

(No Model.)

2 Sheets—Sheet 1.

C. ALKINS.

RAILWAY SWITCH STAND.

No. 414,133.

Patented Oct. 29, 1889.

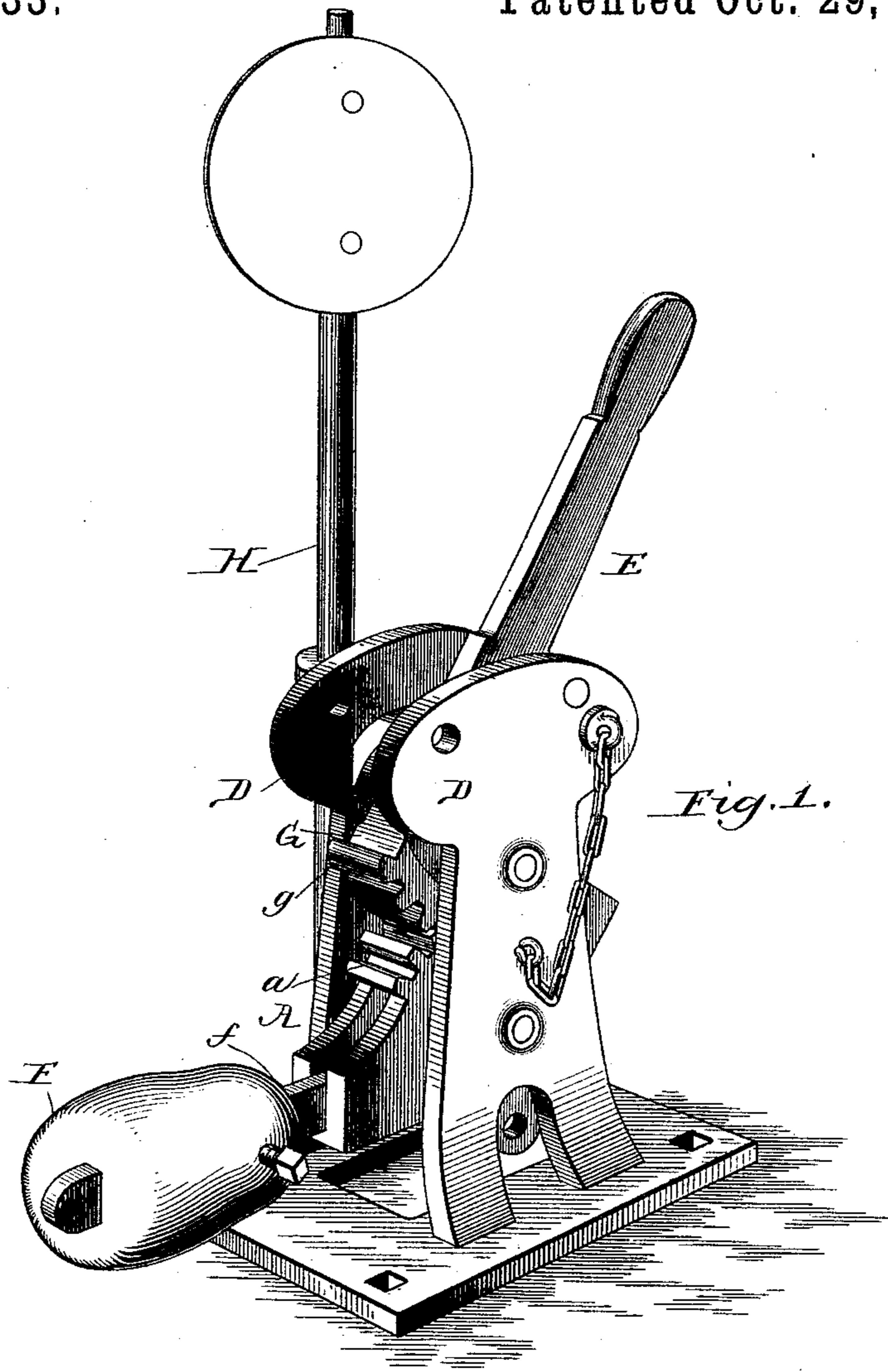


Fig. 1.

