

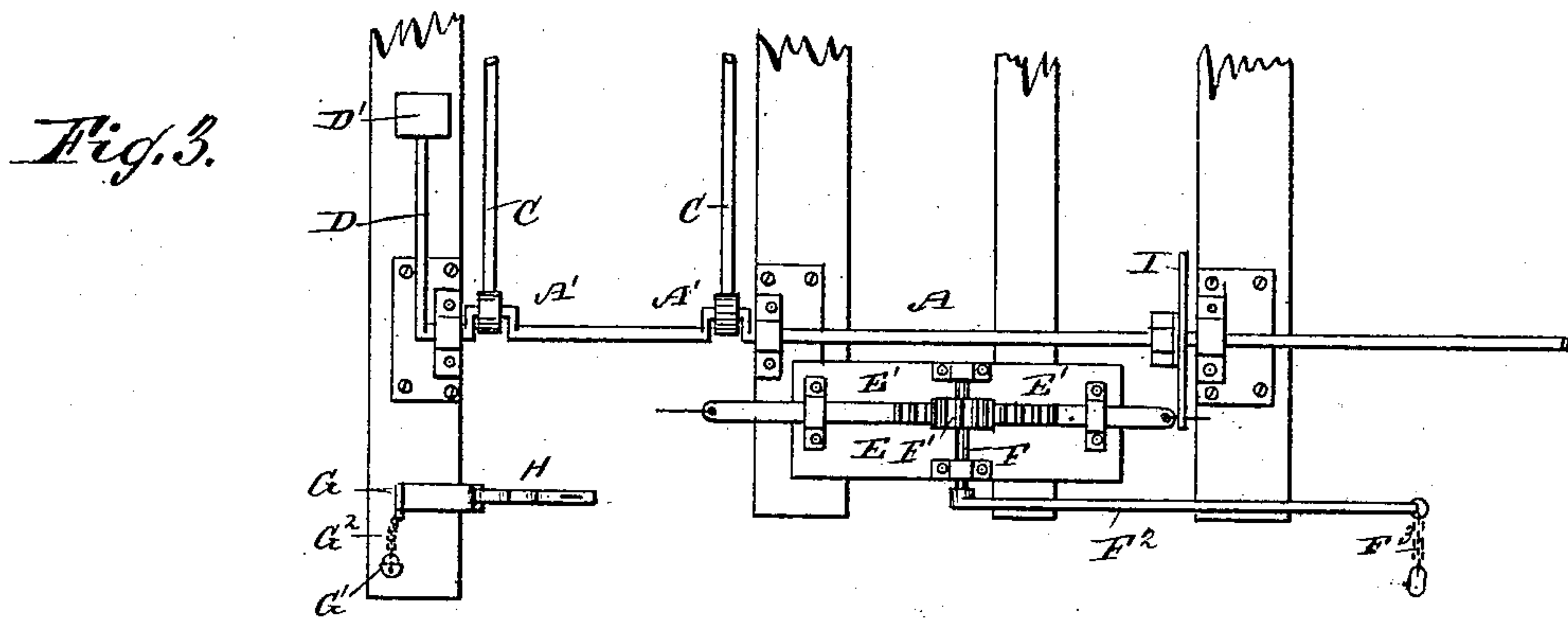
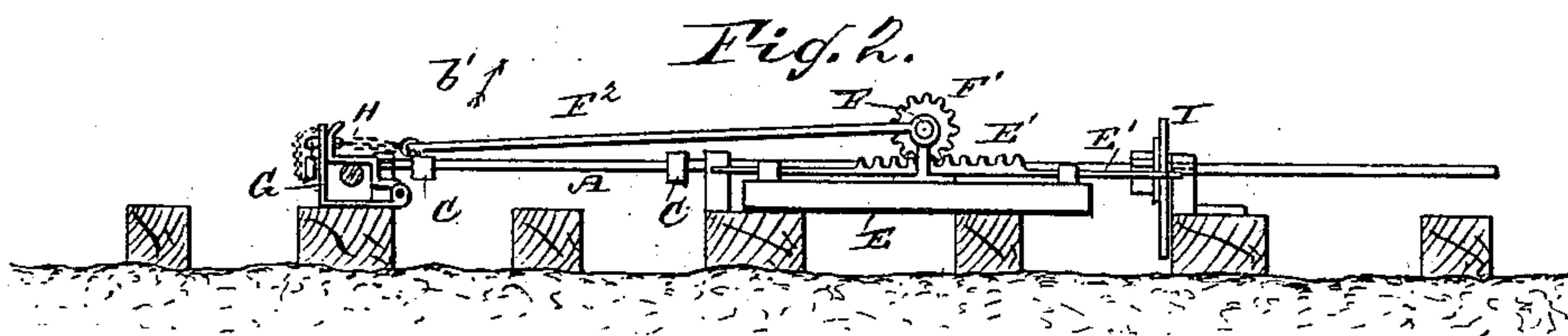
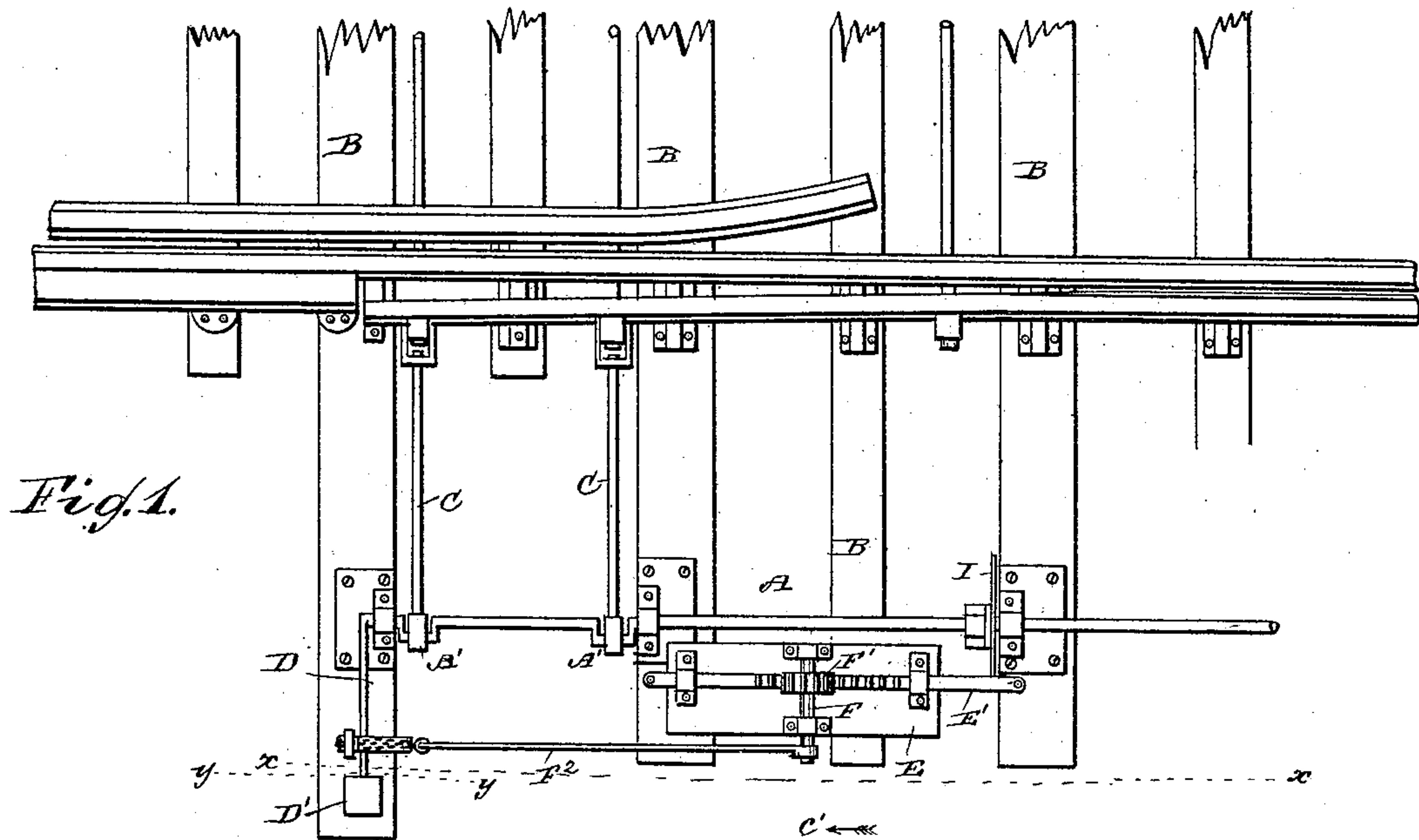
(No Model.)

