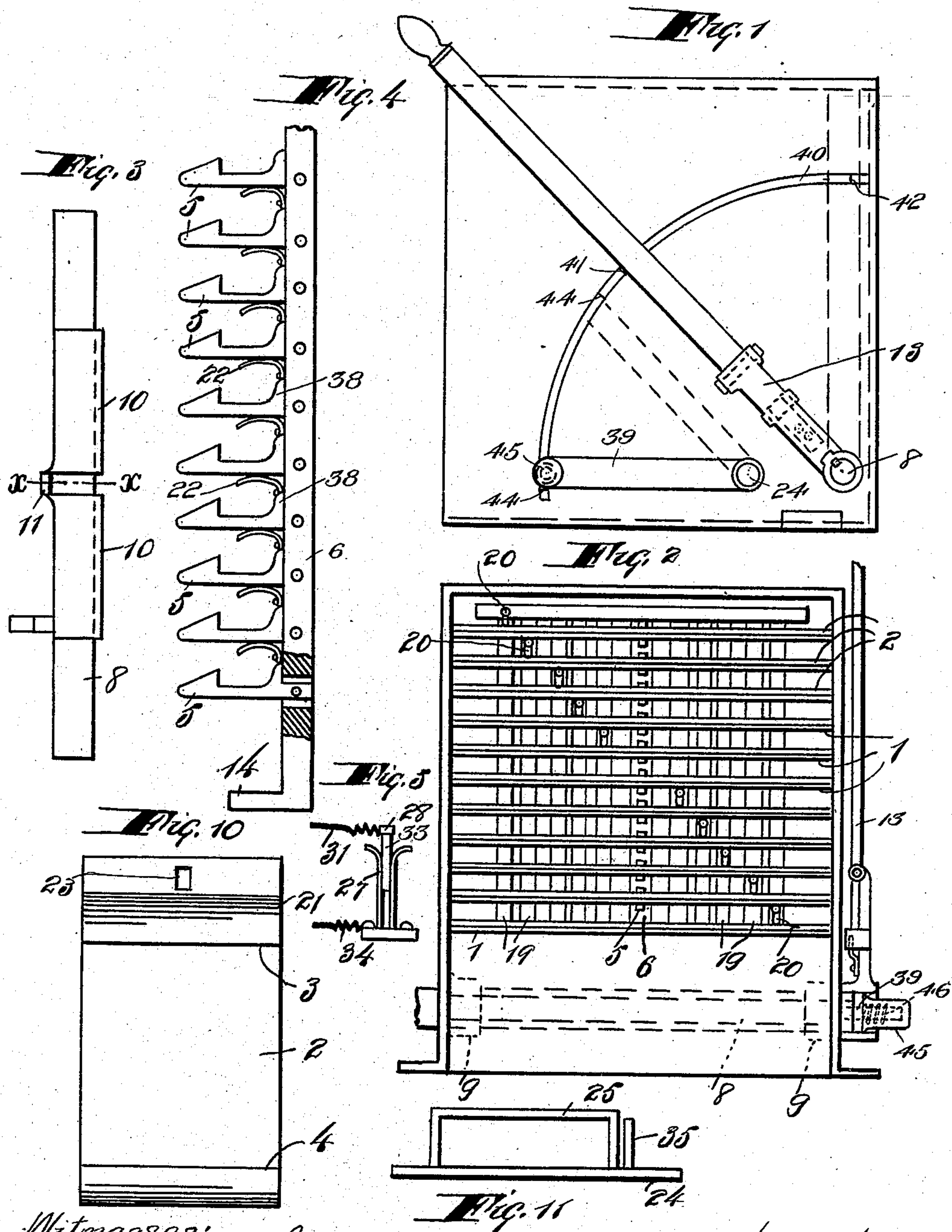


L. H. VAN ZANDT.  
 TRAIN ORDER SIGNAL.  
 APPLICATION FILED APR. 8, 1908.

905,120.

Patented Nov. 24, 1908.

