

(No Model.)

2 Sheets—Sheet 1.

A. KLAWON.
AUTOMATIC SWITCH FOR RAILWAYS.

No. 547,080. N

Patented Oct. 1, 1895.

Fig. 1.

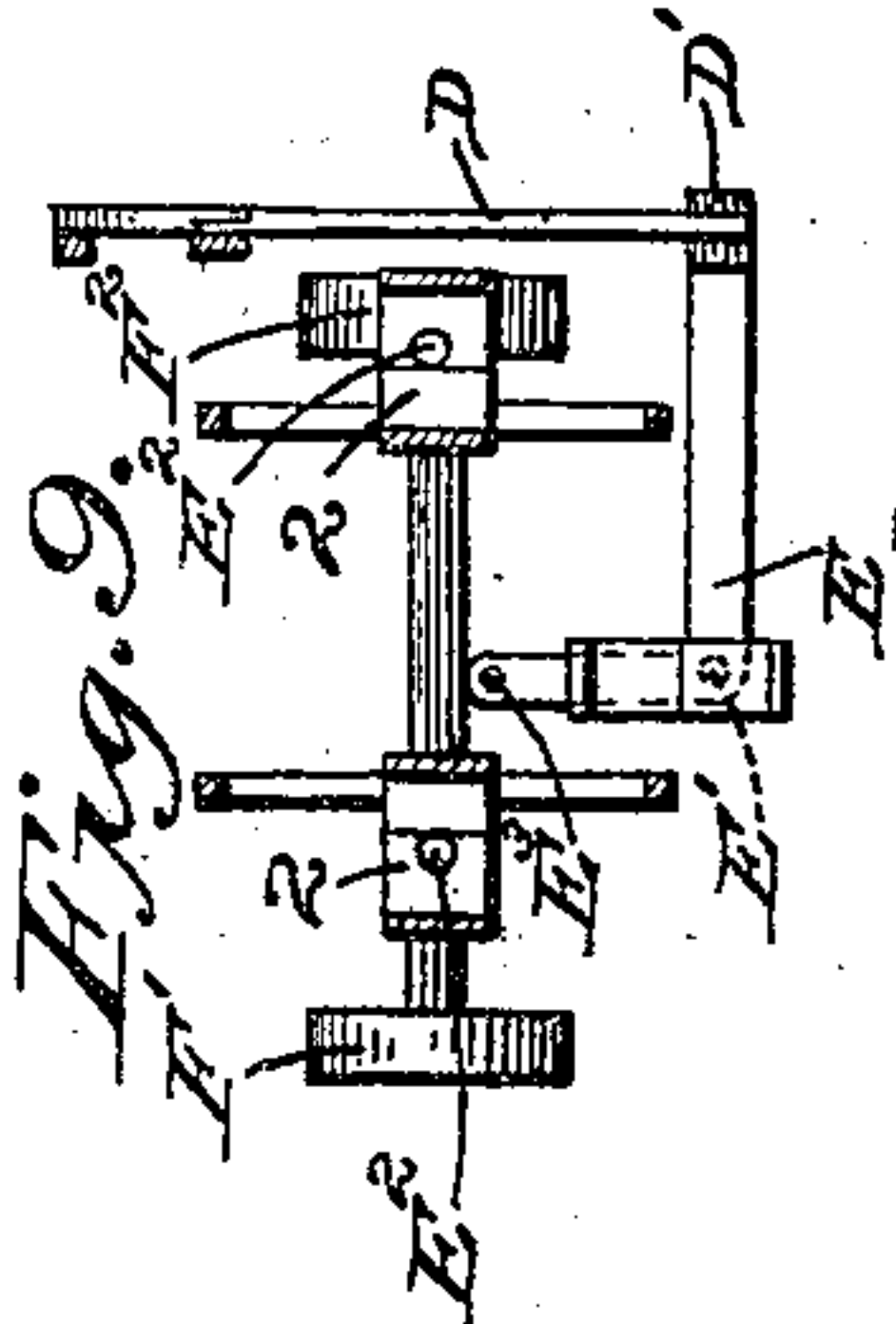
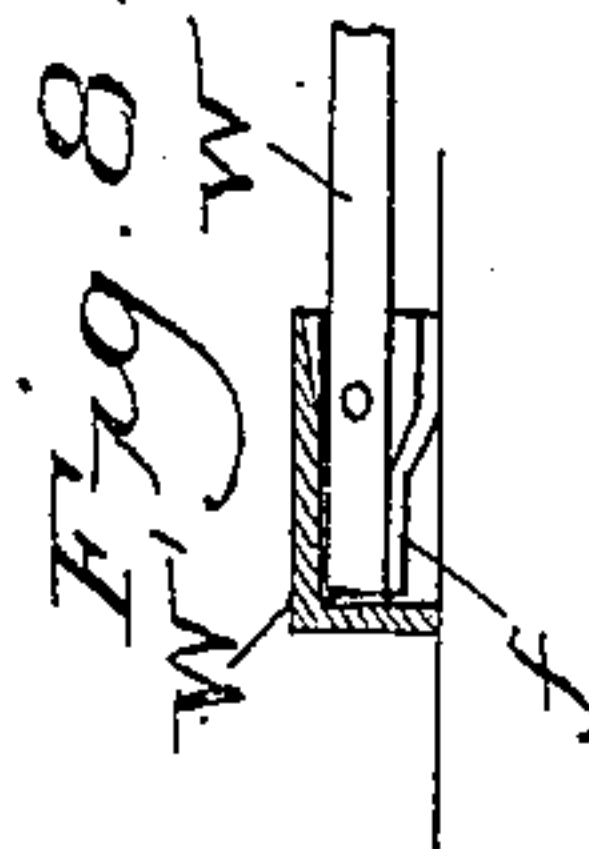
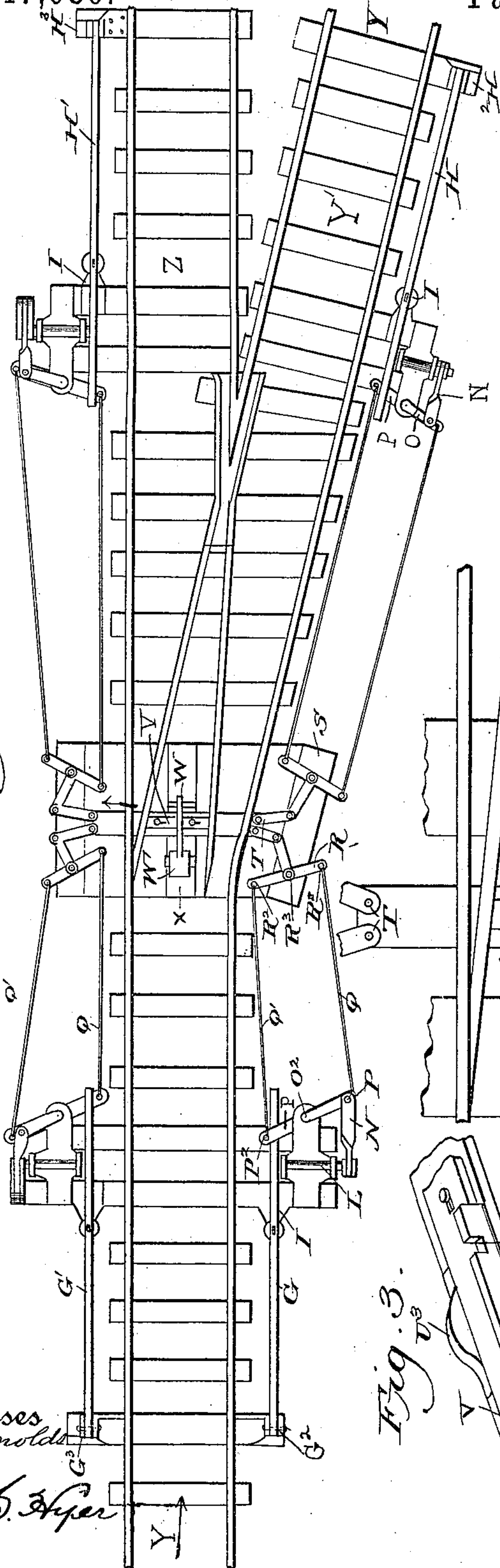