3 Sheets—Sheet 1.

H. B. POTTER.  
SWITCH LOCK.

No. 338,873.

Patented Mar. 30, 1886.

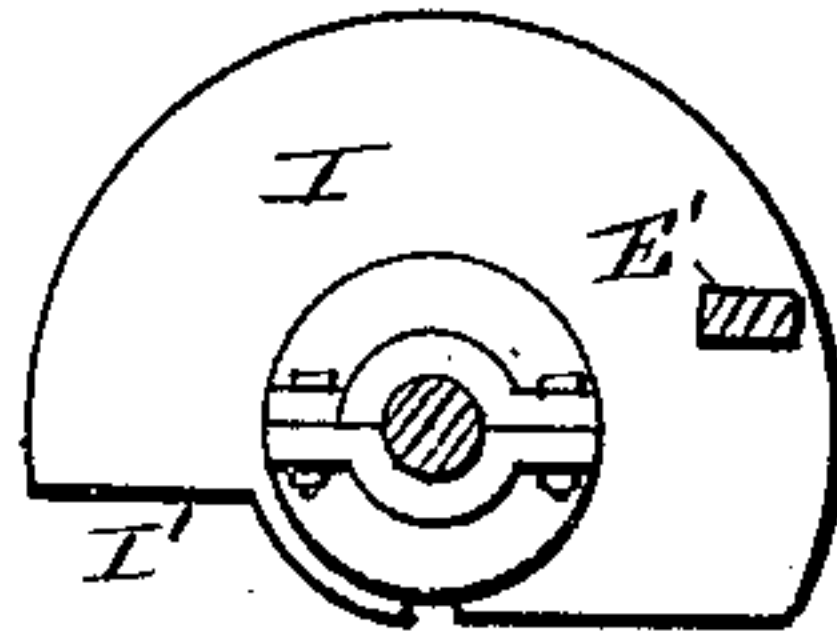
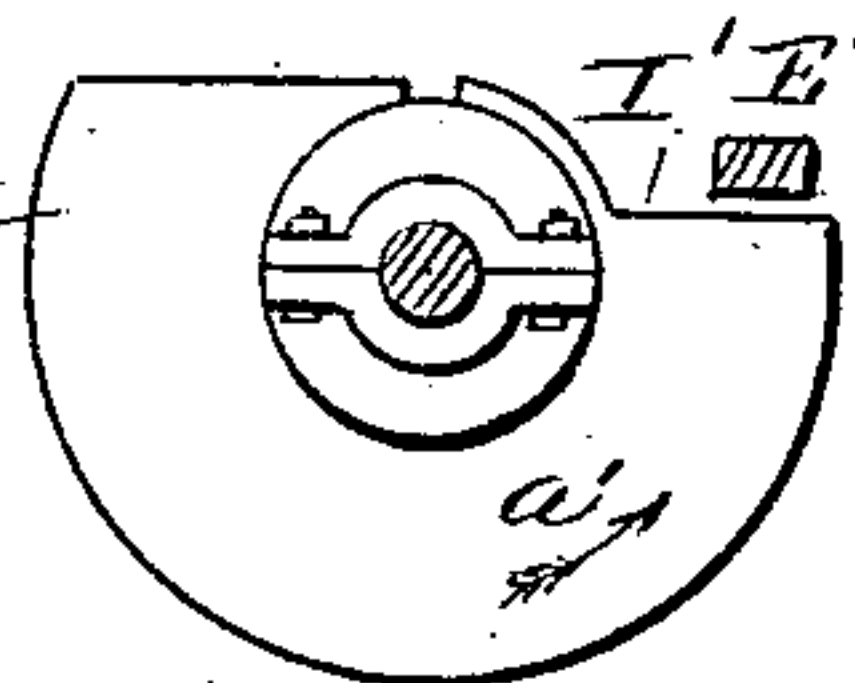


*Fig. 4.*

*Fig. 5.*

WITNESSES:

*Theo. G. Horton*  
*C. Sedgwick*



INVENTOR:

*H. B. Potter*

BY *Munn & Co.*  
ATTORNEYS.