2 SHEETS—SHEET 1.



Witnesses:  
*B. J. Lorkowski*  
*J. W. Stitt*

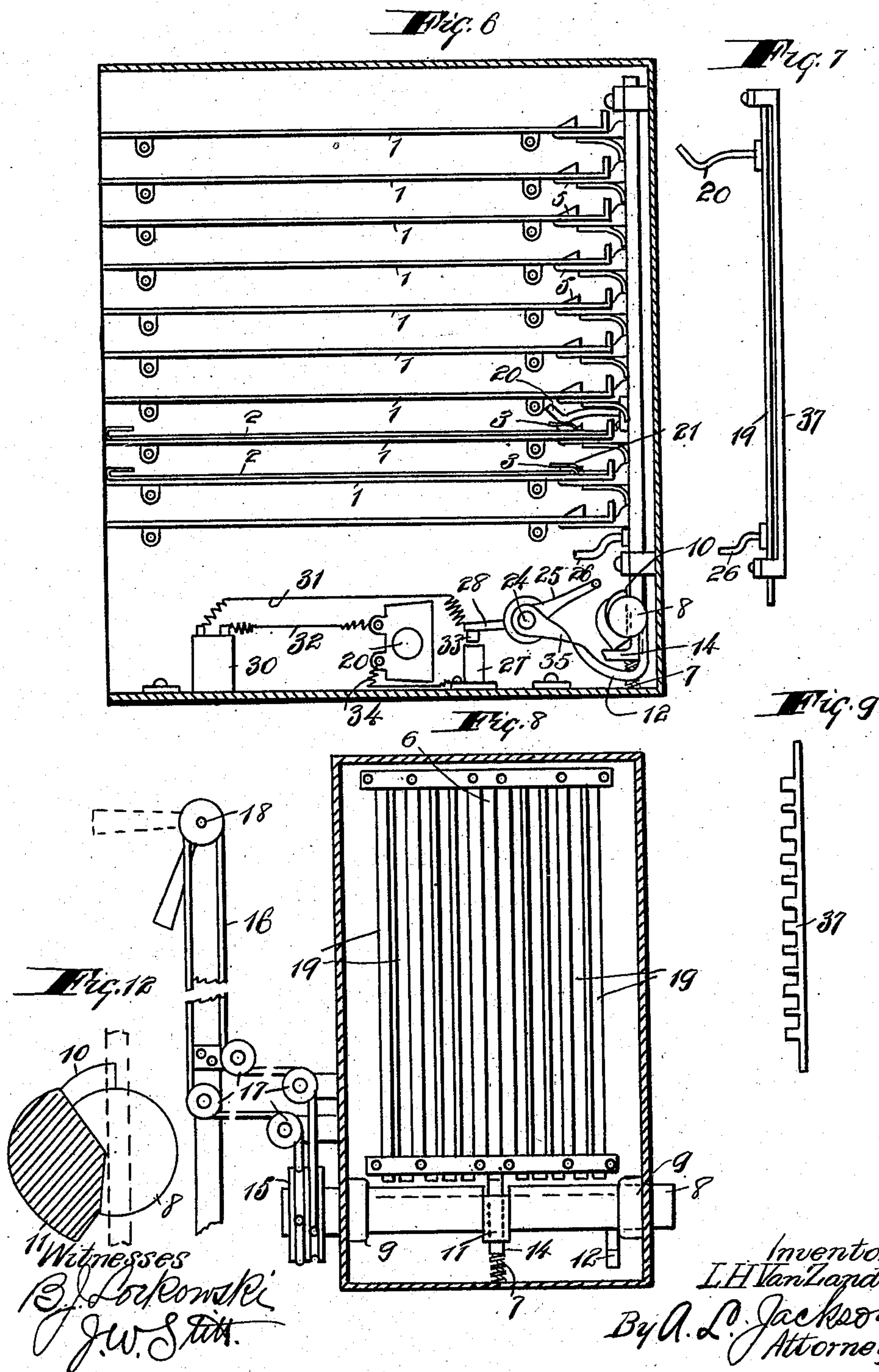
Inventor,  
*L. H. Van Zandt*  
 By *A. L. Jackson*,  
 Attorney.

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2 SHEETS—SHEET 2.