Fig. 2.

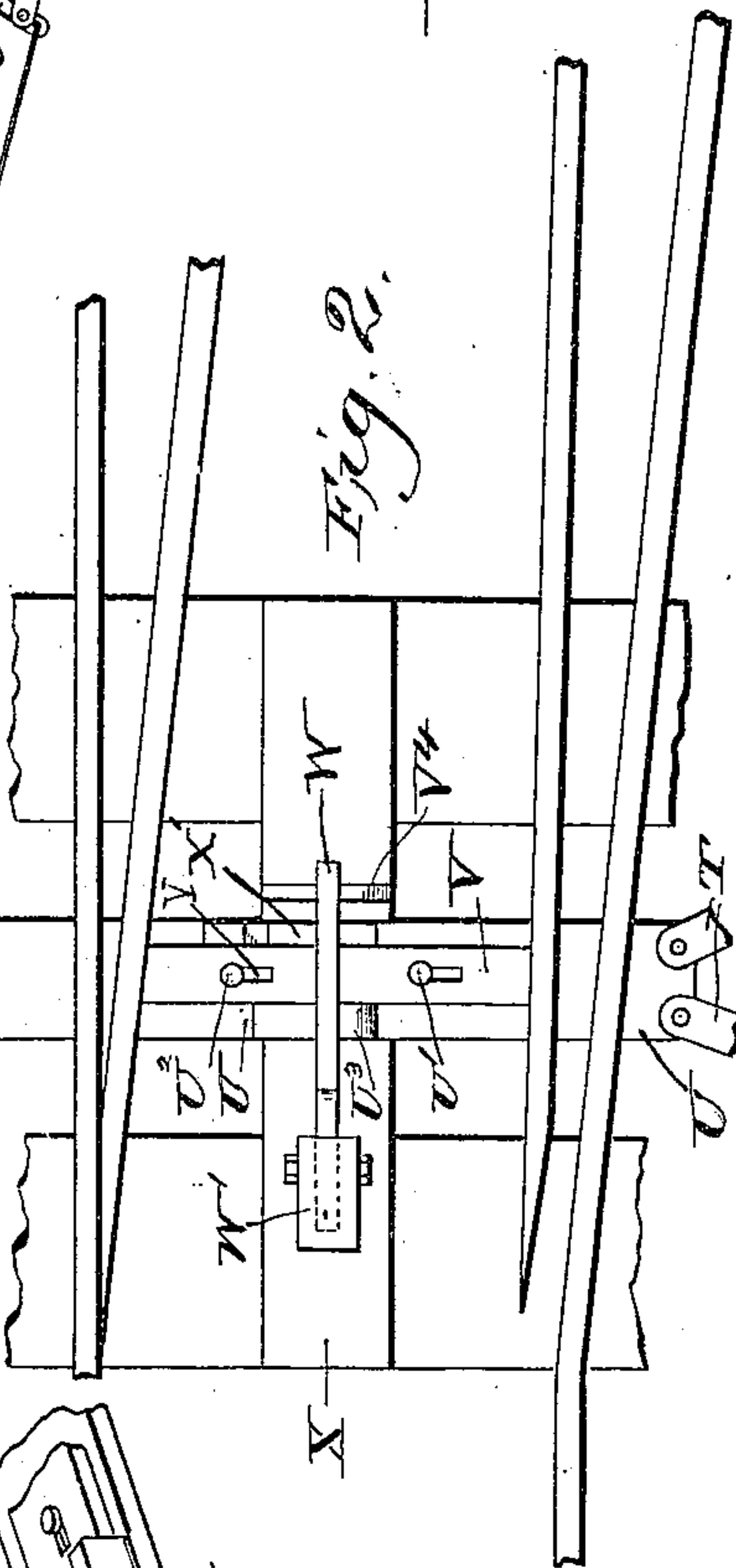
