

No. 863,148.

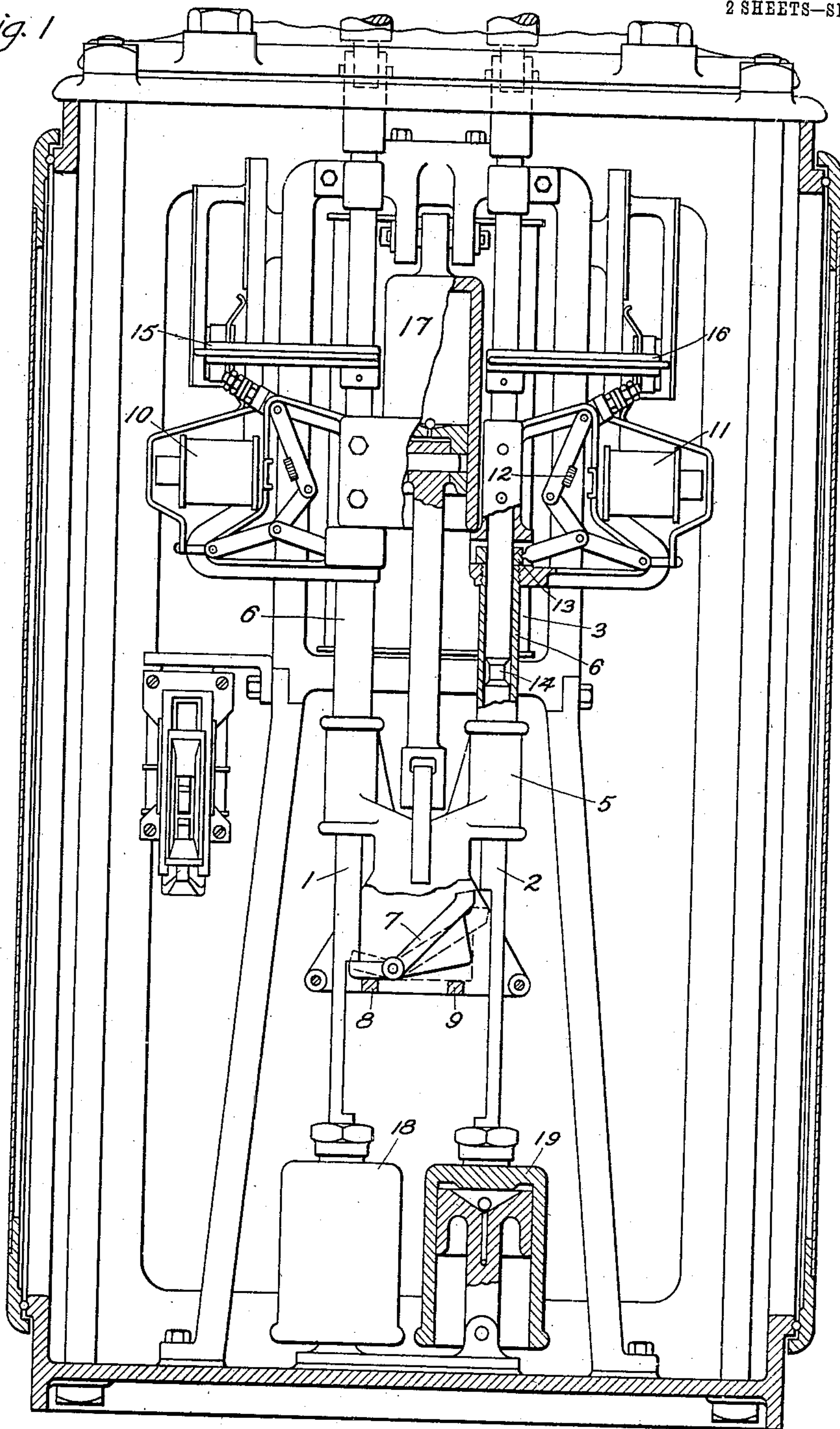
PATENTED AUG. 13, 1907.