Witnesses  
*B. J. Lockowski*  
*J. W. Stitt*

Inventor.  
*L. H. Van Zandt.*  
 By *A. L. Jackson.*  
 Attorney.



# UNITED STATES PATENT OFFICE.

LUTHER H. VAN ZANDT, OF FORT WORTH, TEXAS, ASSIGNOR TO THE GATES SAFETY SIGNAL BOARD ATTACHMENT COMPANY, OF AUBREY, TEXAS, A CORPORATION OF TEXAS.

## TRAIN-ORDER SIGNAL.

No. 905,120.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed April 8, 1908. Serial No. 425,810.

*To all whom it may concern:*

Be it known that I, LUTHER H. VAN ZANDT, a citizen of the United States of America, residing at Fort Worth, county  
5 of Tarrant, and State of Texas, have invented certain new and useful Improvements in Train-Order Signals, of which the following is a specification.

My invention relates to certain locking  
10 devices for the use of operators or train despatchers to prevent accidental or intentional removal of train order pads without displaying a signal or semaphore and to devices which will be automatically actuated  
15 to release the train order pads when the signal is displayed or placed at danger and to devices for preventing the clearing of the signal until the train order pad is replaced.

This invention also includes devices for  
20 temporarily releasing the signal locking devices, and to prevent the signals remaining cleared I have provided devices for giving an alarm and continuing the alarm until the signals or signal are or is displayed or  
25 placed to danger.

The object of this invention is to provide simple and inexpensive devices which will operate with extreme accuracy and positiveness to carry out or accomplish the purposes  
30 above set forth and which cannot be disarranged by any ordinary means.

Other objects and advantages will be fully explained in the following description and the invention will be more particularly  
35 pointed out in the claims.

Reference is had to the accompanying drawings which form a part of this application and specification.

Figure 1 is a side elevation of a receptacle  
40 containing the improvements hereinafter set forth in detail. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view of the cam and crank shaft. Fig. 4 is a detail view of the plunger which carries the locks. Fig.  
45 5 is a detail view of the contact making devices. Fig. 6 is a side elevation of the device with the side casing removed to expose the interior mechanism. Fig. 7 is a detail view, being a side elevation of one of the plungers  
50 which locks the semaphore or signal displayed while a train order pad is removed, and which serves as means for temporarily releasing the semaphore or signal. Fig. 8 is

an interior elevation of the back piece of the receptacle, showing the plungers and the  
55 cam and crank shaft in place. Fig. 9 is a plan view of the back piece of the receptacle. Fig. 10 is a plan view of one of the pad holders. Fig. 11 is a plan view of the unlocking yoke. Fig. 12 is a vertical cross-  
60 section of the cam and crank shaft on the line  $x-x$  of Fig. 3.

Similar characters of reference are used to indicate the same parts throughout the  
65 several views.

The machine has an open front casing, as seen in Figs. 2 and 6, with the other five sides closed. A series of shelves 1 are mounted in the casing. On each shelf is mounted a pad holder 2 which rests on the  
70 shelf 1. A train order pad is to be placed in each pad holder. This may be done by buckling the pad slightly and slipping the edges of the pad under the lips 3 and 4. The pad holders are held in the casing by  
75 means of a series of locks 5 which are pivotally attached in slots in a vertically movable plunger 6. A spring 7 holds the plunger 6 in its normally elevated position. A crank shaft 8 is journaled in boxes which  
80 are rigid with the sides of the casing. This shaft 8 has a cam 10 integral therewith. This cam will be called the plunger-locking-cam. A plunger actuating cam 11 is also integral with the shaft 8. A lug 12 is  
85 formed integral with the shaft 8 for locking the alarm in operating position. The shaft 8 is provided with a crank or handle 13 by which this shaft is operated. The shaft 8 is rocked 45 degrees or whatever number of  
90 degrees the shaft is to be turned to cause the cam 11 to engage the lug 14 on the lower end of plunger 6. The cam 11 is thus used to lower all the locks 5 so that any one or all the pad holders may be removed from the  
95 casing. A semaphore or signal is actuated by the shaft 8 at the same time the locks are lowered, the semaphore being brought to danger. A pulley 15 is mounted on the shaft 8 and a cord or cable 16 is attached  
100 at both ends to the pulley 15 and extended to the semaphore shaft 18, being guided by suitable idle pulleys 17. When the lever or handle 13 is moved 45 degrees two things are accomplished. The pad holders are un-  
105 locked and the semaphore is brought to



danger. When the lever 13 is brought back to starting position, the semaphore is cleared and the pad holders are all simultaneously locked in the casing, the cam 11 being disengaged from the lug 14 and the plunger 6 being pressed up by the spring 7.