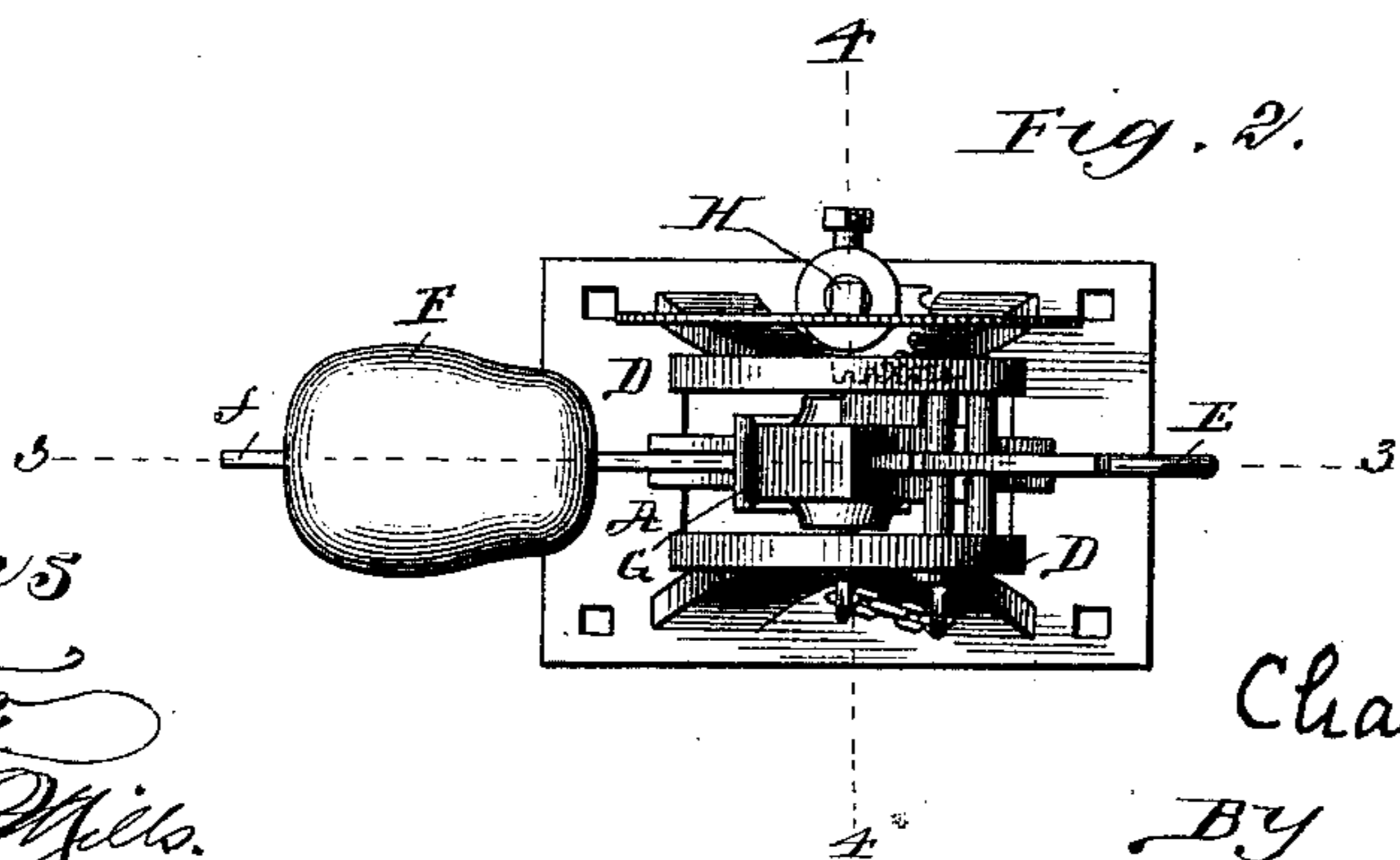


Fig. 2.