(No Model.)

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Fig. 6.

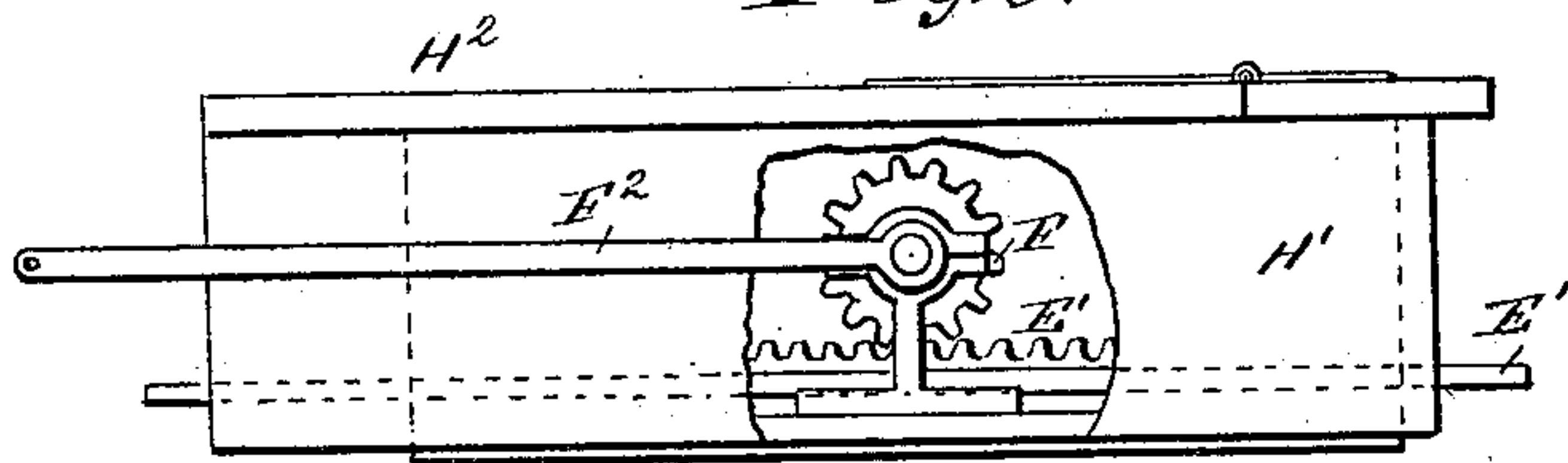


Fig. 7.

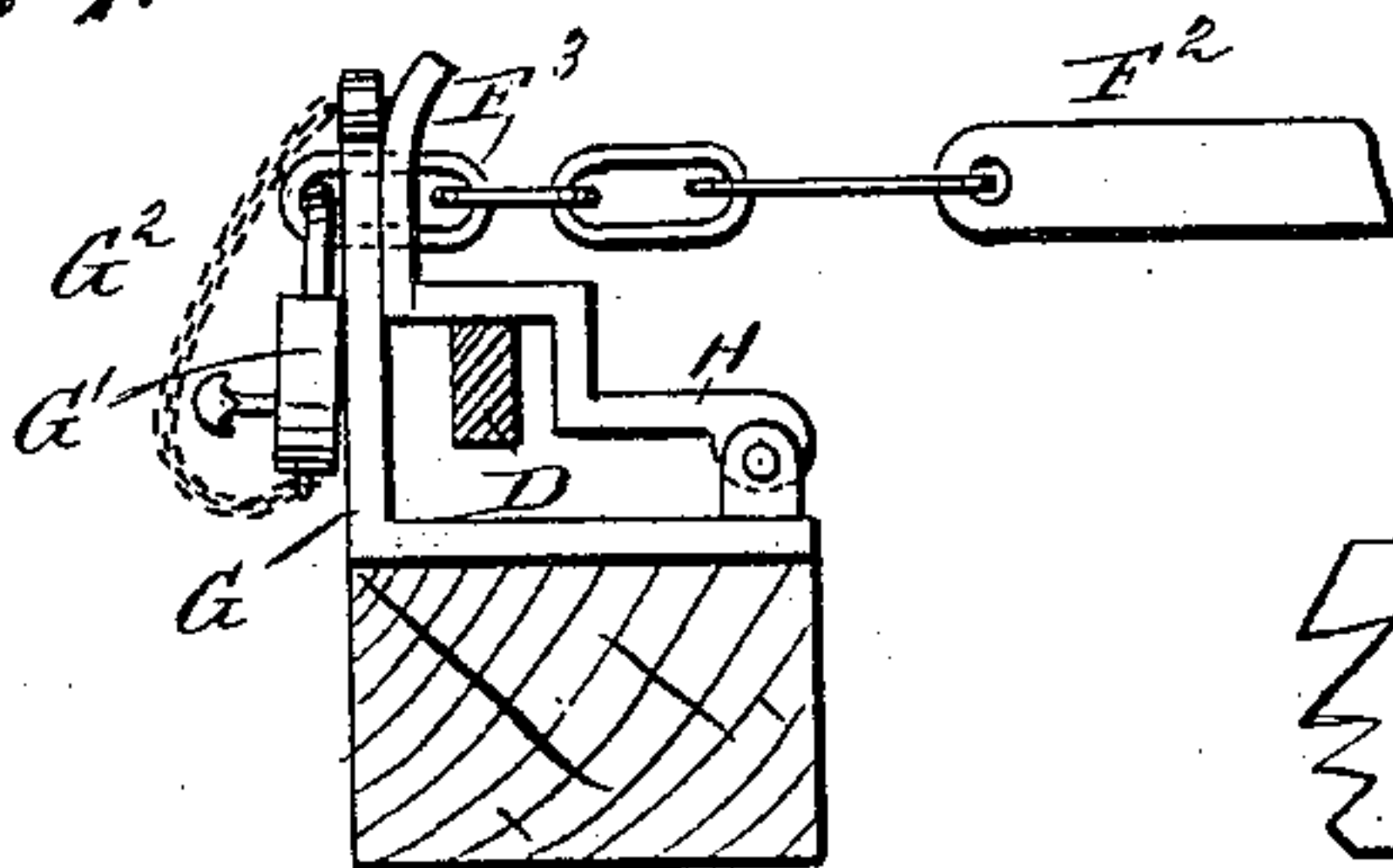


Fig. 8.