Whenever a pad holder is removed the semaphore is locked to danger position. There is a plunger 19 for each pad holder 2. Each plunger 19 is provided with an arm 20. Each arm 20 rests on the pad holder 2 and the plunger 19 is thus supported, but when a pad holder is removed the plunger arm 20, not being supported by a pad holder, drops down and the plunger 19 drops down at the same time and falls behind the cam 10 and rests on the shaft 8. All the plungers 19 with their arms 20 operate in the same manner, and it will be seen from Fig. 2 that each arm 20 is at a different elevation from every other arm. When a pad holder is removed the plunger which has an arm that rested on the removed pad holder drops down behind the cam 10. The lever 13 and shaft 8 are locked against movement and cannot be moved until the pad holder is shoved back into its position in the casing. The semaphore thus cannot be cleared from danger until the pad holder is put back into the box or casing. It will be noted that the semaphore cannot be cleared until all the pad holders are replaced in the casing. This is because the shaft 8 cannot be turned as long as a plunger 19 is down behind the cam 10. When a pad holder is replaced the shoulder 21 of the pad holder engages the under bend of the arm 20 and thus lifts the arm and also the plunger 19 upward, releasing the shaft 8, and at the same time the pad holder engages the beveled portion of the lock 5 and depresses the same until the pad holder passes far enough for the slot 23 to come over the lock 5 which lock is then lifted by the spring 22 so that the lock catches in the slot 23. The lock 5 will yield downwards by reason of its pivotal connection with the plunger 6 in a slot in said plunger and by reason of the spring 22. The lock 5 will not move higher than its normal position because it has a shoulder 38 which comes against the plunger 6. When all the pad holders are replaced in the cabinet the signal can be cleared. In practice, when a despatcher receives a call to take an order he has first to operate the lever 13. This puts the semaphore at danger and at the same time unlocks the pad holders. He can then remove any of the pad holders which carry the order pads.

At times there may be more orders than for one train. There may be orders for several trains. I have provided means for temporarily clearing the semaphores so that one or more trains may pass. A shaft 24 is journaled in the cabinet and provided with

a lever 39. Each plunger 19 is provided with a lug 26. All the lugs 26 are in the same horizontal plane. The shaft 24 is provided with a lift 25 which is adapted to engage all the lugs 26 and when this shaft is rocked by the lever 29 all the plungers 19 will be elevated, unlocking the cam 10, so that the shaft 8 may be operated to clear the semaphore. Immediately after the passage of a train the semaphore must be brought to danger if there is another order for a train or several orders for trains. In order that the despatcher may not forget to place the semaphore at danger after the train passes I have provided an alarm which will continue to sound as long as the semaphore is cleared. It is understood that this alarm is used only in case of a temporary clearance of the semaphore for the passage of a train when there are orders for other trains. It will be understood that the shelves 1 are cut away for the operation of the locks 5 so that the shelves will not interfere with the operation of the locks.

A bell 20 is mounted in the cabinet and is electrically connected by a wire 32 with a battery 30 which may be mounted in the cabinet. A contact post 27 is mounted in the cabinet and is connected with the bell 20 by a wire 34. The shaft 24 carries an arm 28 which is provided with a contact-making lug 33 and this arm and its lug are electrically connected to the battery 30 by means of a wire 31. When the shaft 24 is turned to lift the plungers 19, the lug 33 contacts with the post 27 and completes a circuit through the bell 20. The bell will then ring until the plungers 19 are lowered by turning the shaft 24 with lever 39. In order to be sure that the alarm will continue until the semaphore is put to danger, a locking arm 12 is made rigid with the shaft 8 and a lug 35 is rigid with the shaft 24. When shaft 24 is turned to lift the plungers, the lug 35 is turned upward and when the shaft 8 is turned to throw the semaphore to danger the arm 12 will lock the lug 35 in the elevated position and thus hold the contacts 33 and 37 together until the semaphore is cleared. When the semaphore is cleared, the arm 12 releases the lug 35 and the lever 39 can then turn shaft 24 and stop the alarm and let the plungers 19 down to lock the shaft 8.

