

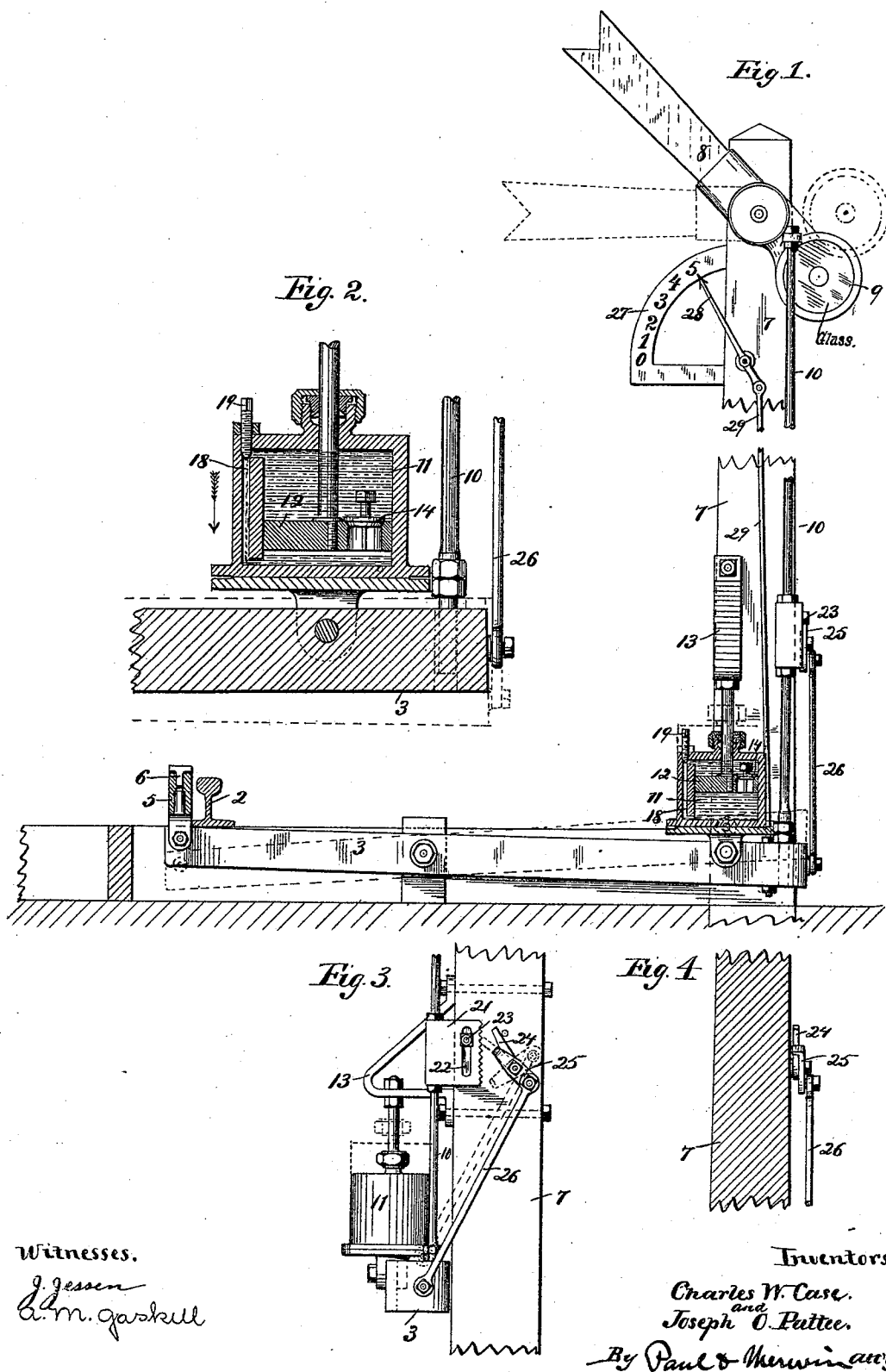
(No Model.)

