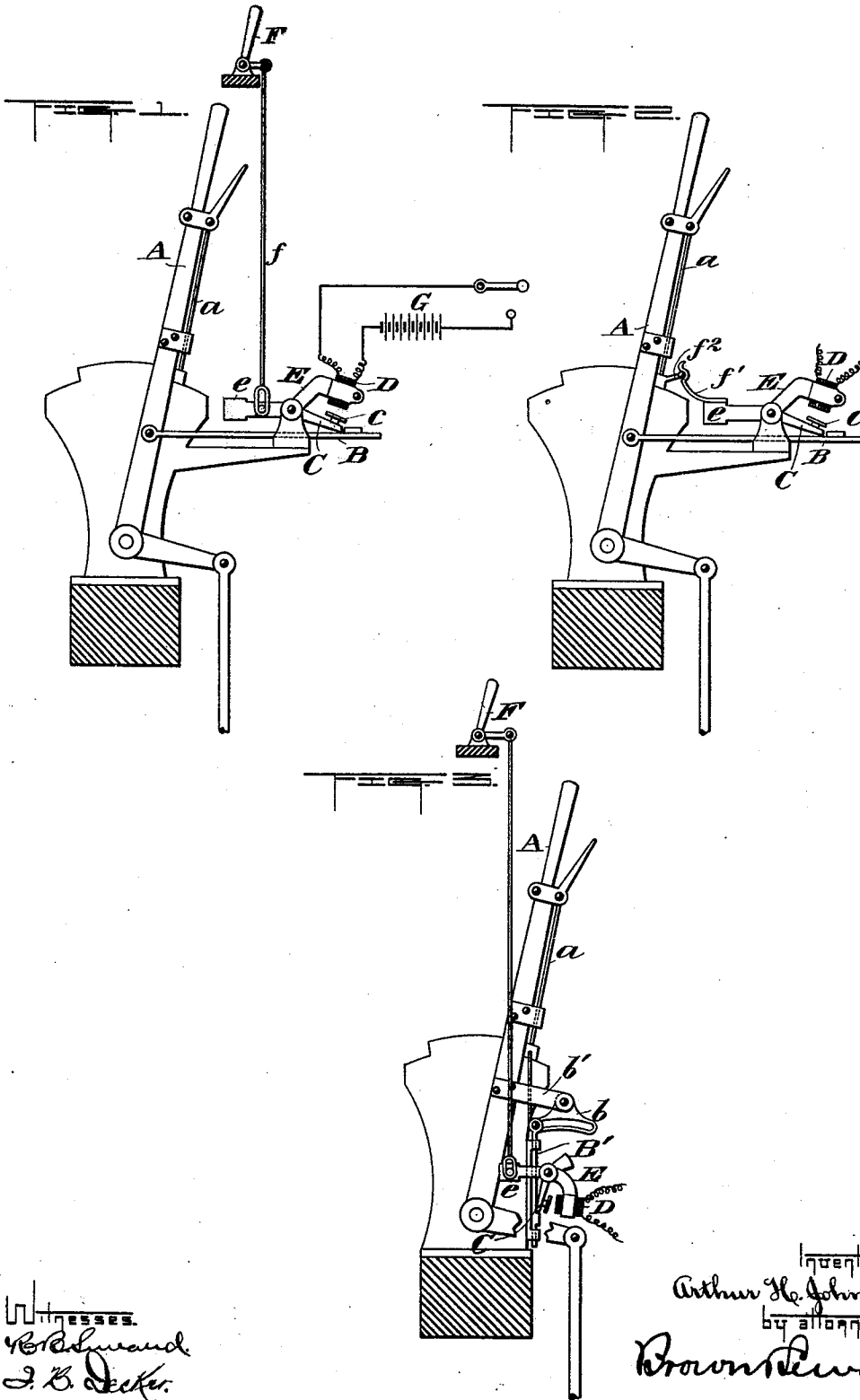


(No Model.)

A. H. JOHNSON.
LEVER CONTROLLING DEVICE.

No. 520,926.

Patented June 5, 1894.



WITNESSES.
R. B. Decker.

Inventor
Arthur H. Johnson.
by attorney.
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UNITED STATES PATENT OFFICE.

ARTHUR H. JOHNSON, OF RAHWAY, NEW JERSEY.

LEVER-CONTROLLING DEVICE.

SPECIFICATION forming part of Letters Patent No. 520,926, dated June 5, 1894.

Application filed September 6, 1893. Serial No. 484,902. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR H. JOHNSON, a resident of Rahway, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Lever-Controlling Devices, of which the following is a specification.