A guard 40 is attached to the side of the cabinet for the levers 13 and 39 and this guard is provided with shoulders 41 and 42 for the lever 13 and shoulders 43 and 44 for the lever 39. The lever 13 is jointed for convenience in operating the same with reference to the guard 40. The handle 45 carries a spring actuated plunger 46 which will engage the side of the cabinet to hold the handle 39 at the desired position.

Having fully described my invention, what



I claim as new and desire to secure by Letters Patent, is,—

1. A train order signaling device comprising a cabinet, a series of pad holders 5 mounted in said cabinet, a plunger carrying means for locking all of said holders in said cabinet, a semaphore, means for throwing said semaphore to danger and simultaneously unlocking all of said pad holders, and 10 a series of plungers any one of which is adapted to lock said semaphore to danger when a pad is removed.

2. A train order signaling device comprising a cabinet, a series of shelves mounted 15 in said cabinet, a series of pad holders mounted on said shelves, a cam-actuated plunger carrying means for locking all of said holders in said cabinet, a semaphore and means for actuating said semaphore and 20 simultaneously unlocking all of said pad holders whereby any one or all of said pad holders may be removed.

3. A train order signaling device comprising a cabinet containing a series of pad 25 holders, a cam-actuated plunger carrying means for locking all of said holders in said cabinet, a semaphore, means for actuating said semaphore and simultaneously unlocking all of said pad holders, and a series of 30 plungers, one for each pad holder, for locking said semaphore actuating means when any one or more of said pad holders is or are removed from said cabinet.

4. A train order signaling device comprising a cabinet containing a series of pad 35 holders, a plunger carrying locks pivoted thereto for engaging said pad holders, a semaphore, and means for actuating said semaphore and simultaneously unlocking all of said pad 40 holders whereby any one or all of said pad holders may be removed.

5. A train order signaling device comprising a cabinet containing a series of pad 45 holders, a plunger carrying locks pivoted thereto for engaging said pad holders, a semaphore, means including a rocker shaft for actuating said semaphore and simultaneously unlocking said pad holders, and a series of plungers, one for each pad holder, for locking 50 said shaft against movement when any one or more of said pad holders is or are removed from said cabinet.

6. A train order signaling device comprising a cabinet containing a series of pad 55 holders, each pad holder having provisions for holding a pad therein and having a slot in the back end thereof, a plunger carrying locks pivoted thereto for engaging said pad holders in said slots, and means for moving 60 said plunger to unlock all of said pad holders simultaneously.

7. A train order signaling device comprising a cabinet containing a series of pad 65 holders, each pad holder having provisions for holding a pad therein and having a slot in

the back end thereof, a plunger carrying locks pivoted thereto for engaging said pad holders in said slots, a semaphore, and means for actuating said semaphore and simultaneously unlocking all of said pad holders. 70

8. A train order signaling device comprising a cabinet containing a series of pad holders therein and means for locking said pad holders within said cabinet comprising a 75 plunger, hooks pivotally mounted in said plunger and provided with shoulders to prevent upward movement of the hooks and springs attached to said plunger and holding said hooks in their normal positions.

9. A train order signaling device comprising a cabinet containing a series of pad 80 holders, a plunger carrying locks pivoted thereto for engaging said pad holders, a spring holding said plunger in its normal position, and a shaft carrying a cam for actuating said 85 plunger to unlock said pad holders.

10. A train order signaling device comprising a cabinet containing a series of pad holders, a plunger carrying hooks pivoted 90 thereto for locking said pad holders in said cabinet, a spring holding said plunger in its normal position, a semaphore, and a shaft provided with a cam for depressing said plunger, said shaft operating at the same 95 time to throw said semaphore to danger.