W. W. BROWN.  
RAILWAY SIGNAL.

APPLICATION FILED FEB. 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1



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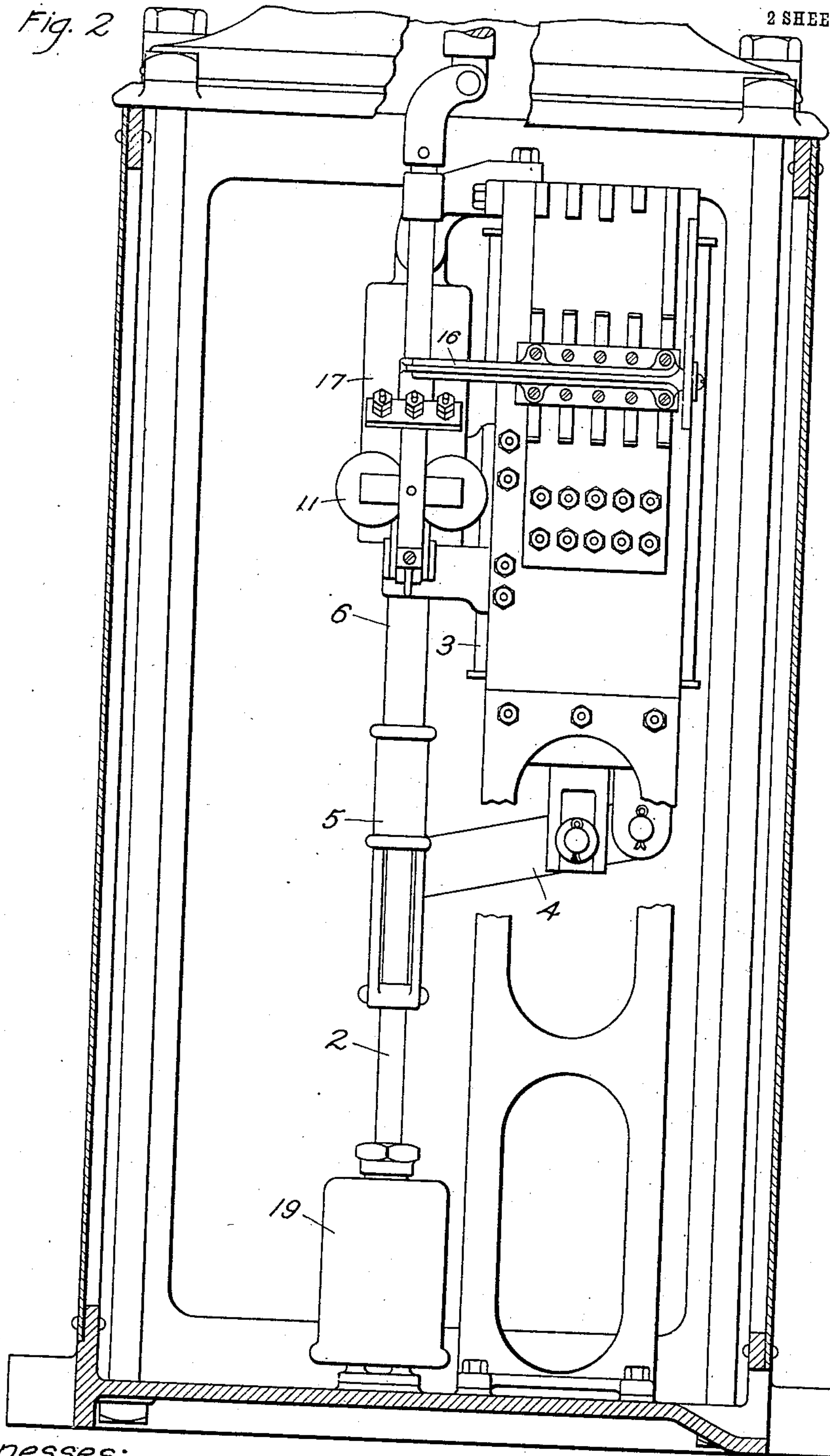
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Fig. 2

2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

WALTER W. BROWN, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## RAILWAY-SIGNAL.

No. 863,148.

Specification of Letters Patent.

Patented Aug. 13, 1907.

Application filed February 14, 1906. Serial No. 301,037.