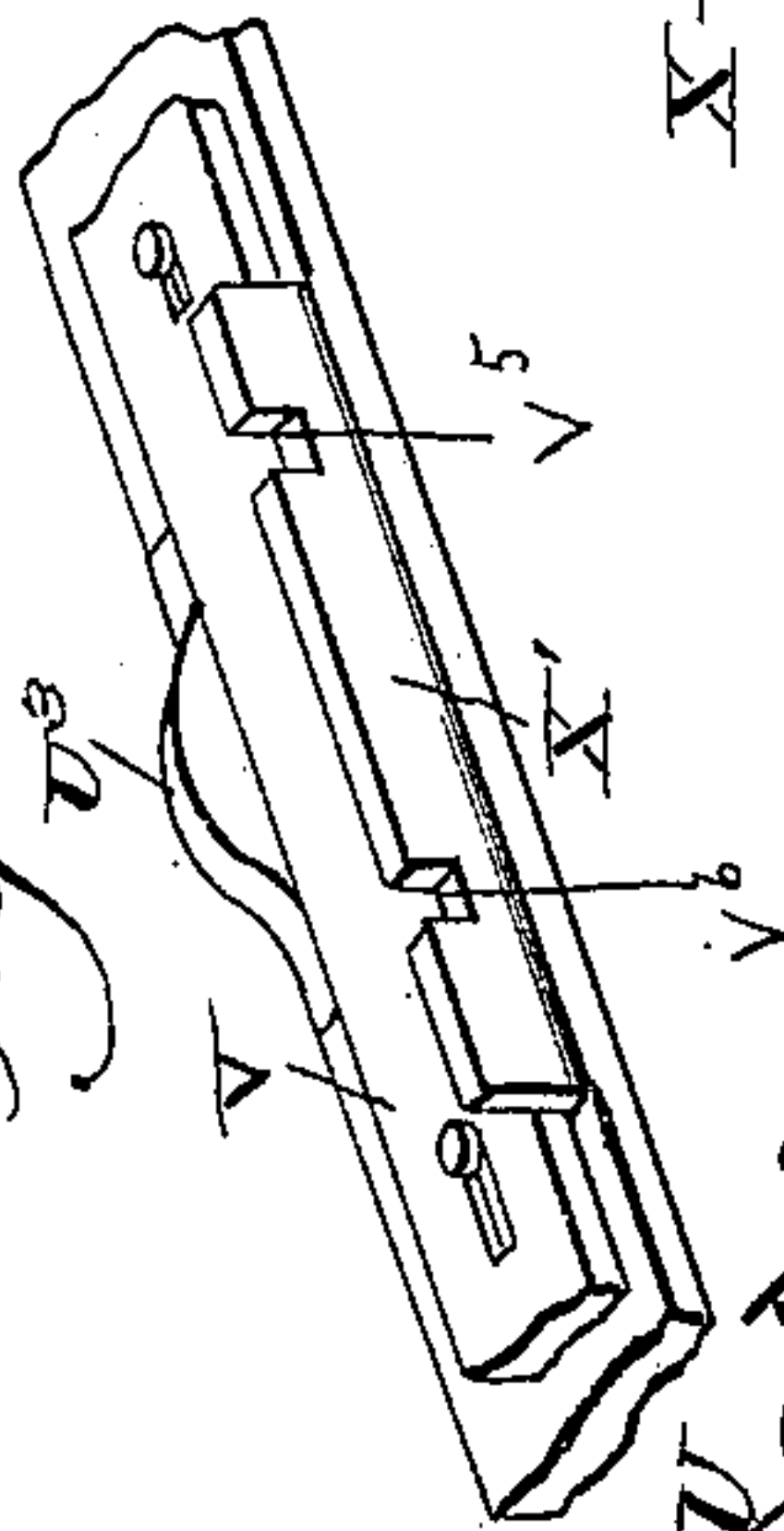


