

No. 751,871.

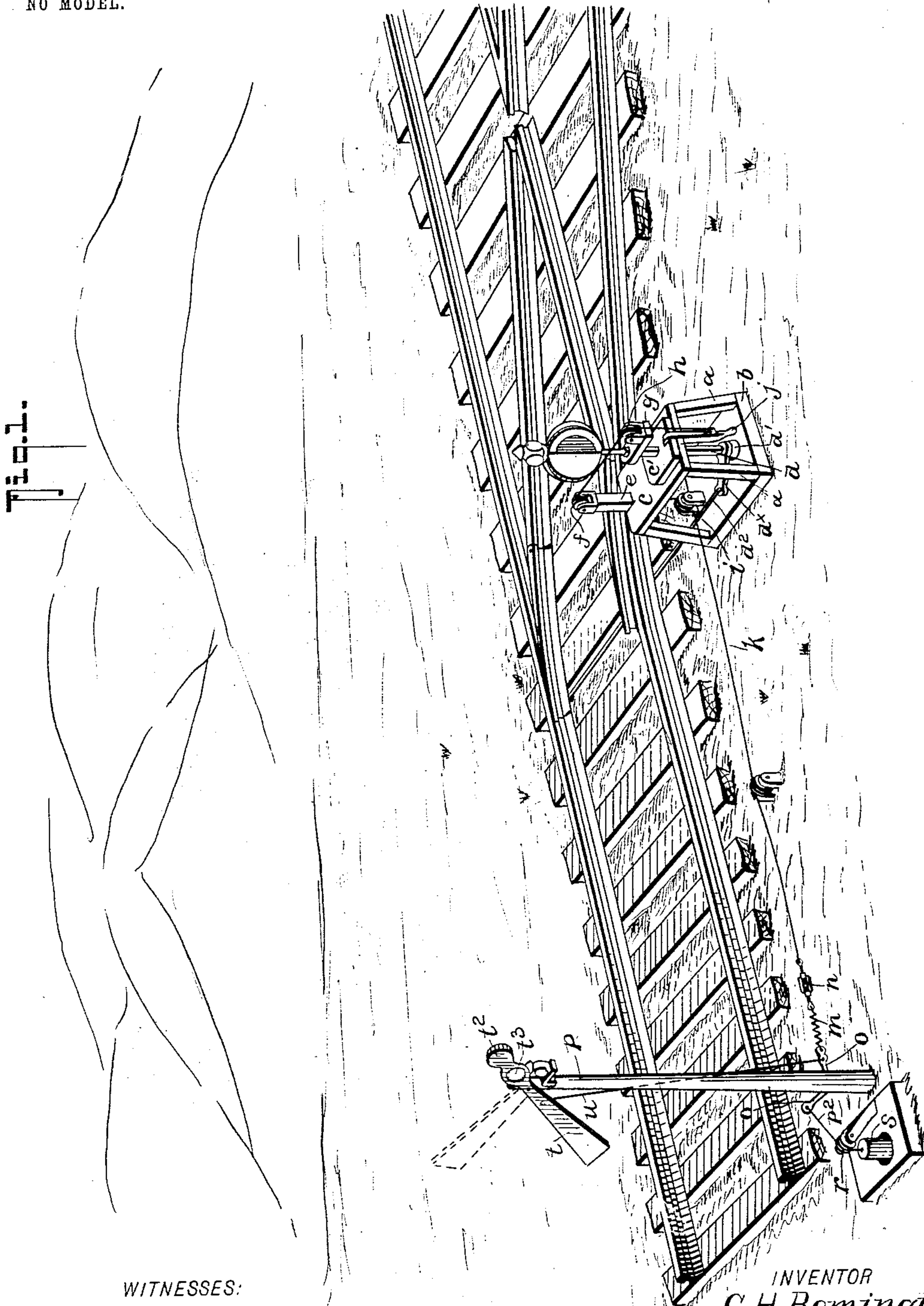
PATENTED FEB. 9, 1904.