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(No Model.)

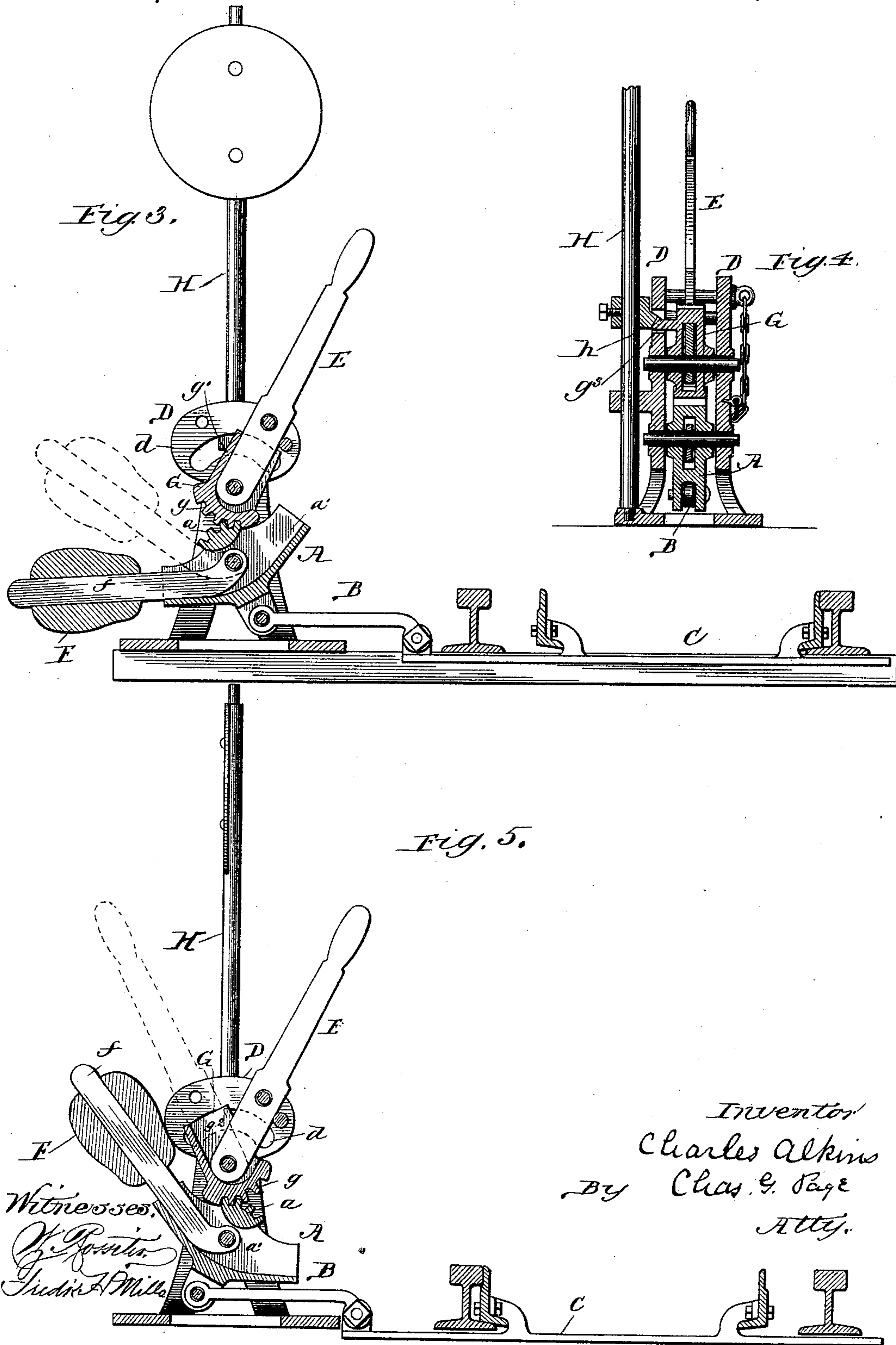
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UNITED STATES PATENT OFFICE.