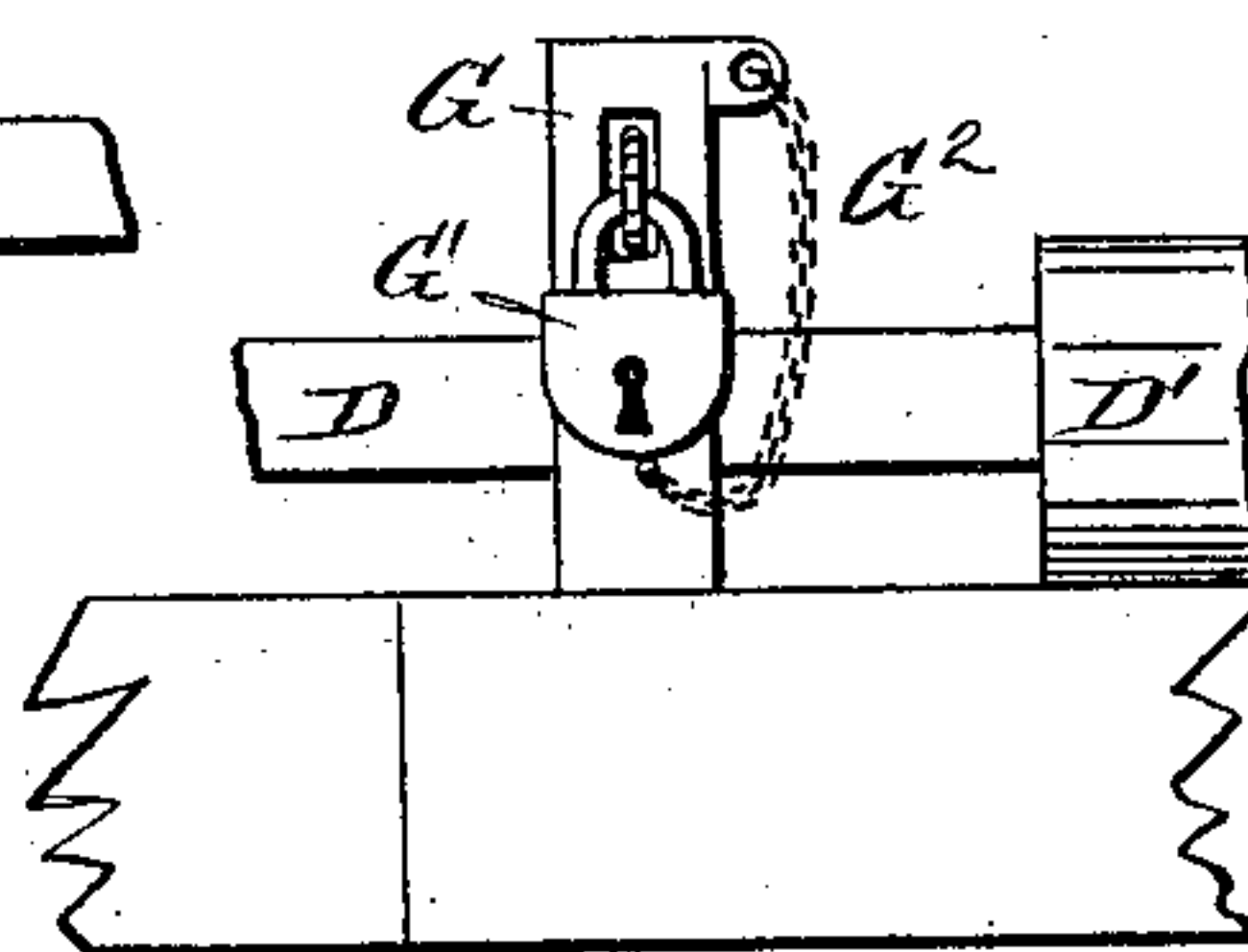


Fig. 7.a.