C. H. REMINGTON.  
AUTOMATIC SWITCH DANGER SIGNAL.

APPLICATION FILED MAY 25, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

*John T. Schrott*  
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INVENTOR  
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BY  
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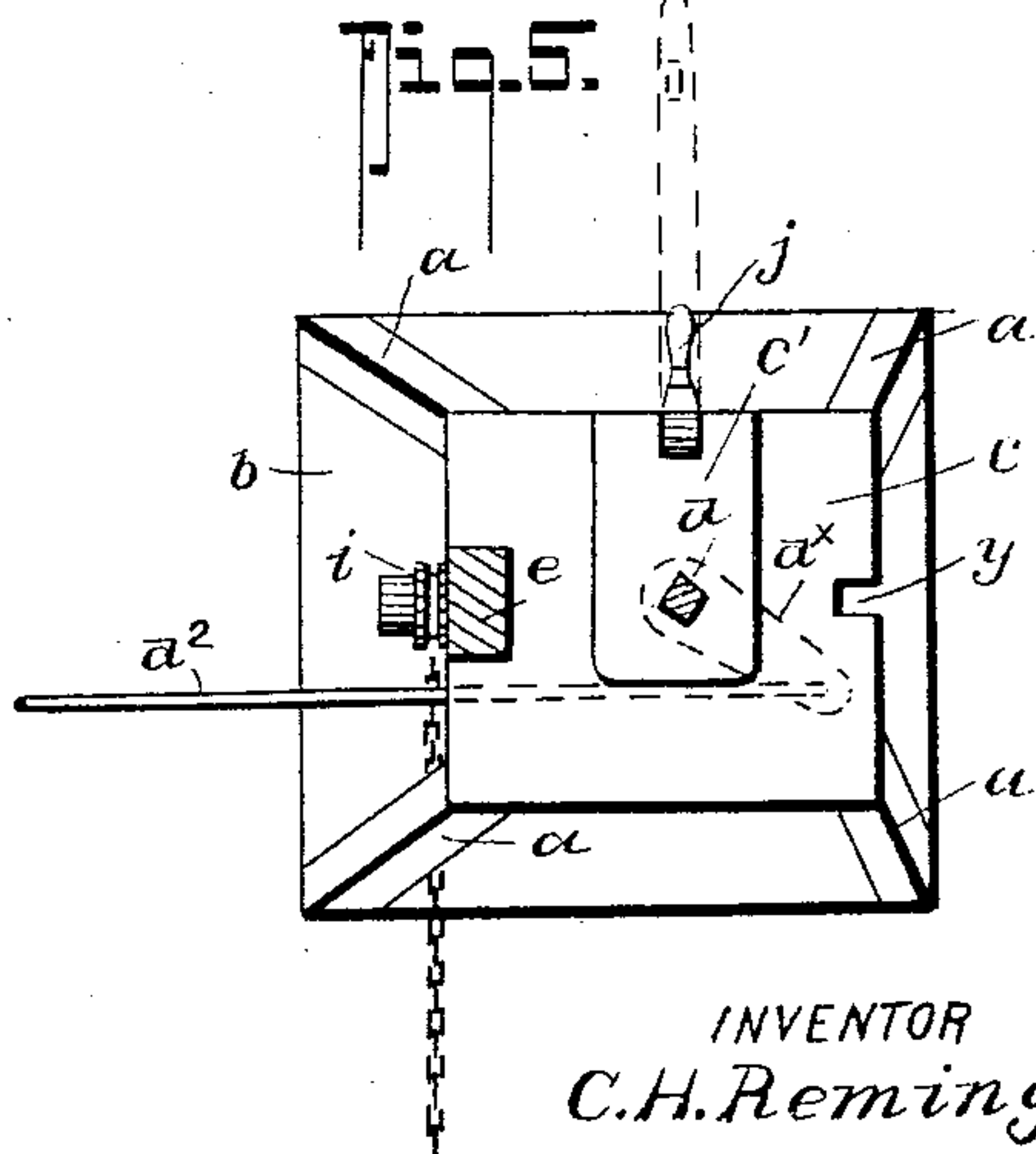
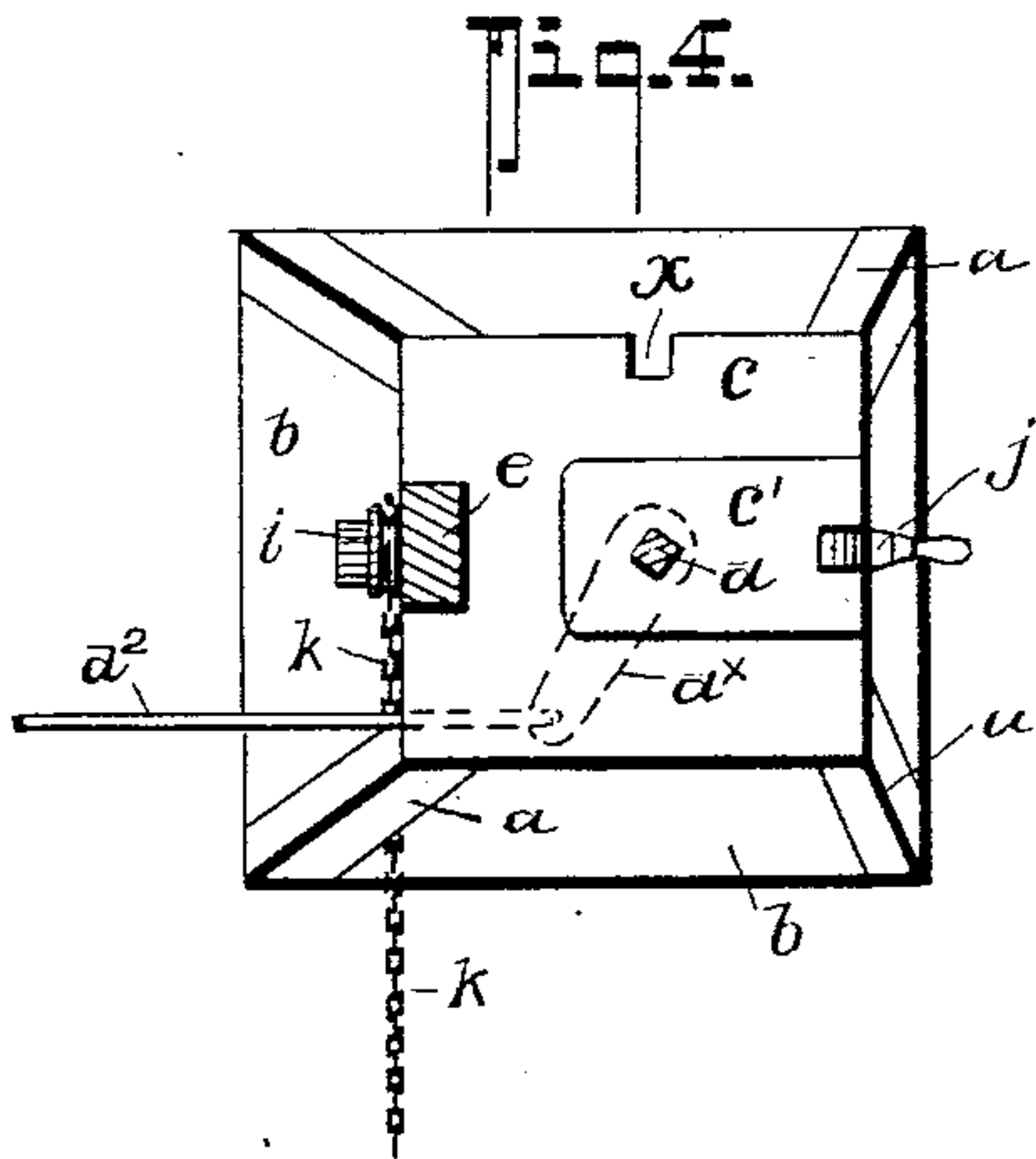
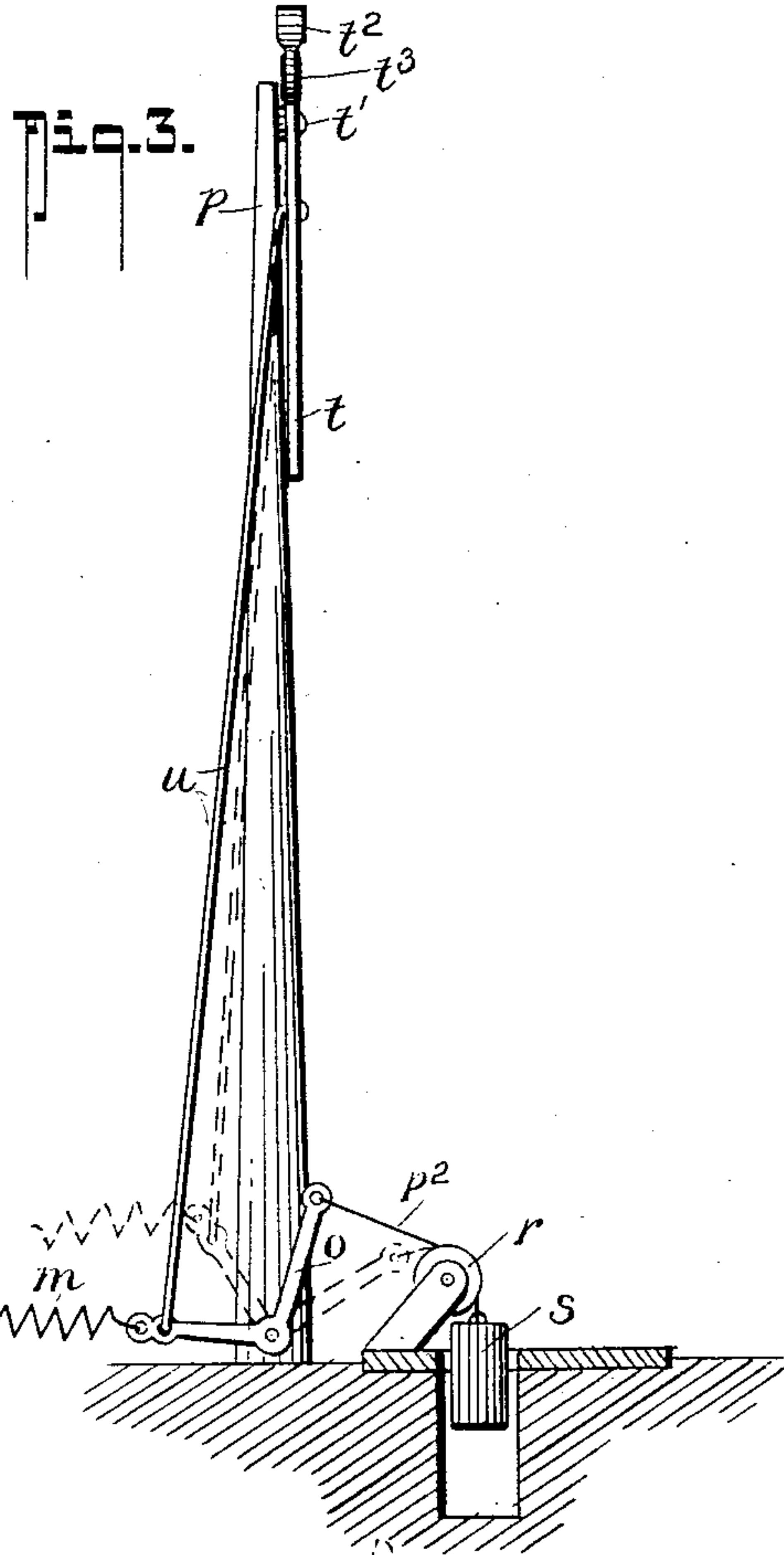