*To all whom it may concern:*

Be it known that I, WALTER W. BROWN, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented  
5 certain new and useful Improvements in Railway-Signals, of which the following is a specification.

My invention relates to railway signals, and has particular reference to signal mechanisms comprising two  
10 independently movable signal-arms, as, for instance, home and distant signals; and the object of my invention is to provide a simple and efficient arrangement whereby a single operating means may be employed to move the two signals successively.

My invention broadly consists in the combination  
15 of two independently movable signals, a single operating means therefor, and a catch arranged to be reciprocated by the operating means and to engage either of the signals, but to be held out of engagement with one signal by its engagement with the other. The operating  
20 means is thus connected to only one signal at a time so as to shift the signal successively.

My invention further comprises other features which will be specifically pointed out in the appended claims, and which will best be understood by reference to the  
25 accompanying drawings, in which

Figure 1 shows a front elevation of a signal mechanism arranged in accordance with my invention; and Fig. 2 shows a side elevation of the same.

In the drawings 1 and 2 represent the operating rods  
30 for two independently movable signals. The signal-arms are not shown, but it will be understood that when the operating rods 1 and 2 are in their lowest positions, as shown in the drawings, the signals are at danger. The operating rod 1 may control a home signal and the  
35 operating rod 2 a distant signal. A solenoid 3 serves as the operating means for both the signals. The core of the solenoid is connected to a pivoted lever 4 shown in Fig. 2 at the end of which is carried a member 5, which moves on the vertical guides 6. These guides  
40 are formed hollow, as shown in Fig. 1, so as to serve as guides for the signal rods also. The member 5, which is moved up and down as the solenoid is energized and deenergized, carries a pivoted catch 7, the two arms of which are adapted to engage the two signal rods 1  
45 and 2, respectively. This catch is so arranged, however, that it can engage only one signal rod at a time. When both signal rods are in their lowest positions, as shown in Fig. 1, a shoulder on signal-rod 1 engages the shorter arm of the catch 7 and holds the catch in the  
50 position shown in full lines in Fig. 1, the shorter arm being pressed against a stop 8 on the member 5. When the signal rod 1 is raised, so as to release the catch 7, the longer arm, which is weighted, drops to the position shown in dotted lines, resting against the stop 9 in

position to engage the signal-rod 2 when the member 55  
5 is again raised.

10 and 11 represent two magnets for locking the respective signal-rods in their raised positions when they have been lifted by the solenoid. A portion of the  
60 guide 6, surrounding the signal-rod 2 is shown broken away in Fig. 1, so as to show the arrangement of the locking means. When the locking magnet 11 attracts its armature 12, it actuates a double toggle mechanism so as to press a collar 13 against the signal-rod 2, and  
65 when the signal-rod is raised to clear position a notch or groove 14 on the signal-rod is brought opposite the collar 13, which thereupon enters the notch and holds the signal-rod raised as long as the locking magnet 11  
70 remains energized. The signal-rods 1 and 2 carry the arms 15 and 16 respectively, each of which carries switch contacts controlling the circuit of the operating solenoid 3 and the locking magnet for its own signal-rod. The circuit connections of the locking magnets,  
75 operating solenoid and switch contacts are not shown, since many suitable arrangements of circuit connections are well known in the art, and the specific arrangement employed forms no part of my present invention.

17 represents a dash-pot arranged to retard the upward movement of the member 5 when raising a signal.  
80 This dash-pot offers little resistance to the downward movement of the member 5. Each signal-rod is provided with an independent dash-pot shown at 18 and 19 of Fig. 1. These dash-pots are for retarding the downward movement of the signal-arms when released  
85 by the locking means, and offer little resistance to the upward movement of the signal-rods when operated by the solenoid.