CHARLES ALKINS, OF MUSKEGON, MICHIGAN, ASSIGNOR TO HENRIETTA ALKINS, OF SAME PLACE.

RAILWAY-SWITCH STAND.

SPECIFICATION forming part of Letters Patent No. 414,133, dated October 29, 1889.

Application filed September 24, 1888. Serial No. 284,281. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALKINS, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented a certain new and useful Improvement in Railway - Switch
5 Stands, of which the following is a specification.

My invention relates to that class of devices known as "switch-stands for railway-service," and is applicable to switch-stands for operating either stub or split switches, my said invention being an improvement upon the switch-stand embodied in my application
15 for Letters Patent filed April 25, 1888, and numbered 272,200.

The more prominent objects of my invention are to prevent the hand-lever of a switch-stand from being thrown to either side when
20 the stand is set for automatic switching, to permit free automatic switching when the handle is locked, to permit the handle to be unlocked and operated for the purpose of operating the switch, to prevent tampering with
25 the switch, to adapt the switch-stand for right or left switching, to permit the stand to be set so that it can only be operated from the switch, to provide extremely simple means whereby the stand can be operated by hand,
30 and to provide certain details serving to promote the general utility and efficiency of switch-stands for railway-service.

In a switch-stand characterized by my invention I provide a vibratory lever, which
35 is to be connected with the switch through the medium of any known or suitable power-transmitting connection. For automatic work this lever may be left free to vibrate about its fulcral support, and as a means for automatically closing the switch after a train has
40 "run through" the same the lever is suitably weighted. Said lever (which, for purposes of distinction, I shall hereinafter term the "switch-lever") can, however, be operated by
45 a hand-lever. The hand-lever can be locked while the switch-lever is left free for automatic switching, and, on the other hand, the hand-lever can, when so desired, be unlocked and operated, so as to actuate the switch-lever
50 and thereby operate the switch. To guard

against the switch being tampered with when the hand-lever is locked and the switch-stand left free for automatic work, the weight to which the switch-lever is subject is arranged so that should any attempt be made to operate the switch-lever by lifting the weight the
55 latter will rise free of and without in any wise affecting the switch-lever.

In the drawings, Figure 1 represents in perspective a switch-stand embodying my invention. Fig. 2 is a top plan view of the same on somewhat smaller scale. Fig. 3 represents a vertical central section taken through the switch-stand on line 3 3, Fig. 2. This view
60 also shows a section taken transversely through a railway track and switch with the latter connected with the switch-lever. Fig. 4 represents a section taken through the switch-stand on a vertical plane indicated by the line 4 4, Fig. 2. Fig. 5 is a view similar to
65 Fig. 3, with the exception that in Fig. 3 the switch-lever is in position for holding the switch to the right, while in Fig. 5 the switch is understood to have been thrown to the left by a passing train. Said view also indicates
70 in dotted lines the position of the hand-lever when the same has been operated to throw the switch to the left.

The lever A, hereinbefore termed the "switch-lever," can be connected with the
75 switch by any suitable power-transmitting connection, the rod B, herein shown as a connection between the switch-lever A and a switch C, being merely illustrative of a connection between two said devices. The vibratory rocker or switch-lever A is fulcrumed
80 between a pair of plates or broad standards D, and is adapted for connection with such power-transmitting device as may be employed for connecting it with the switch. The
85 hand-lever E is pivotally supported between the standards and can be locked by any suitable locking device, such as a lock, or a pin, or othersuitable means. For automatic work the lever can be swung to one side and locked,
90 while the switch-lever A can be left free, whereby a passing train may throw the switch from the position shown in Fig. 3 to the position shown in Fig. 5, in which last-named figure the switch-lever is understood to have
100

been operated from the switch and moved about its fulcral support in opposition to a weight F, that serves as soon as the train has passed to effect the automatic restoration of the switch-lever and switch to their first position.