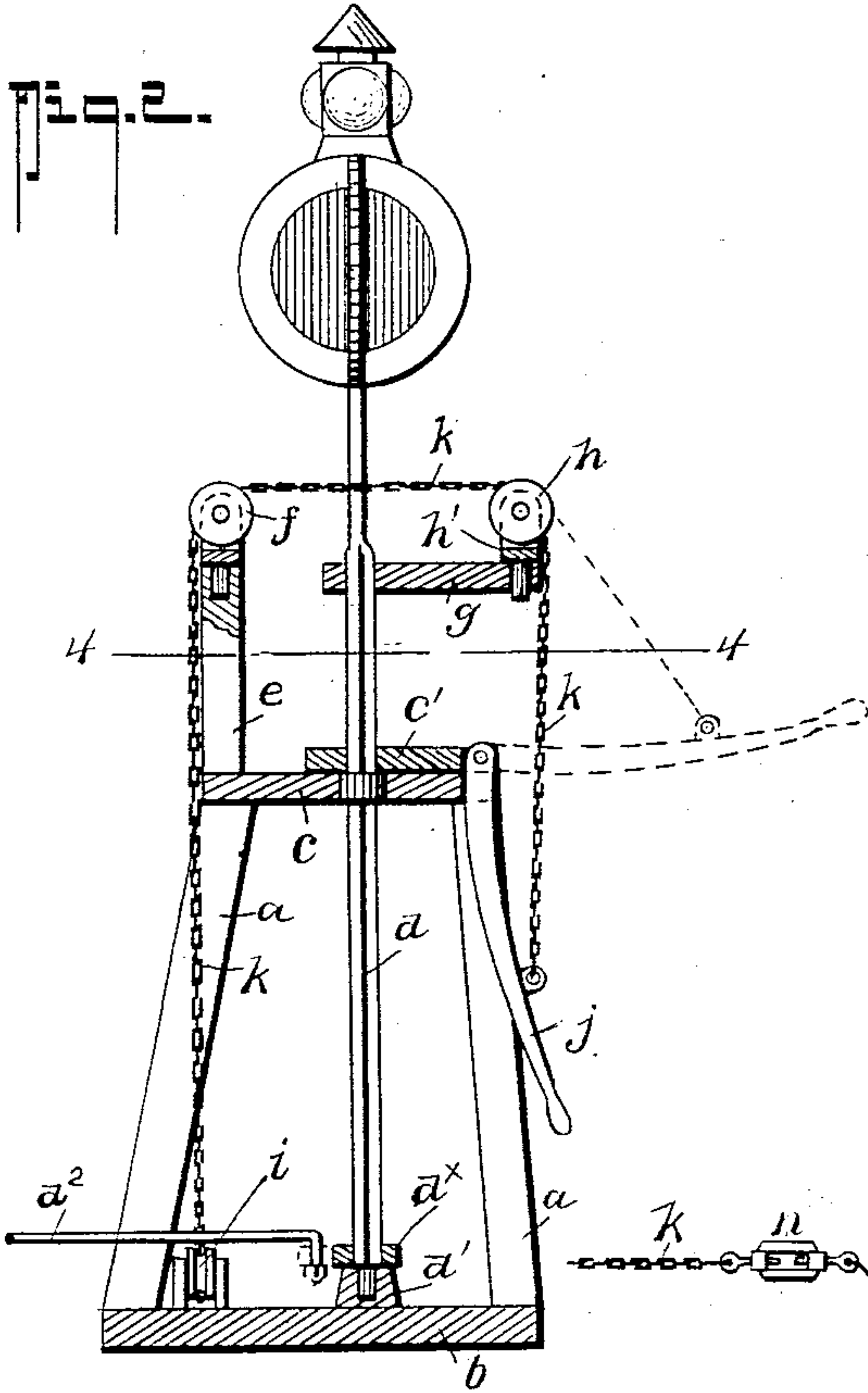
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## UNITED STATES PATENT OFFICE.