11. A train order signaling device comprising a cabinet containing a series of pad holders, a plunger carrying locks pivoted 100 thereto for engaging said pad holders, means for actuating said plunger to release said pad holders, a shaft having cams integral therewith, and a series of plungers having 105 arms resting on said pad holders, said plungers being adapted to fall whenever a pad holder is removed and to lock said shaft against movement.

12. A train order signaling device comprising a series of pad holders, a plunger carrying locks pivoted thereto for engaging 110 said pad holders, a rocker shaft carrying means for depressing said plunger, cams formed on said shaft, a series of plungers, each having an arm resting on a pad holder whereby said series of plungers are held in 115 their normal positions and said plungers being adapted to lock said shaft against rocking motion whenever one or more pads are removed from said locks.

13. A train order signaling device containing a series of pad holders, means for 120 locking said pad holders in their normal positions, a series of plungers having arms resting on said pad holders whereby said plungers are supported in an elevated position, a lock for said series of plungers, and 125 means for unlocking said pad holders.

14. A train order signaling device comprising a cabinet containing a series of pad holders, a plunger carrying locks pivoted 130 thereto for engaging said pad holders, a se-



ries of locking plungers having arms resting on said pad holders, a shaft for actuating said first named plunger and provided with a locking cam whereby said shaft is locked  
 5 against rocking motion when a pad holder is removed from said cabinet, and means for temporarily lifting said series of plungers.

15 15. A train order signaling device comprising a cabinet containing a series of pad holders, means for locking said pad holders within said cabinet, a semaphore, a shaft for actuating said semaphore and carrying means for unlocking said pad holders and having a cam rigid therewith, a series of  
 20 plungers each having an arm resting on a pad holder, said series of plungers being adapted to fall and engage said cam when one or more pad holders are removed from said cabinet, and a shaft carrying a lift for elevating said series of plungers to permit the operation of said semaphore.

25 16. A train order signaling device comprising a cabinet containing a series of pad holders, a plunger carrying locks for locking said pad holders within said cabinet, means for actuating said plunger to release  
 30 said pad holders, a series of plungers having arms resting on said pad holders, said series of plungers being adapted to fall and lock a semaphore at danger, and means for temporarily elevating said series of plungers while the semaphore is being actuated.

35 17. A signal actuating device comprising means for displaying signals and locking the signals displayed and means for temporarily clearing the signal and giving an alarm until the signal is again displayed, said means consisting of a shaft carrying releasing  
 40 means and carrying means for making electrical contact for an alarm and a lever for operating said shaft.

45 18. A signal actuating device having means for displaying a signal, means for automatically locking the signal displayed, and means for temporarily clearing the signal and simultaneously giving an alarm and continuing the alarm until the signal is again displayed consisting of a shaft provided with means for unlocking the locking means, a  
 50 lever rigidly mounted on said shaft, a bell, an electric battery electrically connected with said bell, and means mounted on said shaft for completing a circuit when actuated by said lever.

55 19. A signal actuating device having means for displaying a signal, means for automatically locking the signal displayed, means for temporarily clearing the signal and simultaneously giving an alarm and continuing the alarm until the signal is again displayed, and means for preventing the stop-  
 60 ping of the alarm until the signal is again displayed.

65 20. A signal actuating device comprising a cabinet containing pad holders, a plunger

carrying devices for locking said pad holders in said cabinet, a semaphore actuating shaft carrying a cam for actuating said plunger to release said pad holders, and a series of plungers supported by said pad  
 70 holders, any one or all of which being adapted, when any or all of the pad holders are removed from said cabinet, to lock said shaft against movement.

75 21. A signal actuating device comprising a cabinet containing pad holders, a plunger carrying devices for locking said pad holders in said cabinet, a semaphore actuating shaft carrying a cam for actuating said plunger to release said pad holders, a series of plungers  
 80 supported by said pad holders, any one or all of which being adapted, on the removal of any or all of said pad holders, to lock said shaft against movement, a shaft for operating said last named plungers and  
 85 provided with means for actuating an alarm, and an alarm to be automatically sounded by said last named shaft.