My invention relates to an improvement in lever controlling devices in which the unlocking of the lever depends upon the closing of the electric circuit which controls the lever locking device.

The invention is particularly well adapted to practical use in connection with a switch or signal operating lever where it is desirable that the signal for admitting a train to the block should not be permitted to be set to safety until a preceding train shall have passed a predetermined point in advance.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of a switch or signal operating lever of ordinary structure with the lever controlling mechanism shown in operative connection therewith. Fig. 2 is a similar view, showing the lever locking device in connection with the ordinary lever catch, and Fig. 3 shows the application of the lever controlling device to a switch or signal operating lever having the tappet connected therewith by means of a segmental slot.

In each of the figures the switch or signal operating lever is denoted by A and its catch by a.

In Figs. 1 and 2 the tappet carrying the stop which prevents the operation of the lever until the lever locking device has been operated is denoted by B and is loosely connected at one end with the handle arm of the lever, while in the form shown in Fig. 3, the said tappet is denoted by B' and is connected with the lever by a segmental slot piece b pivoted to a support b' fixed to the lever.

A dog, preferably a gravity dog, C is pivoted to a suitable fixed support so as to normally rest with its free end against a stop on the tappet B or B' to prevent the operation of the lever. The dog C carries an armature of an electro magnet D. The electro magnet D is mounted on the free end of one of the arms of a vibrating lever E, the opposite

arm of said lever being weighted as at e so as to rock the electro magnet D normally away from the normal position of the dog C when left free so to do. The lever E is under the control of an independent operating lever F, as in Figs. 1 and 3 to rock it toward the normal position of the dog C or it may be connected with an ordinary catch of the switch or signal operating lever A, as shown in Fig. 2. In the form shown in Figs. 1 and 3 the operating lever F is connected with the lever E by a connecting rod f having a pin and slot connection with the lever E, while in the form shown in Fig. 2, a spring arm f' attached to a weighted end of the lever E is provided with a depression near its end which engages the head of a stud f² on the catch a with sufficient frictional resistance to cause the lever E to be rocked to bring the magnet into proximity to its armature before the stud f² escapes from the spring arm f'. In both instances the connection is such as to permit the magnet support to move a slight distance independently of the movement of the magnet operating device.

The electro magnet D is in an electric circuit including a source of electricity, as for example a battery G, which electric circuit is adapted to remain short-circuited to cut out the magnet D until the conditions are such as to render it desirable to leave the lever A free to be operated.

In case of a block system of railway signals, it might practically be arranged so that a preceding train would short circuit and cut out the electro magnet D so long as the train remained on that block or until it reached a predetermined point beyond the location of the switch or signal operating lever and then throw the magnet D again into circuit and energize it. This might be accomplished in any well known way, and the particular way in which it be accomplished forms no part of my present invention.

In practice, suppose the operator undertake to operate the lever A to turn a switch or set a signal before it was safe to do so and while the electro magnet D was cut out of circuit and de-energized: by swinging the lever E through its operating lever F or catch a so as to bring the electro magnet D down into contact or into proximity to its armature c and

then permitting the lever E to return to its normal position, he would not succeed in lifting the dog C from engagement with the stop on the tappet, as the electro magnet D would
5 fail to attract its armature. If, on the other hand, the circuit including the electro magnet D were energized, the condition of things being such that it is now safe to set the signal or turn the switch, the magnet D would
10 attract its armature c and draw the dog C from in front of the stop on the tappet so as to leave the operating lever free to be moved.

By the above described construction, I am enabled to utilize a very weak current for energizing the magnet D to lift the dog C for
15 the reason that it is feasible to bring the magnet into close proximity to its armature before its attraction of the armature is required to take place.

20 While I have shown the dog arranged to lock the lever at the extremity of its forward stroke only, it is obvious that it might be arranged to lock the said lever at its opposite

extremity as well or at a point intermediate of the extremities of its movement by simply
25 locating the abutments in different positions upon the tappet connected with the lever.

What I claim is—

The combination with a lever and a movable dog for locking it, of an electric circuit
30 including an electro magnet for attracting said dog, the said electro magnet and the dog being mounted to move toward and away from each other, a device for positively moving the electro magnet toward the dog when
35 the latter is in locking position, the magnet being free to move independently of its said operating device in moving the dog from its locking position and a weight or its equivalent for effecting this movement, substantially as set forth.

ARTHUR H. JOHNSON.

Witnesses:

FREDK. HAYNES,
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