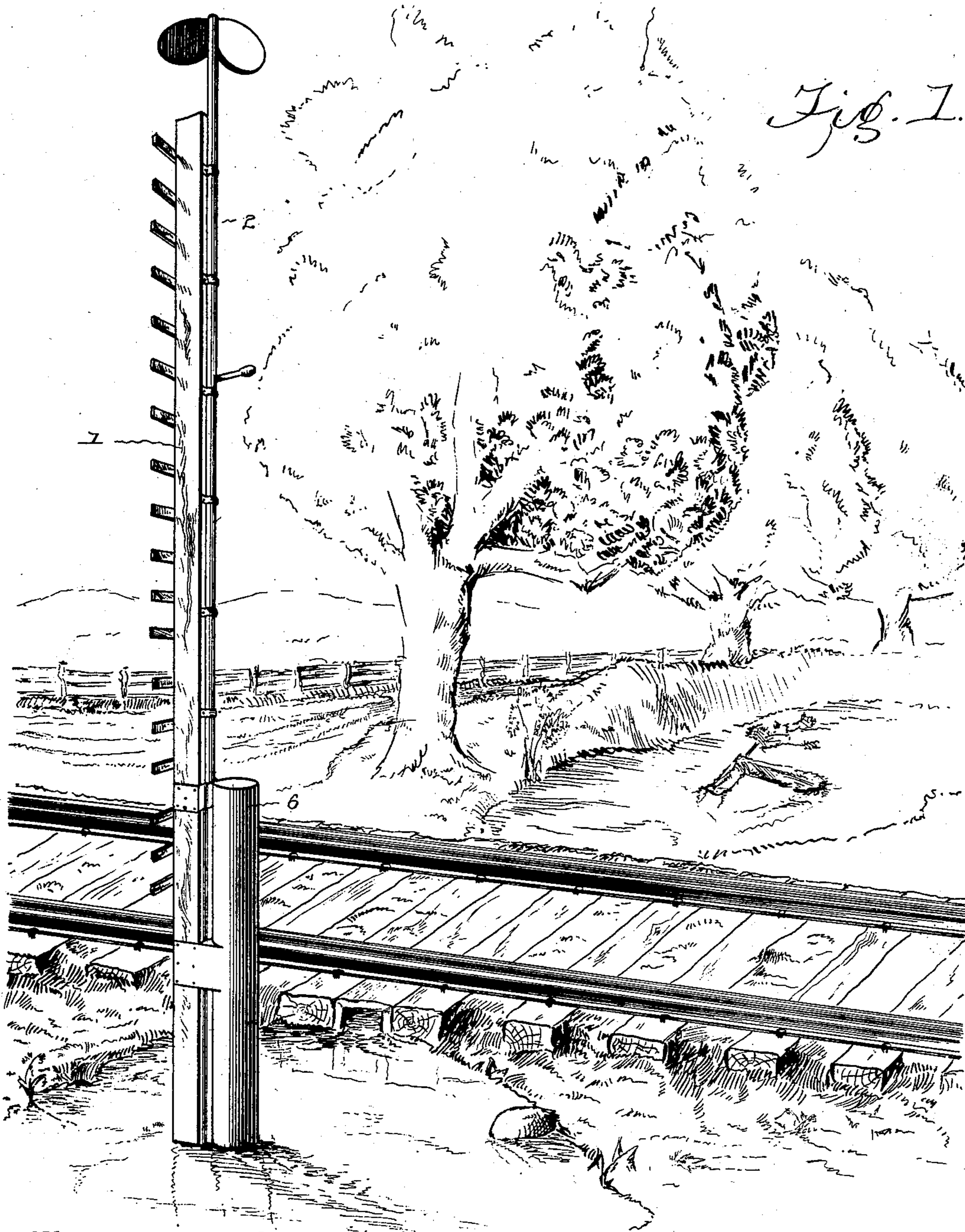
Patented Aug. 2, 1898.

T. H. CAMPBELL.  
RAILROAD SIGNAL.

(No Model.)

(Application filed Jan. 28, 1898.)