Fig. 3.



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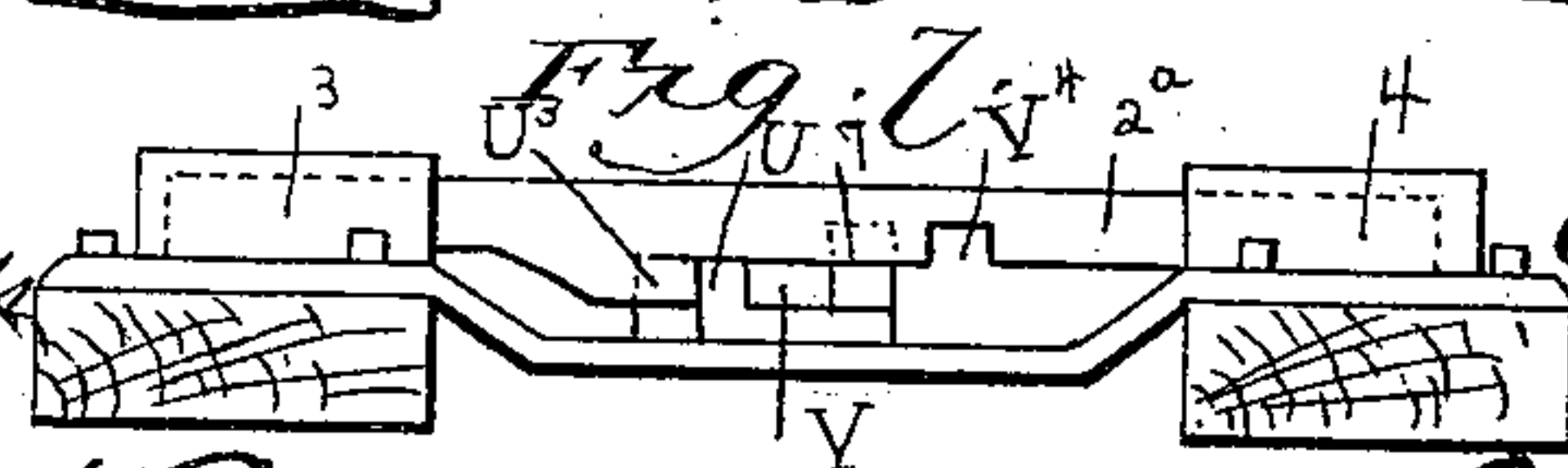