As a means for operating the switch by manipulating the hand-lever, I provide between the hand-lever and the switch-lever a power-transmitting connection, from which the hand-lever is separable, whereby the hand-lever may be either separated from said connection to leave the switch-lever free for automatic work or brought into engagement with said connection, so as to permit it to operate the same, and thereby actuate the switch-lever.

As a preferred construction of power-transmitting connection between the hand-lever and the switch-lever, I fulcrum upon the pivot for the hand-lever a short lever G, which engages the switch-lever, and which may be engaged by the hand-lever. The engagement of the short lever G with the switch-lever can be attained by a gear-connection, the former being in such case provided with gear-teeth *g*, which engage like teeth *a* upon the switch-lever. The short lever G is also provided with a stop or abutment *g'*, with which the hand-lever is to engage when the latter is operated. This movable stop or abutment may be varied in form, but is conveniently attained by providing the lever G with a recess or socket *g''*, open at one side, whereby the opposite wall or side will serve as the stop or abutment. With such construction the lower end of the hand-lever can be pivoted within said recess or socket by the same pin or bolt that serves as a pivot for the lever G.

It Fig. 3 the switch-stand is set for automatic work, the hand-lever being thrown to the right and locked. The disposition of the weight F in said figure causes it to normally hold the switch to the right—that is to say, when thus viewed. The action of a train passing in a direction to throw the switch will in such case necessarily operate the switch-lever A against the resistance of the weight, which will be raised, as in Fig. 5, wherein the switch has been thrown to the left. During said operation the power-transmitting connection between the hand-lever and the switch-lever will be free to operate with the latter without disturbing the hand-lever, it being seen that in such case the short lever G will be free to turn about its pivot in a direction to swing its abutment *g'* away from the hand-lever. This will be seen by comparing Fig. 3 with Fig. 5, the lever G in Fig. 3 being held by the weight, to which it is subject, in position to place its abutment *g'* against the hand-lever, while in Fig. 5 the partial turn of the hand-lever has turned the lever G about its pivot in a direction to throw its abutment away from the hand-lever. As soon, however, as the train has passed the weight will restore the switch-lever and the lever G to their re-

spective positions shown in Fig. 3. The disposition of the weight in said figure also serves to normally maintain the power-transmitting connection in engagement with the hand-lever, whereby, for example, should the hand-lever be unlocked from its position shown in full, Fig. 3 it can be swung to the other side, as indicated in dotted lines, Fig. 5, and there locked, if desired, it being obvious that when the lever (shown to the right in Fig. 3) is unlocked and swung to the left it will operate lever G, which will in turn actuate the switch-lever, and hence raise the weight, as in Fig. 5, and shift the switch. Upon unlocking the lever (assuming it to be to the left) it can be thrown to the right either by hand or by the weight, in which case the weight will drop, as in Fig. 3. The hand-lever can therefore be used to throw the switch one way, while the weight can be employed to throw the switch the other way; and, again, the lever can be swung one way and locked, whereby the switch-lever may operate automatically, since the power-transmitting is separable from the hand-lever and adapted to permit free automatic work on the part of the switch-lever. It is also understood that, while the weight is herein shown at one side of the pivot for lever A, it may be arranged at the opposite side of the same, thereby adapting the stand for right or left switching.