2 Sheets—Sheet 1.



Witnesses

*E. H. Monroe*

By *his* Attorneys,

*Thos. H. Campbell* inventor

*E. H. Monroe*

*C. H. Snow & Co.*

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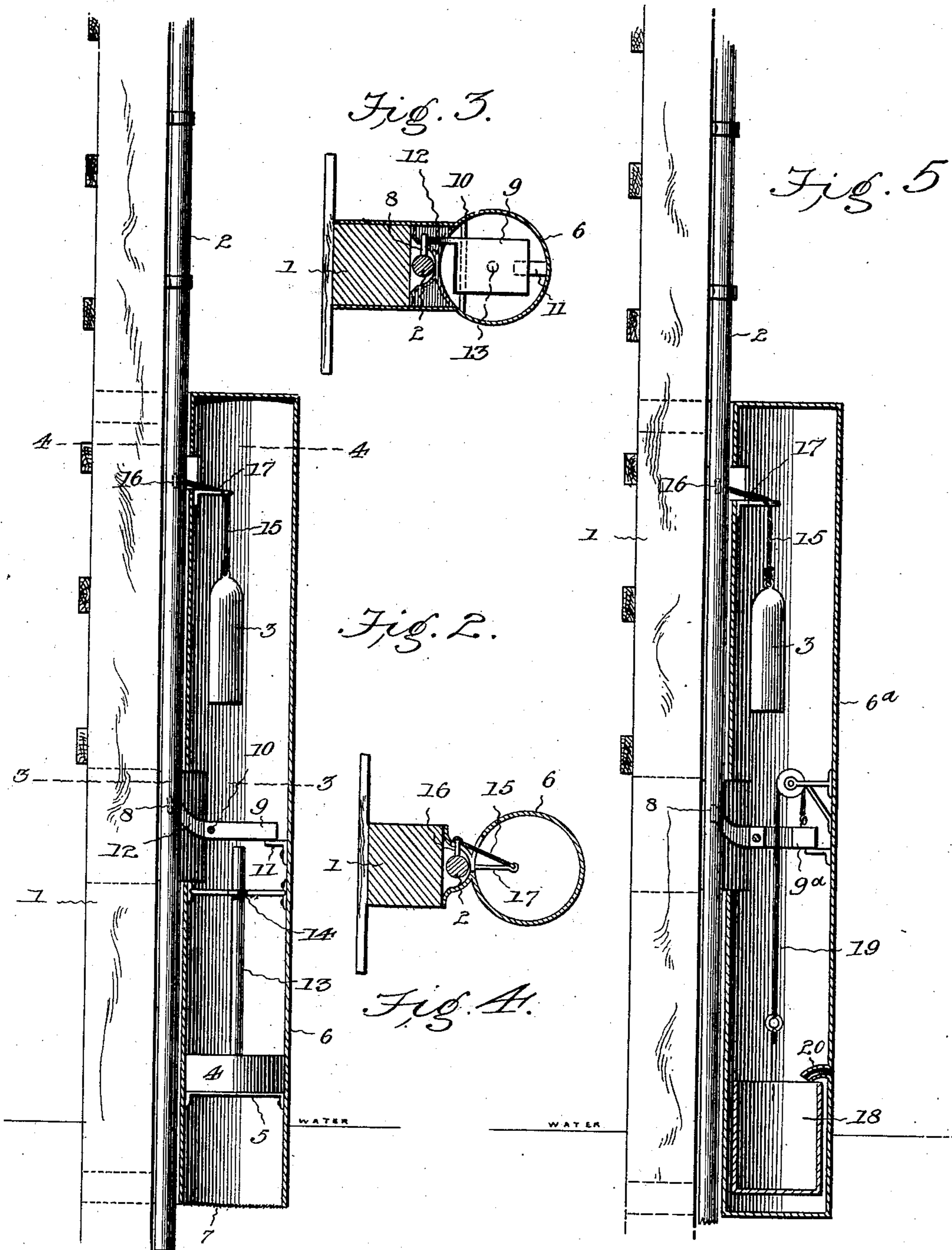
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E. S. Monroe

By his Attorneys,

C. E. Hoyle

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# UNITED STATES PATENT OFFICE.

THOMAS H. CAMPBELL, OF ASHLAND, VIRGINIA.

## RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 608,280, dated August 2, 1898.

Application filed January 28, 1898. Serial No. 668,293. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS H. CAMPBELL, a citizen of the United States, residing at Ashland, in the county of Hanover and State of Virginia, have invented a new and useful Railroad-Signal, of which the following is a specification.

My invention relates to railroad-signals, and particularly to a washout danger-signal adapted to be arranged contiguous to the track in cuts and like depressions adjacent to "fills" to indicate the rise of water to an extent liable to cause a washout; and the object in view is to provide a simple construction and arrangement of parts adapted to be actuated by the water to release a signal-staff for operation by means under constant tension for reversing the same.

Further objects and advantages of this invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a signaling apparatus constructed in accordance with my invention. Fig. 2 is a vertical sectional view of the operating devices. Fig. 3 is a transverse horizontal section on the plane indicated by the line 3 3 of Fig. 2. Fig. 4 is a sectional view taken in a plane indicated by the line 4 4 of Fig. 2. Fig. 5 is a vertical sectional view of a modified construction of trip mechanism.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

Where a railroad-fill crosses a dry water-course or one which is practically dry except during a wet season, it is usual to provide a conduit for carrying the water from one side of the fill to the other. In case of a freshet this conduit is frequently incapable of conveying the accumulation of water, and hence there is a liability of overflow and a washout.