CHARLES H. REMINGTON, OF ROSWELL, TERRITORY OF NEW MEXICO.

## AUTOMATIC SWITCH DANGER-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 751,871, dated February 9, 1904.

Application filed May 25, 1903. Serial No. 158,707. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. REMINGTON, residing at Roswell, in the county of Chaves and Territory of New Mexico, have invented a new and Improved Automatic Switch Danger-Signal, of which the following is a specification.

My present invention relates to improvements in that class of railroad signals or semaphore mechanisms in which the signal or semaphore devices are coöperatively joined with and adapted to be actuated by the shifting of the switch-setting mechanisms and in which supplemental means are included for automatically effecting the setting of the signal or semaphore devices in case of accident, such as washouts, bridge burning, or an improper tampering with the switch-setting means.

My present invention in its generic nature comprehends a special construction of switch setting and signal devices and a distant supplemental signal or semaphore mechanism and means connecting the same with the switch-setting mechanism whereby in adjusting the switch-setting mechanism to an initial position prior to effecting the shifting of the switch the semaphore or distant signaling means will be automatically set to a danger position to indicate that the switch-setting means has been partially or fully manipulated.

In its more complete nature my present invention includes a special construction of switch-setting mechanism and a connected distant supplemental or semaphore mechanism capable of being initially actuated to first set the distant signal or semaphore to a danger position for actuating the switch-rails, under a second operation to move the set switch-rails without effecting the initial setting or adjustment of the semaphore or signal, and under a final or reverse adjustment to simultaneously return the switch-rails and the distant signal or semaphore to a normal or safety position.

With other objects in view my invention in its subordinate nature consists in certain details of construction and peculiar combination of parts hereinafter explained, and specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a railway-track with my invention applied for use. Fig. 2 is a vertical section of the switch-setting mechanism, the said lever being at its down or safety position in full lines and elevated to its initial adjustment in dotted lines. Fig. 3 is a side view of a semaphore or distant-signal mechanism, the parts being shown in their normal or safety position in full lines and in harmony with the down or lowered position of the switch-setting lever shown in Fig. 2 and in the position automatically assumed when the switch-setting lever is elevated to the position shown in dotted lines in Fig. 2. Fig. 4 is a horizontal section taken practically on the line 4 4 of Fig. 2, the switch-setting devices being at their safety or switch-closed position; and Fig. 5 is a similar view showing the position of the same parts when the switch has been shifted to its open position.

In the practical arrangement of my present invention the switch-setting mechanism is located at a suitable point to one side of the track in transverse alinement with the points of the switch-rail, and the same comprises a stand formed of uprights *a a*, mounted upon the sill *b* and capped by a horizontal platform *c*.

*d* designates the signal-lamp and target-holding shaft, which has a stepped bearing *d'* in the sill *b*, which passes through the platform *c* and plate *c'*, to which it is fixedly connected.

The platform *c* is supported upon the upper ends of the uprights *a*, and at one side it has a fixedly-held standard *e*, in the upper end of which is journaled a chain-pulley *f*.

*g* designates a horizontal arm fixedly mounted on the shaft *d*, on the outer end of which is mounted a chain-pulley *h*, disposed in the same horizontal plane with the pulley *f* and under normal conditions is disposed diametrically opposite the said pulley *f*, as clearly shown in Fig. 2, and the said pulley *h* is mounted in a bearing-block *h'*, rotatably supported on the outer end of the arm *g*, the reason for which will presently appear.