2 Sheets—Sheet 1.

J. O. PATTEE & C. W. CASE.  
RAILWAY SIGNAL.

No. 516,656.

Patented Mar. 20, 1894.



Witnesses.

J. Jessen  
A. M. Gaskill

Inventors

Charles W. Case.  
and  
Joseph O. Pattee.

By Paul & Merwin attys.

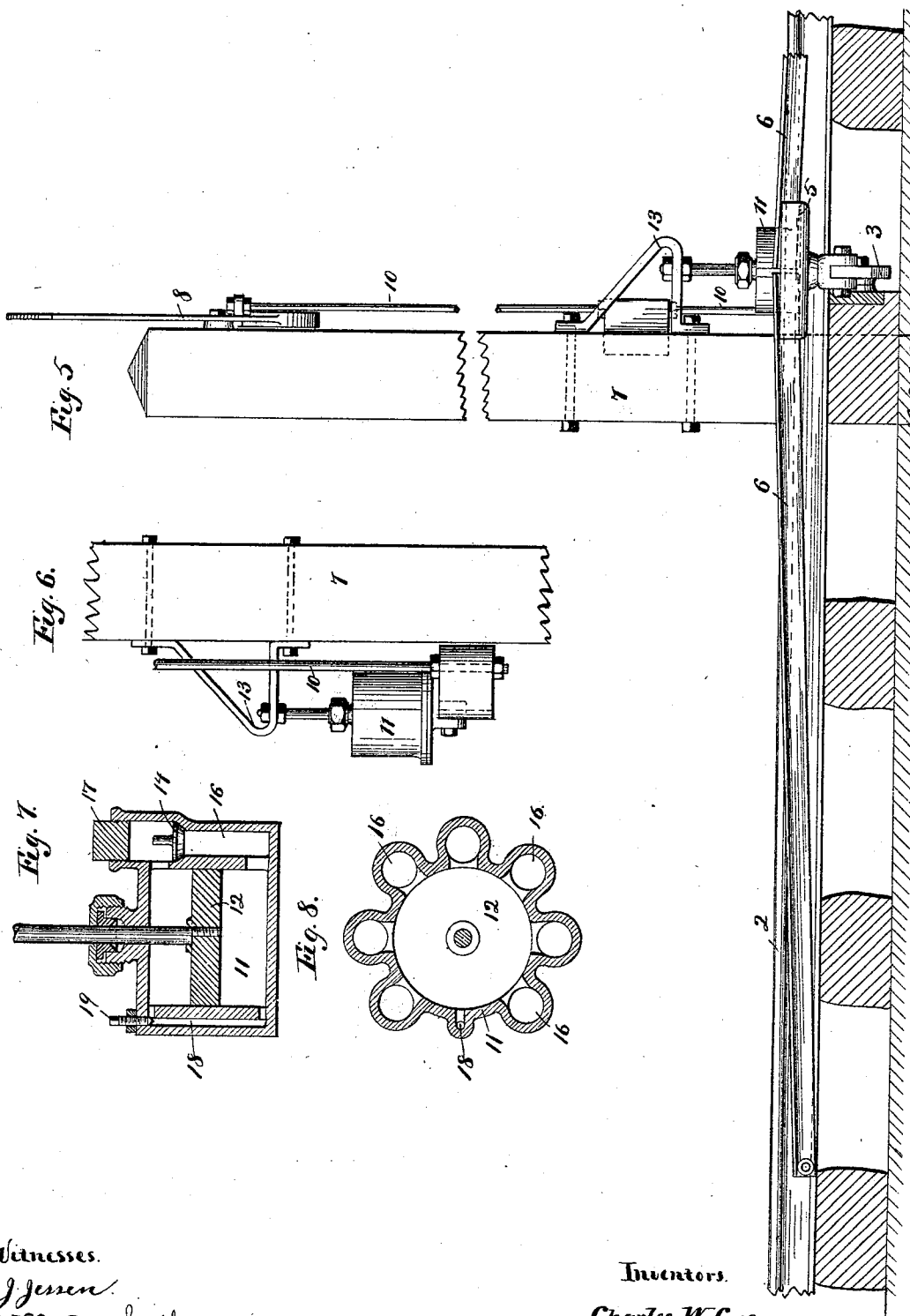
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# UNITED STATES PATENT OFFICE.