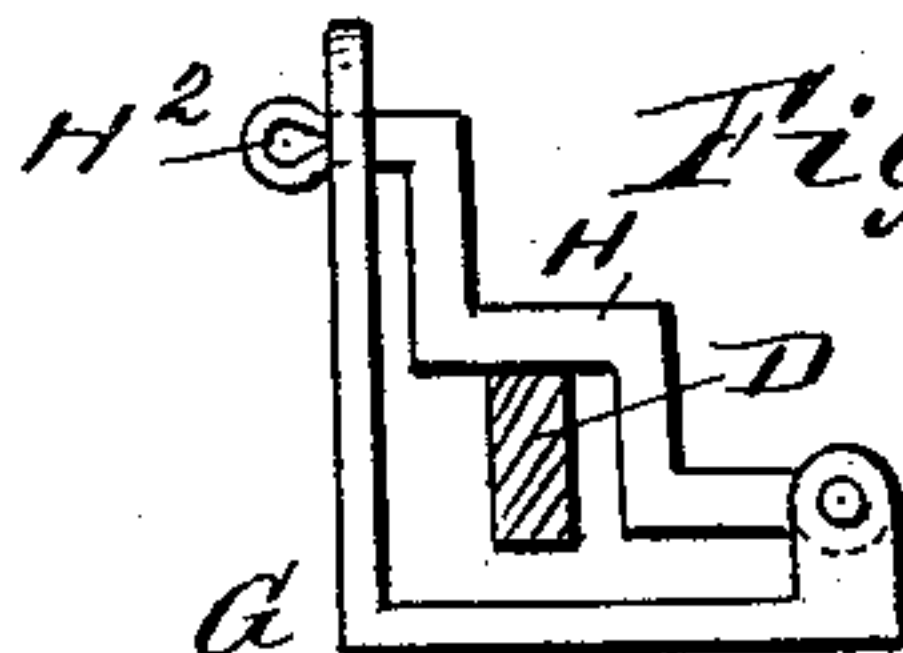
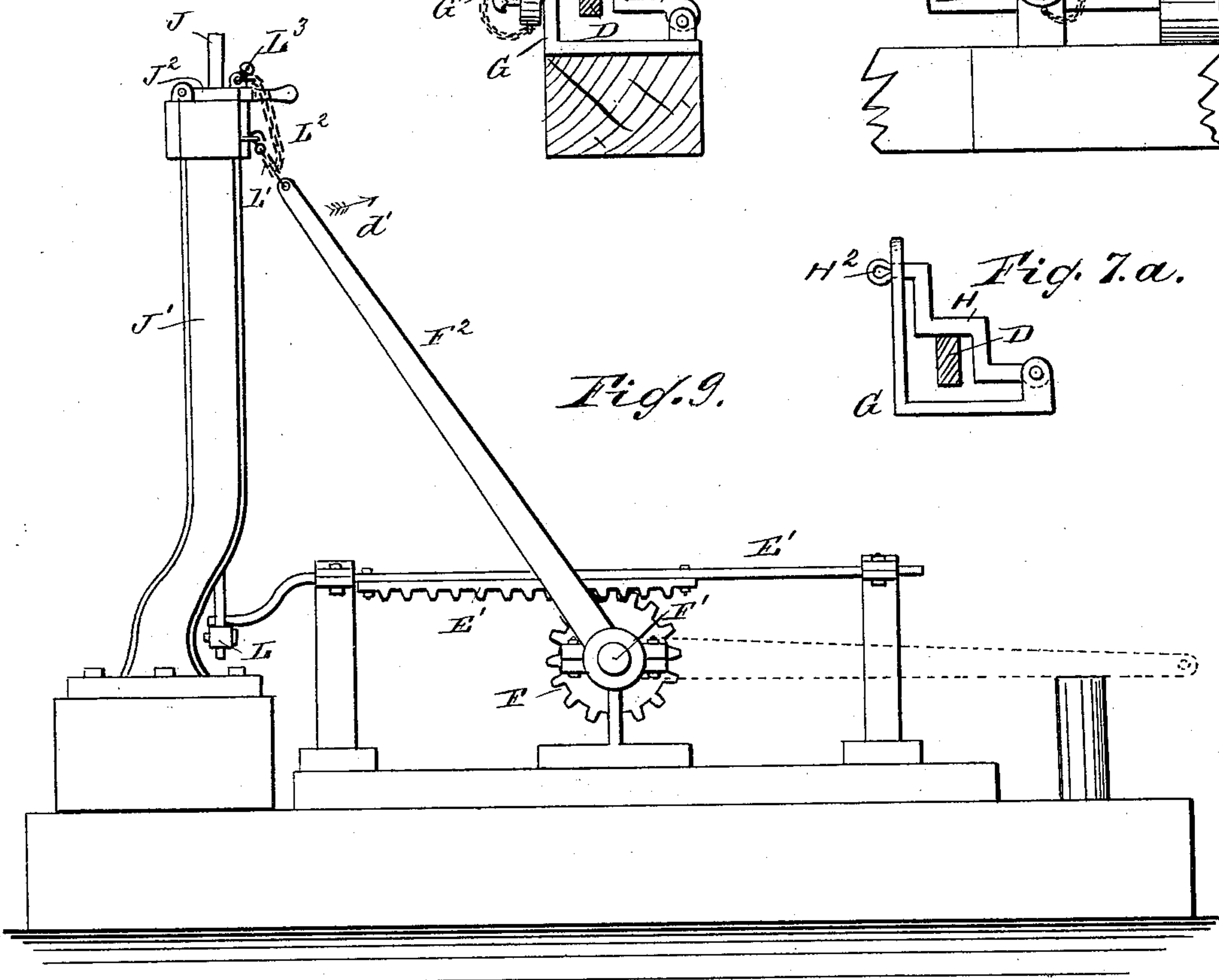


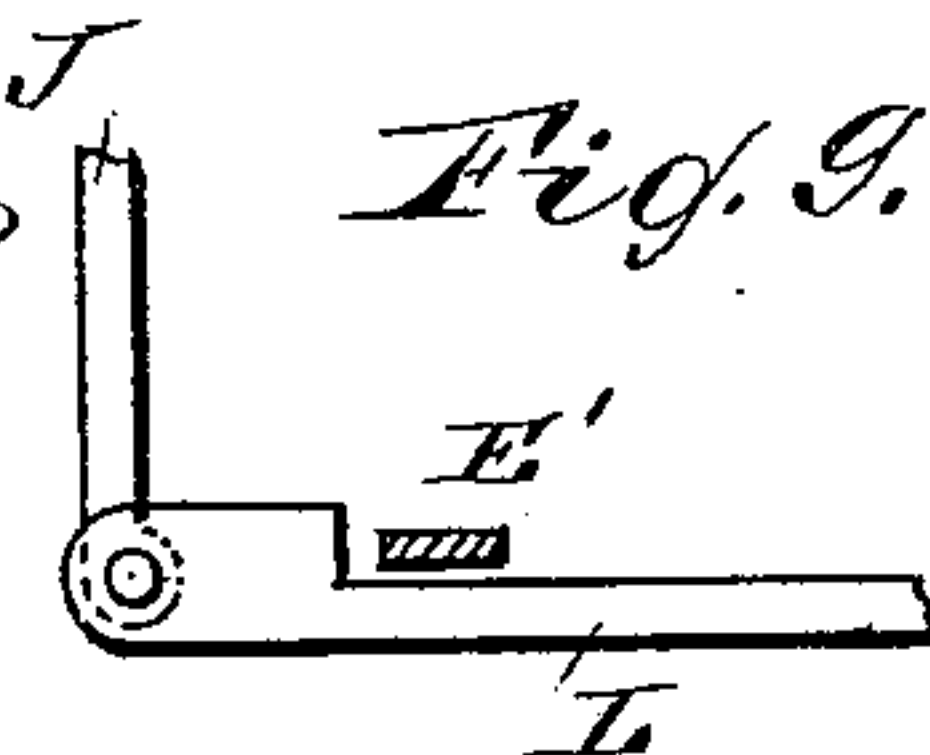
Fig. 9.



WITNESSES:

*Thos. G. Potter*  
*A. Sedgwick*

Fig. 9.a.



INVENTOR:

*H. B. Potter*

BY

*Munn & Co*

ATTORNEYS.

(No Model.)