*i* designates a guide-pulley journaled on the lower portion of the switch-stands, and *j* in-



indicates a lever fulcrumed on the outer end of the plate  $c'$  and in the vertical plane of the pulley  $f$ , and the said lever is hung to swing outwardly to the position shown in dotted lines in Fig. 2, and it has for its purpose, first, to provide slack in the chain or cable  $k$  and, secondly, to turn the plate  $c'$ , and with it the signal or target supporting shaft, in the manner and for the purposes presently more fully described. The chain  $k$  is secured at one end to the lever  $j$ , passes up over the pulleys  $h$  and  $f$ , down under the pulley  $i$ , and from thence over suitably-arranged guide-pulleys  $l$ , disposed and adjacent the track, to the signaling or semaphore devices situated at any desired distance in advance of the switch-setting mechanism, as clearly shown in Fig. 1.

The signaling or semaphore devices may be of any approved construction, in which is included a shiftable arm or blade, preferably of the form shown in Figs. 1 to 3, from which it will be seen the extreme end of the actuating chain or coupling is connected to a short yielding member  $m$  by a turnbuckle  $n$ , and the yielding member  $m$  is connected to one end of a crank-arm  $o$ , journaled on the lower end of the signal-post  $p$ . To the other end of the crank-arm  $o$  is joined a short cable  $p^2$ , which passes over a guide-pulley  $r$  and joins with a counterweight  $s$ , which under a normal condition of the shifting and switch-setting devices—that is, when the same are at safety position—is at its elevated position and serves to take up all slack in the actuating chain or cable  $k$ , as shown.

$t$  designates the signal or semaphore blade, which is fulcrumed at  $t'$  in the upper end of the post  $p$  and provided at the inner end with the usual weight  $t^2$  and color-glass  $t^3$  and, with the blade  $t$ , connects a pitman-rod  $u$ , the lower end of which joins with the crank  $o$ , said pitman connection being of such character that when the counterweight  $s$  is at its elevated position the semaphore-blade will be swung down to the safety position, (shown in full lines in Fig. 1,) and when the actuating mechanism is shifted in the manner presently explained the pitman  $u$  will throw the blade  $t$  up to the danger position. (Shown in dotted lines in Fig. 1.)

The lower end of the switch-setting shaft  $d$  has a crank member  $d^x$ , to which the throw-bar  $d^2$ , that joins the switch-rail points, is connected in any well-known manner.

From the foregoing description, taken in connection with the accompanying drawings, the complete construction and general operation of my present invention will be readily apparent to those skilled in the art to which it appertains. When the parts are in the position shown in Fig. 1, the switch is locked to its closed position, and the several pulleys  $j$  and  $h$  are disposed as shown in Fig. 1 and the lever  $j$  is turned as shown in Fig. 1. Now when the lever  $j$  is raised to the hori-

zontal position (shown in dotted lines) slack is produced in the chain  $k$  sufficient to permit the counterpoise  $s$  to actuate the crank  $o$  enough to cause the pitman-rod  $u$  to raise the signal-blade to the danger position. This indicates that the switch-setting devices have been tampered with, it being understood, however, that though the lever  $j$  has been thus swung up the points of the switch-rails are still at their locked or closed position. Thus should the lever be elevated by any one not authorized to effect the complete setting of the signal-switch devices the chances of accident are greatly minimized, first, because the signal in advance of the switch now shows "danger." To set the switch-rails to an open position, the operator, after the lever  $j$  has been elevated, as stated, turns the said lever, together with the plate  $c'$ , to the position shown in Fig. 5, which operation causes the shaft  $d$  to be rotated a quarter-revolution to cause the crank-arm  $d^x$  to move the switch-rails to the open position and at the same time carries the pulley  $h$ , with its arm  $g$ , around for one quarter-revolution to permit a proper slack of the chain  $k$  and allow the setting of the switch without effecting the already danger-set position of the semaphore-signaling devices. The lever  $j$  is then turned down until it engages the notch  $x$  in the platform  $e$ , it being understood that the slack in the chain  $k$  is sufficient to prevent the semaphore-blade from being set to the safety position when the lever  $j$  is in engagement with the notch  $x$ . To return the switch to the closed position, the lever  $j$ , with the platform and the shaft  $d$ , is turned back a quarter-revolution, which then closes the switch, and by pulling the lever  $j$  down to the position shown in full lines in the drawings the semaphore signaling devices are again returned to a safety position by reason of the slack in the cable being taken up, when the lever  $j$  is again locked in the notch  $y$ , and the counterpoise  $s$  will serve to keep the chain or cable  $k$  drawn taut.