The operation of the mechanism above described is as follows: Assuming both signals to be at danger and  
90 the signal-rods 1 and 2 consequently in their lowest positions, as shown in the drawings, if the train leaves the block which the signal guards, the circuit of solenoid 3 will be closed. The solenoid will, consequently, draw up its core, raising the member 5 and  
95 through the catch 7 also raising the signal-rod 1 so as to bring the signal to clear position. When clear position is reached the contacts carried by the arm 15 will close the circuit of locking magnet 10, and break the circuit of solenoid 3. The signal-arm is consequently  
100 locked at clear position, while the solenoid allows its core to fall returning the member 5 to the position shown in the drawings. When the member 5 is returned to this position, the pivoted catch 7, which is no longer engaged by the signal-rod 1, moves to the  
105 position shown in dotted lines. Consequently, when the train moves out of the following block and the circuit of the solenoid 3 is again closed through the relay



controlling the distant signal, the member 5 is again raised, this time carrying with it the signal-rod 2. When the signal-rod 2 is in clear position the switch contacts carried by the arm 16 close the circuit of locking magnet 11 and open the circuit of the solenoid 3. The member 5, consequently, drops once more to the position shown in the drawings, leaving both signals locked at clear position by their lock-magnets and ready to be released when another train enters the block.

I do not desire to limit myself to the particular construction and arrangement of parts here shown, but aim in the appended claims to cover all modifications which are within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In combination, two independently movable signals, a single reciprocating operating means therefor, means actuated by successive movements of said operating means over its range for engaging and moving said signals successively, and means for preventing the engagement of said engaging means with one signal until the other signal is moved.

2. In combination, two independently movable signals, a single operating means therefor, and a catch actuated by said operating means and adapted to engage either of said signals, one of said signals being arranged to prevent the engagement of said catch with the second signal until the first signal is moved.

3. In combination, two independently movable signals, a pivoted catch having two operative positions engaging the two signals respectively, and arranged to be held out of engagement with one signal by engagement with the other, means for reciprocating said catch to move said signals successively, and means for locking each signal when moved.

4. In combination, two independently movable signals, a reciprocating operating member, a catch carried by said member tending to move into a position to engage one of said signals, and arranged to be held out of said position by its engagement with the other signal, and means for locking each signal when moved by said catch.

5. In combination, two independently movable signals, a single operating solenoid therefor, a catch adapted to be reciprocated by said solenoid and arranged to engage said signals one at a time to move said signals successively, means for locking each signal when it is moved, and switch contacts operatively connected to said signals controlling said solenoid.

6. In combination, two independently movable signals, a single operating solenoid therefor, a catch adapted to be reciprocated by said solenoid, said catch being adapted to engage and to move either signal and to be held out

of engagement with one signal by engagement with the other, means for locking each signal when moved by said catch, and switch contacts operatively connected to said signals and controlling said solenoid.

7. In combination, two independently movable signals, two dash-pots operatively connected to the operative signals, a single operating means for said signals, connections between said operating means and said signals whereby said means moves said signals one at a time, and a third dash-pot operatively connected to said operating means.

8. In combination, two independently movable signals, a single operating means adapted to move said signals successively, means for retarding the movement of said operating means in shifting the signals, means for locking each signal when moved, and independent means for retarding the movement of each signal when released by the locking means.

9. In combination, two independently movable signals, a reciprocating driving member, a two-arm lever pivoted on said member, stops on said member for limiting the movement of said lever on its pivot, and two members operatively connected to the two signals respectively arranged adjacent to the two arms of said lever and having projections adapted to be engaged thereby.

10. In combination, two independently movable signals, parallel operating rods, a reciprocating driving member, a two-arm lever pivoted on said member between said rods, projections on said rods adapted to be engaged respectively by the two arms of said lever, and stops on said member for limiting the movement of said lever on its pivot.

11. In combination, two independently movable signals, parallel operating rods therefor, a two-arm lever pivoted between said rods and having two operative positions, projections on said rods adapted to be engaged respectively by the two arms of said lever, and means for reciprocating said lever in a direction parallel to the axis of said rods.

12. In combination, two independently movable signals, parallel operating rods therefor, a two-arm lever pivoted between said rods and having two operative positions, projections on said rods adapted to be engaged respectively by the two arms of said lever, the movement of one arm of said lever in moving from one operative position to the other carrying it outside of the path of movement of the projection on one rod and the movement of the other arm being always within the path of movement of the other signal, and means for reciprocating said lever in a direction parallel to the axis of said rods to move said signals successively, and means for locking each signal when moved.

In witness whereof, I have hereunto set my hand this 13th day of February, 1906.

WALTER W. BROWN.

Witnesses:

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HELEN ORFORD.