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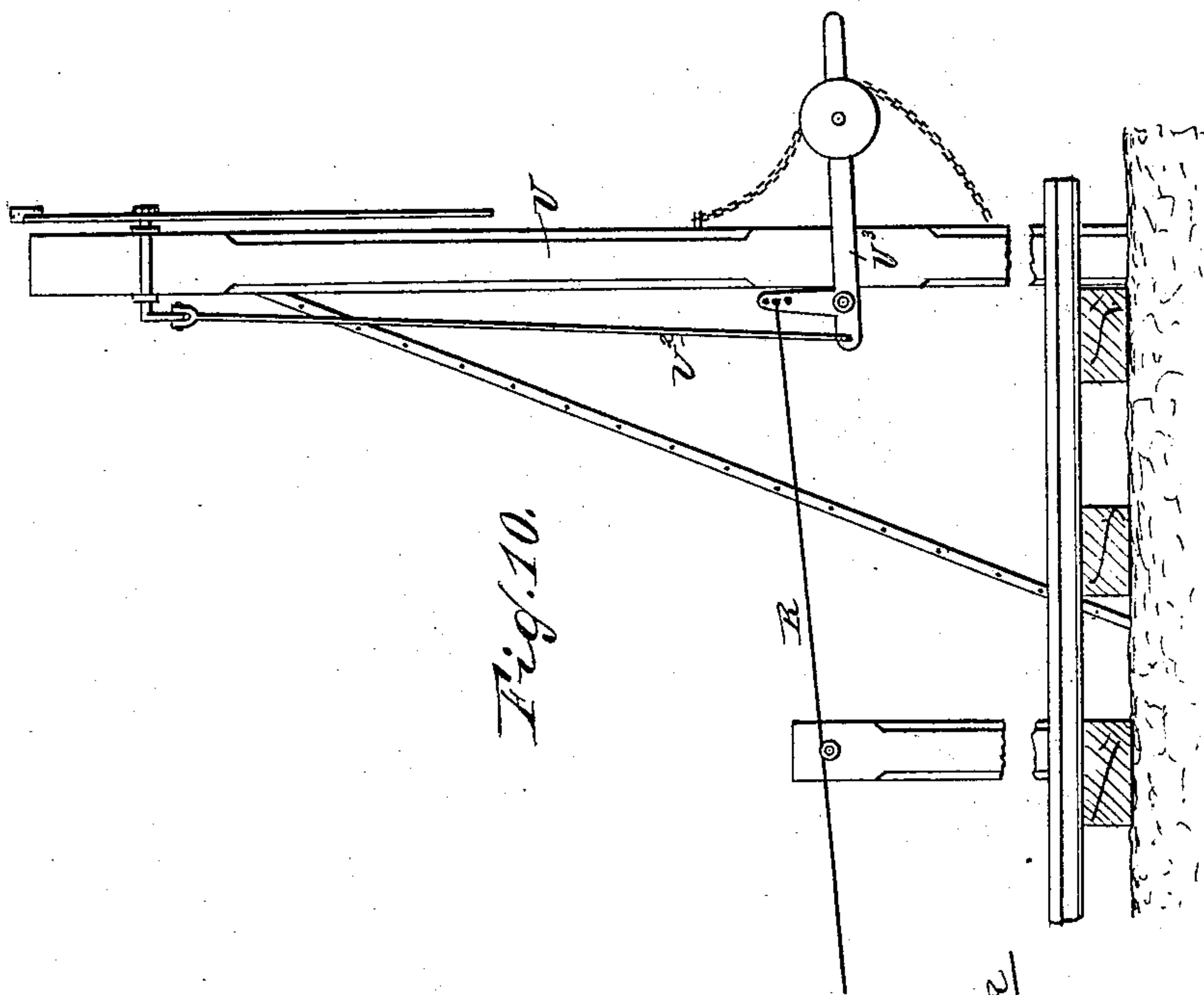


Fig. 10.

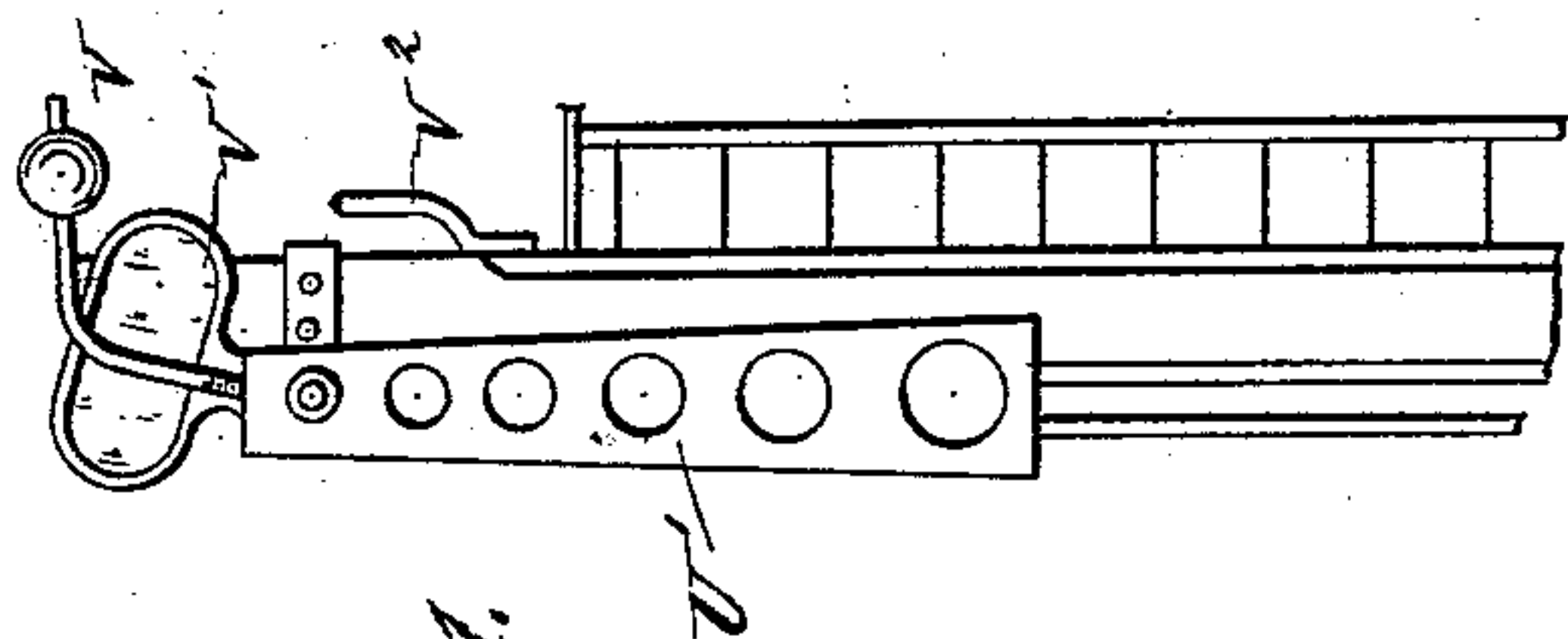


Fig. 11.