The platform  $h$  has a notch  $x$ , with which the lever  $j$  engages when the switch is set to an open position and is thereby held locked.

While I prefer to arrange the several parts constituting my improved switch-setting and signaling mechanism in the manner shown and described, the same may be readily varied or modified without departing from the spirit of my invention and the scope of the appended claims.

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

1. A switch danger-signal mechanism comprising in combination with a signal or semaphore including a shiftable signal member, a switch-setting mechanism including a rotary shaft, a lever for actuating said shaft, said lever having an initial movement independent of its shaft-actuating motion, a flexible con-



nection joining the lever with the signaling mechanism, and a counterpoise coöperatively joined with the said connection and the shiftable signaling mechanism, adapted, when the lever is moved to its initial position to shift the signal to a danger position, substantially as shown and described.

2. In a switch and signal setting mechanism as described; a shiftable signaling member, a crank for actuating the said signal member, a counterpoise for moving the crank in one direction, a switch-setting means including a rotary shaft connected with the switch-points, a lever for turning said shaft, said lever having an independent movement with respect to the shaft, a flexible connection joining said lever and the counterpoise and a guide for said connection movable with the shaft and its operating-lever when the said lever is turned to actuate the shaft, as set forth.

3. In a switch and signal actuating means as described; in combination with a signal mechanism including a swinging semaphore-blade, a crank and pitman for coöperating with the blade and a counterpoise for moving the crank in one direction; of a frame, a rotary switch-actuating shaft mounted thereon, a platform horizontally rotatable therewith, guide-pulleys mounted thereon, a lever pivotally connected to the platform and adapted under one position to interlock with the said platform and movable therewith in a horizontal plane, and a cable attached to the said lever engaging the guide-pulleys and connected to the signal-blade-actuating crank, as set forth.

4. In a switch and signal actuating mechanism, in combination with a distant signal in-

cluding a shiftable blade or member; of a switch-setting means comprising a rotary shaft, a switch-shifting member connected thereto, a platform mounted on the shaft and rotatable therewith, a guide-pulley mounted on the platform, an arm projected from the shaft, a guide-pulley journaled thereon, a lever pivotally connected to the platform, and a cable joined with the lever passed over the guide-pulleys and connected with the shiftable blade member of the signal devices, as set forth.

5. The combination with the switch-points, the reciprocable shifting-bar connected therewith, and the supporting-frame for the switch-actuating devices; of a rotary shaft *d*, the platform *h*, the arm *e* connected to the shaft to move therewith, the pulley *f* mounted on the arm *e* and the pulley *h* mounted on the platform, the lever *j* pivotally connected to the platform and adapted to be swung up in the horizontal plane thereof, a cable connected to the said lever, passed over the guide-pulleys another guide-pulley at the base of the frame on which the switch-setting devices are mounted, a distant swinging signal-arm, a crank means for actuating the said arm, a counterpoise connected with one end of the crank, a yielding and adjustable connection joined with the other end of the crank, said adjustable and yielding connection being joined with the operating-cable, all being arranged as shown and described.

CHARLES H. REMINGTON.

Witnesses:

CHAS. D. FROST,  
GEO. H. BENTON.