JOSEPH ORMOND PATTEE, OF ST. PAUL, AND CHARLES WHIPPLE CASE,  
OF MINNEAPOLIS, MINNESOTA.

## RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 516,656, dated March 20, 1894.

Application filed March 15, 1889. Serial No. 303,473. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH ORMOND PATTEE, of St. Paul, in the county of Ramsey, and CHARLES WHIPPLE CASE, of Minneapolis, county of Hennepin, State of Minnesota, have invented certain Improvements in Railway-Signals, of which the following is a specification.

The object of our invention is to provide an improved railway signal which will be set by the passage of a train upon the track in connection with which the signal is used, and which will remain set for a predetermined length of time after the passage of the train which has set it, or will be gradually returned to its former position, requiring a predetermined length of time to regain its normal position.

The invention consists in the construction hereinafter described and then sought to be specifically defined by the claims.

In the accompanying drawings forming part of this specification, Figure 1. is a side elevation and partial section of our improved signal. Fig. 2. is a detailed section on a larger scale of the liquid receptacle and follower. Fig. 3. is an end elevation of a portion of the operating mechanism. Fig. 4. is a detail of the releasing device. Fig. 5. is an elevation of the signal mechanism, showing also a portion of the track; Figs. 6, 7 and 8 are details of the cylinder and follower.

In the drawings 2 represents a portion of a track rail and 3 represents a pivoted lever which preferably extends beneath the track rail 2 and is provided with an upwardly projecting standard 5, which projects upward inside of the rail 2 in such position that it will be depressed by the flanges upon the wheels of the train passing upon the track 2. We prefer to provide the inclined rails 6 which are pivoted to the track rail and are gradually inclined toward the standard 5 upon the upper portion of which their ends rest. A train moving in either direction upon the track 2 will gradually depress one of the rails 6 thus preventing a too sudden shock upon the standard 5.

7 represents a suitable post which is arranged near the opposite end of the lever 3. Upon the post 7 is suitably arranged a signal

8 preferably pivoted upon the post and held normally in the position shown by full lines in Fig. 1. The signal is preferably provided with a glass 9 for a danger signal at night. A rod 10 is connected to the signal 8 and its lower end rests upon the end of the lever 3. As the end of the lever 3 that is next to the track is depressed its opposite end is raised and thereby through the rod 10 the signal is brought into the position shown by dotted lines in Fig. 1.

In order to prevent the immediate return of the signal to its normal position after the passage of a train, we provide a device that is connected with the operating lever of the signal and causes the lever to be gradually returned to its original position after being depressed. The signal rod is preferably provided with a stop, which causes the signal to remain stationary until the lever has very nearly reached the limit of its movement, when the signal rod is released and the signal immediately turns from the position shown by dotted lines in Fig. 1 to the position shown by full lines in the same figure. If preferred however the stop for the signal rod may be omitted in which case the signal will be gradually moved to its normal position after being set by the passage of the train.

We provide a suitable cylinder or receiver 11 which is preferably supported upon the lever 3. A piston or follower 12 is arranged within the cylinder and is connected to a suitable support 13 that is preferably secured to the post 7. One or more valves 14 are provided in the follower 12. Said valves are arranged to open in one direction to permit the passage of liquid from one side of the follower to the other and preventing its passing back again. Instead of being arranged in the follower 12 a series of large ports 16 may be arranged in the cylinder connecting with the main part of the cylinder both above and below the follower as shown in Figs. 7 and 8, and in this instance the valves 14 will be arranged in the ports 16 instead of being arranged in the follower. Plugs 17 may be arranged at the tops of the ports 16 to permit access to the valves and to limit their lift.