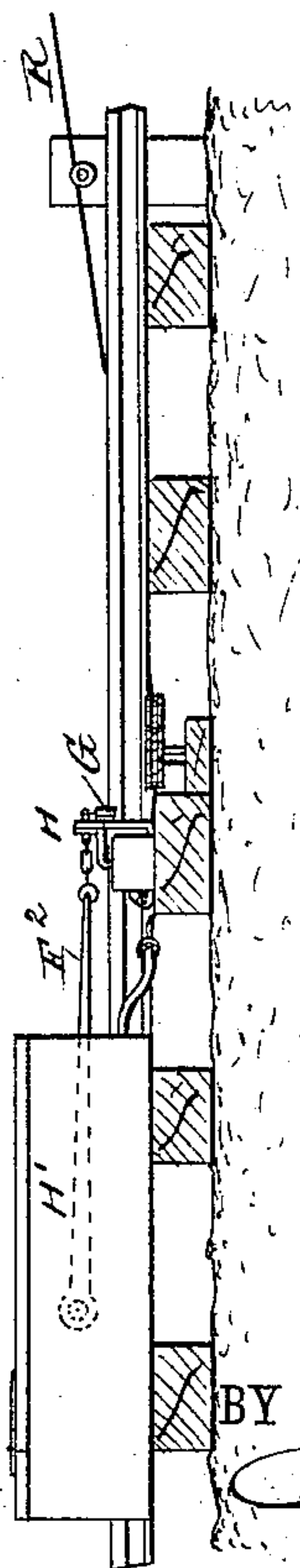
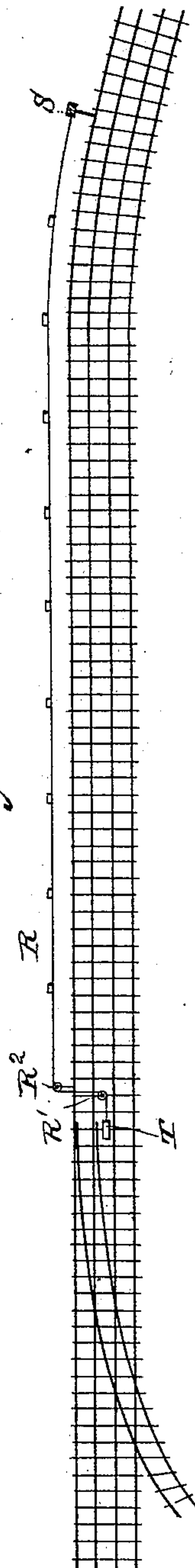


Fig. 12.



WITNESSES:

*Geo. G. Foster.*  
*C. Sedgwick*

INVENTOR:

*H. B. Potter*

BY *Munn & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

HOBERT B. POTTER, OF NORTH ADAMS, MASSACHUSETTS.

## SWITCH-LOCK.

SPECIFICATION forming part of Letters Patent No. 338,873, dated March 30, 1886.

Application filed May 16, 1885. Serial No. 165,763. (No model.)

*To all whom it may concern:*

Be it known that I, HOBERT B. POTTER, of North Adams, in the county of Berkshire and State of Massachusetts, have invented a new and Improved Switch-Lock, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved switch-lock, which is constructed in such a manner as to lock the switch and prevent its being turned.

The invention consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of part of a Wharton switch provided with my improvement, the switch being closed and locked. Fig. 2 is a sectional view of the same on the line *x x*, Fig. 1. Fig. 3 is a plan view, the switch being unlocked and open. Figs. 4 and 5 are side views of the locking-disk, showing the different relative positions to the bolt or bar. Fig. 6 is a side view of the casing containing the rack and pinion. Fig. 7 is an enlarged detail cross-sectional view on the line *y y*, Fig. 1. Fig. 7<sup>a</sup> shows a modification of the hasp. Fig. 8 is a side view of Fig. 7. Fig. 9 is a side view of the lock applied to a switch in which the rails are moved by a simple lever. Fig. 9<sup>a</sup> is a side view of part of the switch. Fig. 10 is a side view of the railroad-signal connected by a wire with the switch and my improved lock. Fig. 11 is a detail view of the signal. Fig. 12 is a plan view showing the arrangement of the tracks.

The horizontal shaft A, journaled in suitable bearings on the sleepers B at the side of the track, has cranks A', on which the connecting-rods C are pivoted, which serve to throw the switch-ties. The shaft A is provided at one end with a crank, D, carrying the balancing-weight D'. This is a Wharton switch of the usual construction. On the top plate, E, secured on the ties, a rack-bar, E', is held and guided to slide by suitable clips, and engages with a pinion, F', on a shaft, F, journaled in standards on the said plate E. On one end of the shaft F a long arm, F<sup>2</sup>, is

secured, on the free end of which one or more links, F<sup>3</sup>, are secured. On one sleeper an upwardly-projecting lug, G, is fastened, with the top of which a lock, G', is connected by a chain, G<sup>2</sup>, said lug or standard G having a slot through which the end link, F<sup>3</sup>, can be passed. At the said standard an angular hasp or a hasp having an offset is pivoted to lugs on the sleeper or to lugs on the base of the standard G in such a manner that the upper end of the hasp can be swung against the side of the standard, the hasp having a slot which registers with the slot in the standard.