While the levers A and G can be protected in various ways—as by a cover or by a suitable formation of the standards D—it is possible that a meddler might raise the weight, were it rigid with the switch-lever, and thereby throw the switch. To defeat such act, I secure the weight upon an arm *f*, which, while it normally engages the switch-lever, is pivoted separately therefrom. By said means the weight and arm can be lifted without affecting the switch-lever, and hence an attempt to raise the weighted arm with the intent of throwing the switch would result simply in a rise on the part of the weighted arm. Said weighted arm can be either pivoted upon the switch-lever A or it can be hung upon the pivot for said lever, which is conveniently recessed to receive the arm and thereby allow the arm to normally rest upon the bottom of its recess *a'*. For ordinary purposes, however, a cover is not necessary, since even should a portion of the lever A be within reach, the arm formed by such portion will be so short as to render it impracticable for any one to throw the switch by an attempt to directly manipulate the switch-lever. It will be seen, therefore, that should the hand-lever be permanently locked in position to permit automatic switching, said switching can only be accomplished by a passing train.

The signal-rod H is arranged alongside the stand and can be operated in various ways from either the hand-lever or the lever G; but by preference one of the standards is provided with a curved slot *d*, through which engagement can be established between a

gear or gear-segment h on the signal-rod and a gear-segment g^3 on the lever G, as in Fig. 4.

From the foregoing it will be seen that the power-transmitting device, which is intermediate of the hand-lever and the switch-lever, permits the hand-lever to operate the switch-lever, but also allows the switch-lever to operate automatically and independently of the hand-lever. When the hand-lever is in engagement with the lever G, herein present as a preferred construction of power-transmitting device, and said hand-lever is swung in a direction to shift the switch, the hand-lever and the lever G temporarily unite, and, in connection with the lever A, form a compound lever. It will therefore be evident that while the lever G is shown gear-connected with the switch-lever A, other known or suitable means employed in other instances for connecting together two elements or levers of a compound lever could be employed for connecting the lever G with the lever A; and hence, for the broader purposes of my invention, I do not limit myself to such specific gear-connection.

I claim—

1. In a switch-stand, the combination, substantially as hereinbefore set forth, of a vibratory switch-lever pivoted upon a stationary bearing on the stand and arranged for connection with a switch, a hand-lever pivoted upon a stationary bearing on the switch-stand and hung separately from and operative independently of said switch-lever, and a temporary connecting device intermediate of said two levers and comprising a movable stop or abutment which is independent of the hand-lever and connected with the switch-lever, said movable stop being arranged with relation to the hand-lever so that the latter may, when swung in one direction only, engage and move said abutment, for the purpose described.

2. The combination, substantially as hereinbefore set forth, with a weighted switch-lever to connect with a switch, of a hand-lever, and an intermediate power-transmitting connection consisting of a lever engaging the switch-

lever and pivoted to swing independently of the hand-lever when the latter is thrown to one side, for the purpose described.

3. The combination, with the switch-lever that is to connect with a switch, of the hand-lever E, and an intermediate power-transmitting connection consisting of the lever G, connected with the switch-lever and having an abutment with which the hand-lever can engage, substantially as and for the purpose described.

4. The combination, in a railway-switch stand, of a vibratory rocker or switch-lever A, a hand-lever hung to vibrate independently of said switch-lever, a temporary connection intermediate of said levers and consisting of a movable abutment arranged so that when the hand-lever is thrown to one side and locked the switch-lever may freely vibrate, and the vibratory weighted arm arranged to normally rest upon the switch-lever, but pivoted so that it can be lifted independently thereof, substantially as and for the purpose described.

5. The combination, with the weighted switch-lever, which is connected with a switch, of the lever G, gear-connected with the switch-lever, the signal-rod H, connected with the lever G, and the hand-lever arranged for engagement with and disengagement from the lever G, substantially as described.

6. The combination, substantially as hereinbefore set forth, of the vibratory rocker or switch-lever A, pivoted between the upright side plates D of a switch-stand, the vibratory weighted arm arranged to normally rest upon said switch-lever, but pivoted to allow it to be lifted independently of the same, and a short vibratory lever G, which is confined between the side plates of the switch-stand and gear-connected with the rocker or switch-lever A, for the purpose described.

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Witnesses:

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