A small port or passage way 18 is arranged to connect with the cylinder above and below

the follower and it permits liquid which has passed from one side of the follower to the other through the valves 14 to return slowly through this port 18. A screw valve 19 is preferably provided for the purpose of regulating the passage of the liquid through the port 18. As the end of the lever 3 carrying the cylinder is moved upward by the passage of a train the liquid with which the cylinder is filled is forced through the valves 14 from the lower to the upper side of the follower 12. The weight of this end of the lever tends to depress it as soon as the train has passed, but it can move down only so fast as the passage of the liquid through the port 18 will permit. The lever will therefore be gradually brought back to its normal position, the length of time required for this operation being regulated by the valve 19. Where the signal is connected directly to the lever 3, it will be gradually returned to its normal position, its movement corresponding to the movement of the lever as described. We prefer however to provide a serrated plate 21 that is connected to the rod 10. This plate may be provided with a slot 22 through which passes a bolt 23 engaging the post 7 and serving as a guide for the rod. A dog 24 is pivoted upon the post 7 and is adapted to rest against the serrated edge of the plate 21. A tripping lever 25 is pivoted upon the post 7 and is adapted to engage the dog 24 and throw it away from the plate 21. A rod 26 connects the lever 25 with the end of the lever 3. When the end of the lever 3 is raised, the rod 10 is moved upward and sets the signal 8, the dog 24 engages the serrated edge of the plate 21 and holds the rod and signal stationary. As the lever 3 descends the lever 25 is turned upon its pivot and just before the lever 3 reaches the limit of its movement, the end of the lever 25 engages the dog 24 and throws it away from the plate 21 which permits the signal to return to its normal position.

If preferred a suitable indicator may be used to show the length of time which has elapsed since the passage of a train.

We have shown in Fig. 1 an indicator consisting of a quadrant shaped plate 27 that is secured to the post 7 and is provided with a series of figures. A pointer 28 is pivoted upon the post and its end is arranged to move over the plate 27. The pointer is connected by a suitable rod 29 with the operating lever 3. When the lever is depressed by the passage of a train the pointer is moved to the beginning of the scale. As the lever is gradually returned to its normal position the pointer is moved over the scale, thereby showing the length of time that has elapsed since the passage of the train that has set the signal.

We claim as our invention—

1. In a railway signal, the combination of

the visual indicator, the operative lever connected with the same, mechanism for operating the said lever, and the retarding mechanism consisting of the cylinder pivoted to the said lever and having a port connecting its extreme ends, the piston seated therein having a port leading through the same, the valve controlling the said port, and the rod leading through the upper head of the cylinder, connecting the piston with a fixed portion of the mechanism, substantially as described.

2. In a railway signal, the combination of the visual indicator, the operative lever connected with the same, and the mechanism adapted to withdraw the signal after a predetermined period of exposure, consisting of the cylinder and piston connecting the operative lever with a fixed portion of the mechanism, the dogging mechanism for holding the indicator exposed during the said period, and the trip connected with the said lever and adapted to operate the dogging mechanism, substantially as described.

3. In a railway signal, the combination of the visual indicator, an operating lever connected with the same, mechanism for retarding the return movement of the lever, the dogging mechanism for holding the signal in an exposed position, and the trip, substantially as described.

4. In a railway signal the combination of the standard, the visual indicator pivoted thereto, the operative lever, the rod connecting the lever with the indicator, the serrated plate connected with the rod, the dog adapted to engage with the said plate, the trip connected with the said lever and adapted to release the dog, and the retarding mechanism connected with the operative lever, substantially as described.

5. In a rail-way signal, the combination of a visual indicator, an operating lever, a connecting rod between said lever and indicator, a dog adapted to retain said signal in one position, a tripping lever connected with said operating lever and adapted to release said dog, and means controlling the movement of the lever to which the tripping lever is connected comprising a receptacle or cylinder provided with a follower and having a valved opening for permitting the passage of a fluid from one side of said follower to the other, and a constant open passage for the return of the liquid to the other side of the follower, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our hands this 2d day of March, 1889.

JOSEPH ORMOND PATTEE.  
CHARLES WHIPPLE CASE.

In presence of—

E. W. BATCHELDER,  
A. A. LADD.