90 22. A signal actuating device comprising a cabinet containing pad holders, a plunger carrying devices for locking said pad holders in said cabinet, a semaphore actuating shaft carrying a cam for actuating said plunger to release said pad holders, a series  
 95 of plungers supported by said pad holders, any one or all of which being adapted, on the removal of any or all of said pad holders, to lock said shaft against movement, a shaft carrying means for lifting said series of plungers for temporarily clearing signals,  
 100 a bell, electrical means for actuating said bell, and means carried by said last named shaft for sounding said bell automatically on the clearing of the signals.

105 23. A signal actuating device comprising a cabinet containing pad holders, a plunger carrying devices for locking said pad holders in said cabinet, a semaphore actuating shaft carrying means for actuating said plunger, a series of plungers supported by said pad  
 110 holders, any one or all of which being adapted, on the removal of any or all of said pad holders, to lock said shaft against movement, a lifting shaft for actuating said series of plungers, a bell, an electric battery elec-  
 115 trically connected to said bell, a contact post electrically connected to said bell, an arm carried by said lifting shaft for completing a circuit through said bell, and means carried by said shafts whereby said semaphore  
 120 actuating shaft will lock said lifting shaft while an alarm is being sounded.

125 24. A signal actuating device comprising a cabinet containing pad holders, a plunger carrying devices for locking said pad holders in said cabinet, a semaphore actuating shaft carrying means for actuating said plunger, a series of plungers supported by  
 130 said pad holders, any one or all of which being adapted, on the removal of one or all



of said pad holders, to lock said shaft against movement, a lifting shaft for actuating said series of plungers, electrical devices for sounding an alarm automatically actuated  
5 by said lifting shaft, and means carried by said lifting shaft and by said semaphore actuating shaft whereby said lifting shaft is automatically locked by said semaphore actuating shaft while an alarm is being  
10 sounded.

25. A signal actuating device having means for displaying signals and locking the signal displayed, and means for temporarily clearing the signal and at the same time giving  
15 an alarm and continuing the alarm until the signal is again displayed, consisting of a releasing yoke, a shaft carrying said yoke, said shaft carrying means for making electrical contact for an alarm, and a lever operating  
20 said shaft.

26. A signal actuating device having means for displaying a signal, means for automatically locking the signal displayed, and means for temporarily clearing the signal  
25 and simultaneously giving an alarm and continuing the alarm until the signal is again displayed consisting of a yoke for lifting the locking means provided with a shaft, a lever rigidly mounted on said shaft,  
30 a bell, an electric battery electrically connected with said bell, contacts electrically connected with said bell and said battery, and means mounted on said shaft for completing a circuit when actuated by said lever.

35 27. A signal actuating device having means for displaying a signal, means for automatically locking the signal displayed, means for temporarily clearing the signal and simultaneously giving an alarm and contin-

uing the alarm until the signal is again displayed, and means for preventing the stop-  
40 ping of the alarm until the signal is displayed.

28. A signal actuating device having means for displaying signals, a series of dogs for  
45 locking said signals displayed, means for temporarily clearing the signal consisting of a releasing yoke and means for operating said yoke to lift said dogs, and means operating simultaneously with said yoke to give  
50 an alarm and to continue the alarm until the signal is again displayed.

29. A signal actuating device having means for displaying a signal, means for auto-  
55 matically locking the signal displayed, means for temporarily clearing the signal and simultaneously giving an alarm and continuing the alarm until the signal is again displayed, and means for preventing the stop-  
60 ping of the alarm until the signal is displayed consisting of a cam provided with a shoulder for locking the means which give the alarm.

30. A train order signaling device comprising a cabinet, a series of pad holders  
65 locked in said cabinet, a semaphore, means for throwing said semaphore to danger and simultaneously unlocking all of said pad holders, and a series of plungers any one of which is adapted to lock said semaphore to  
70 danger when a pad holder is removed.

In testimony whereof, I set my hand in the presence of two witnesses, this 25th day of March, 1908.

LUTHER H. VAN ZANDT.

Witnesses:

A. L. JACKSON,  
J. W. STITT.