On the shaft A a disk, I, is rigidly mounted, the said disk having a part cut out to form an offset or shoulder, I'. This disk has a suitable collar or hub for holding it securely on the shaft. The disk I is so located that its offset I' can rest against or engage with the point of the rack-bar E'. If desired, the rack-bar E' and the pinion F' may be contained in the box H', provided with a hinged cover, H<sup>2</sup>. When the switch is closed and locked, the lever D is held down on its sleeper by the hasp H, which rests on the top edge of the said lever D. The end link of the lever F<sup>2</sup> is passed through the slots in the standard G and the hasp H, and the shackle of the padlock G' is passed through the link F<sup>3</sup> and locked in place, and thereby the lever F<sup>2</sup> is locked in place, as is also the lever D. When the parts are in this position, the sliding lever E' will be directly above the offset I' of the disk I. If the lock G' is removed and the hasp H swung from the lever D, and an attempt made to swing the lever D toward the rails, the shaft A will be turned in the direction of the arrow *a'*, Fig. 4, and the offset I' of the disk I will strike the rack-bar E', thus preventing swinging the lever D in the manner set forth. Thus the switch-lock prevents throwing the switch.

To throw the switch, the lever F<sup>2</sup> must first be thrown in the direction of the arrow *b'*, Fig. 2, whereby the pinion F' moves the rack-bar E' in the direction of the arrow *c'*, and moves the said rack-bar such a distance from the disk I as to permit of turning the shaft A without causing the offset in the said disk to strike the bar E'. When the lever D is turned so as to close the switch, and it is desired to lock the lever D in place, the lever F<sup>2</sup> must be first swung in the inverse direction of the



arrow  $b'$ , in order to permit of passing the link  $F^3$  through the hasp  $H$  and the standard  $G$ . By such movement of the lever  $F^2$  in the inverse direction of the arrow  $b'$  the rack-bar  $E'$  is moved in the inverse direction of the arrow  $c'$  and passed over the offset  $I'$  of the disk  $I$ , thus locking the switch in place.

If desired, the hasp  $H$  may be provided with the eye  $H^2$ , which is passed through the slot in the standard  $G$ , the shank of the padlock being passed through the said eye. This construction is shown in Fig. 7<sup>a</sup>.

As shown in Fig. 9, the lever  $J$ , for throwing the switch, is pivoted in the standard  $J'$ , provided on its top with a hinged plate,  $J^2$ , having a handle, and provided with a notch for receiving the lever  $J$  when the same is vertical, so that when the said plate is swung down upon the top of the standard  $J'$  it locks the lever  $J$  and prevents the swinging of the same.

On the end of the lever  $F^2$  a padlock,  $L^3$ , and two chains,  $L'$  and  $L^2$ , are secured, each provided with a hook. One hook serves to hold the end of the lever  $F^2$  to the top of the standard  $J'$ , and the other hook and padlock serve to lock the plate  $J^2$  in place. In this case the end of the rack-bar  $E'$  is held above a bar,  $L$ , which extends to the switches and is used for throwing them. By swinging the lever  $F^2$  in the direction of the arrow  $d'$  the rack-bar  $E'$  is removed from over the bar  $L$ , thus permitting of throwing the switch. The switch-bar  $J$  can only be locked in place by means of the chains  $L'$  and  $L^2$  on the end of the lever  $F^2$ , so that when the switch has been closed and is to be locked in place the lever  $F^2$  must be swung in the inverse direction of the arrow  $d'$ , to permit of locking the plate  $J^2$  by the chain  $L^2$ . By this movement of the lever  $F^2$  the pinion moves the ends of the rack-bar  $E'$  over the bar  $L$ , thus locking the same in place.

In the construction shown in Figs. 10, 11, and 12 the switch-operating mechanism and lock  $T$  are between the rails, and the wire  $R$ , connected with the said mechanism, is passed over the pulleys  $R'$  and  $R^2$ , and then to the signal  $S$ , which signal consists of a standard,  $U$ , on which the arm  $U'$  is pivoted, a crank on the arm being connected by a rod,  $U^2$ , with a pivoted weighted lever,  $U^3$ , connected with the wire  $R$ . The lever  $U'$  is provided with a counterbalance-weight,  $V$ , and at its inner end with a pane of glass,  $V'$ , which can be drawn in front of a lamp held on the hook  $V^2$ . By turning the switch the wire  $R$  is drawn or released, and the lever  $U'$  is swung up or permitted to swing down. When the lever is swung up, the pane of glass  $V'$  is brought in front of the lamp on the arm  $V^2$ , thus giving the signal at night. The signal need not nec-

essarily be of the construction and arrangement shown. It may be of any other construction. In all cases it is to be connected with the switch-locking bar, so that at the same time that the switch is locked or unlocked the signal will be set. The signal may be a greater or less distance from the switch.

It will be observed that when the switch is unlocked and the signal is at "danger," as soon as the switch begins to open, the disk  $I$  passes in front of the end of the locking-bar  $E'$ , and thus locks the signal at "danger" while the switch is open or part way open. The lock not only locks the switch, but it also locks the signal at "danger" while the switch is open.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a switch-throwing shaft or lever, of a sliding bar for locking the said shaft or lever, a rack formed on the bar, a pinion engaging with the rack, a lever for turning the pinion, and chain-links secured on the end of the lever, substantially as herein shown and described.

2. The combination, with a switch-throwing shaft or lever, of a disk mounted on the same and provided with an offset, a sliding locking-bar provided with a rack, a pinion engaging with the rack, a lever for turning the pinion, links on the end of said lever, the standard  $G$ , and the pivot-hasp  $H$ , substantially as herein shown and described.

3. The combination, with a switch-throwing shaft or lever having a disk provided with an offset, of a sliding bar provided with cogs, a pinion engaging with the said cogs, and a bolt operated from the said pinion, and signals connected with the sliding rack-bar, substantially as herein shown and described.

4. The combination, with a switch-throwing shaft or lever, of a locking-bar sliding in the horizontal plane parallel with the shaft and having a rack, a pinion engaging with the rack, and a lever for turning the pinion, substantially as herein shown and described.

5. The combination, with a switch-throwing lever or shaft, of a disk mounted on the same and provided with an offset, a sliding locking-bar parallel with the switch-throwing lever or shaft, and mechanism for shifting the said locking-bar to engage with the offset in the disk or to disengage it from the same, substantially as herein shown and described.

HOBERT B. POTTER.

Witnesses:

N. C. BOND,  
C. A. WILBUR.