The apparatus embodying my invention is designed to be placed contiguous to any portion of a railroad-track which is exposed to dangers of a washout, and in addition to a suitable standard 1, adapted to be of any necessary height, I provide a signal staff or spindle 2, together with an actuating device under constant tension, such as a weight 3,

and holding and trip mechanism for maintaining the apparatus in its set position, said trip mechanism including a water-actuated plunger, which is exposed to the pressure of water when the latter rises to a point liable to endanger the road-bed. In the construction illustrated in Figs. 2 to 4 the plunger 4 consists of a float normally supported by a bracket 5 at such a point as to be out of the reach of the water when at its normal level, said float being mounted in a cylindrical or tubular guide 6, having an open lower end which is preferably fitted with a guard of reticulated or interstitial construction, such as a screen 7, to prevent the accumulation of floating debris in the lower end of the cylinder and also to prevent the elevation of the float by the introduction of sticks or otherwise by meddlesome persons. The staff or spindle 2 is provided with a laterally-extending arm 8, in the path of which is normally arranged the extremity of a locking or holding lever 9, pivoted, as at 10, and concealed wholly within the casing, a suitable stop 11 being arranged in the path of the weighted or enlarged end of the lever to limit the downward movement thereof. The engaging arm 12 of the lever is preferably curved upwardly or is otherwise beveled to facilitate the passage of the arm 8 thereover in the operation of turning the signal staff or spindle from its released position (indicated by the dotted arm 8 in Fig. 3) to a set position, as shown in full lines, and it is obvious that when the arm 8 has passed the extremity of said lever-arm 12 the lever will be returned by gravity to its normal position (shown in Fig. 2) in the path of the arm 8. The plunger (which in the construction illustrated in Fig. 2 consists of a float, as described) is provided with a stem 13, extending through a suitable guide 14, and the weighted arm of the lever 9 is arranged in the path of this stem, whereby when the water rises in the casing sufficiently to lift the plunger said stem will be brought in contact with the lever and will trip the same, and thereby release the signal staff or spindle, whereby the latter may be turned to its released position by means of an operating-weight 3, which is connected, by means of a chain 15 or its equivalent, with an arm 16 on said staff or spindle, said connection passing through a suitable guide 17

in order to apply the strain of the chain in the proper direction.

In the construction illustrated in Fig. 5 the counterbalancing and holding or locking devices are identical with those shown in Figs. 2 to 4, inclusive; but instead of a plunger consisting of a float I have shown a plunger consisting of a depressible variable weight comprising a bucket or receptacle 18, connected flexibly, as by a chain 19, with the weighted end of the locking-lever 9<sup>a</sup>, and have also provided the casing with an inwardly-extending spout 20, through which water from the outside is adapted to enter the casing and be deposited in the receptacle when the level of the water rises to the plane of said spout. Obviously the lower end of the cylinder 6<sup>a</sup> in this modified form of the apparatus is closed, as is the upper end in both forms of the apparatus.

From the above description it will be seen that in operation the rise of the surface of the water to a point governed by the elevation of the cylinder will actuate the plunger, and thus trip the holding or locking lever, and thereby release the signal staff or spindle for actuation by the means provided for that purpose to display a suitable signal to the engineer of an approaching train, and thus apprise him of the fact that the water has risen in a cut or run to such a point as to endanger the road-bed, and hence enable him to reduce the speed or entirely check the motion of the train before reaching the endangered point.

While in the construction illustrated the locking or holding lever is so arranged and formed as to dispose its extremity in the path of the arm on the signal-staff in order to maintain the latter in its set position, it is obvious that said locking or holding lever may be provided with a shoulder or other projection analogous to its abrupt extremity for engagement with the arm of the staff to lock the latter in the desired position, and as in either case an abrupt shoulder is the means whereby the signal-staff arm is held in place I have deemed it unnecessary to illustrate any other form than that wherein the extremity of the lever abuts against the arm.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. The combination with a signal-staff, and means under constant tension for actuating the same, of a locking device, and a trip

mechanism arranged in operative relation with the locking device and having a plunger mounted in a casing in the path of water liable to rise above a normal level, substantially as specified.

2. The combination with a signal-staff, and means, under constant tension, for actuating the same to expose a danger-signal, of a casing, a locking device inclosed in the casing for maintaining the signal-staff in its set position, and trip mechanism also inclosed in the casing and arranged in operative relation with the locking device, the same having a plunger arranged in the path of water liable to rise above a normal level, substantially as specified.

3. The combination with a signal staff or spindle mounted for rotary movement, and means under constant tension for actuating the same, of a locking-lever yieldingly held in its set position with an arm in the path of a projection on said staff or spindle, to maintain the latter in its set position, and a plunger arranged in the path of water liable to rise above its normal level, and operatively connected with said locking-lever, for actuating the same when the plunger is moved by contact of the water, substantially as specified.

4. The combination with a signal staff or spindle having a lateral arm and an actuating-weight flexibly connected with said arm, of a locking-lever normally arranged in the path of a second arm on the staff or spindle, a plunger arranged in the path of water liable to rise above its normal level, and operatively connected with said locking-lever, and a casing inclosing said actuating-weight, locking-lever, and plunger, substantially as specified.

5. The combination with a signal staff or spindle, and yielding means under constant tension for actuating the same, of a locking-lever normally arranged in the path of an arm on said staff or spindle, a cylindrical casing inclosing said lever and extending below the plane thereof, an open-work guard closing the lower end of the casing, and a plunger, consisting of a float mounted in the casing and having a stem in the path of which said locking-lever is arranged, said plunger being located above the normal level of water liable to rise, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOS. H. CAMPBELL.

Witnesses:

D. R. ANDERSON,  
T. M. CAMPBELL.