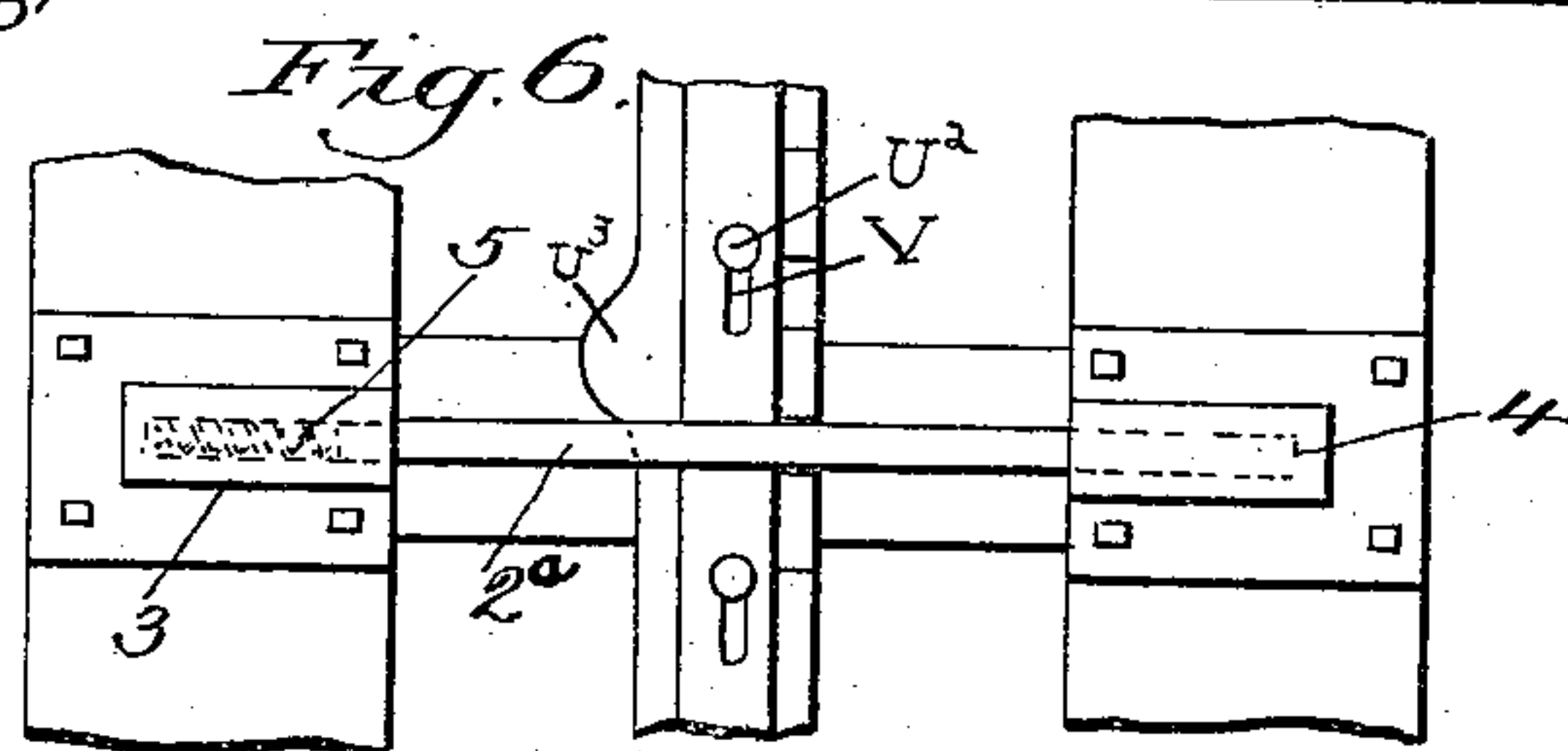
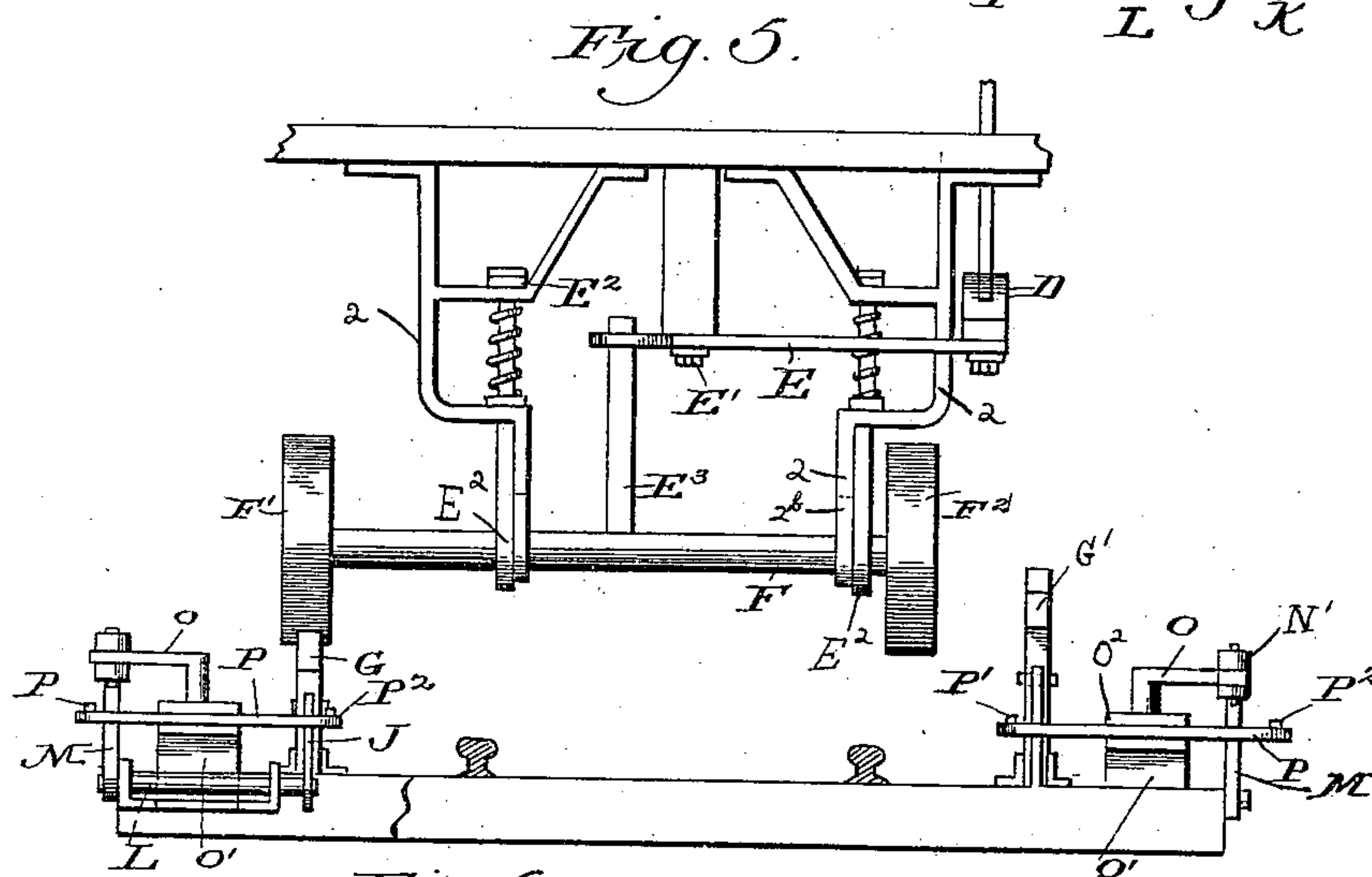
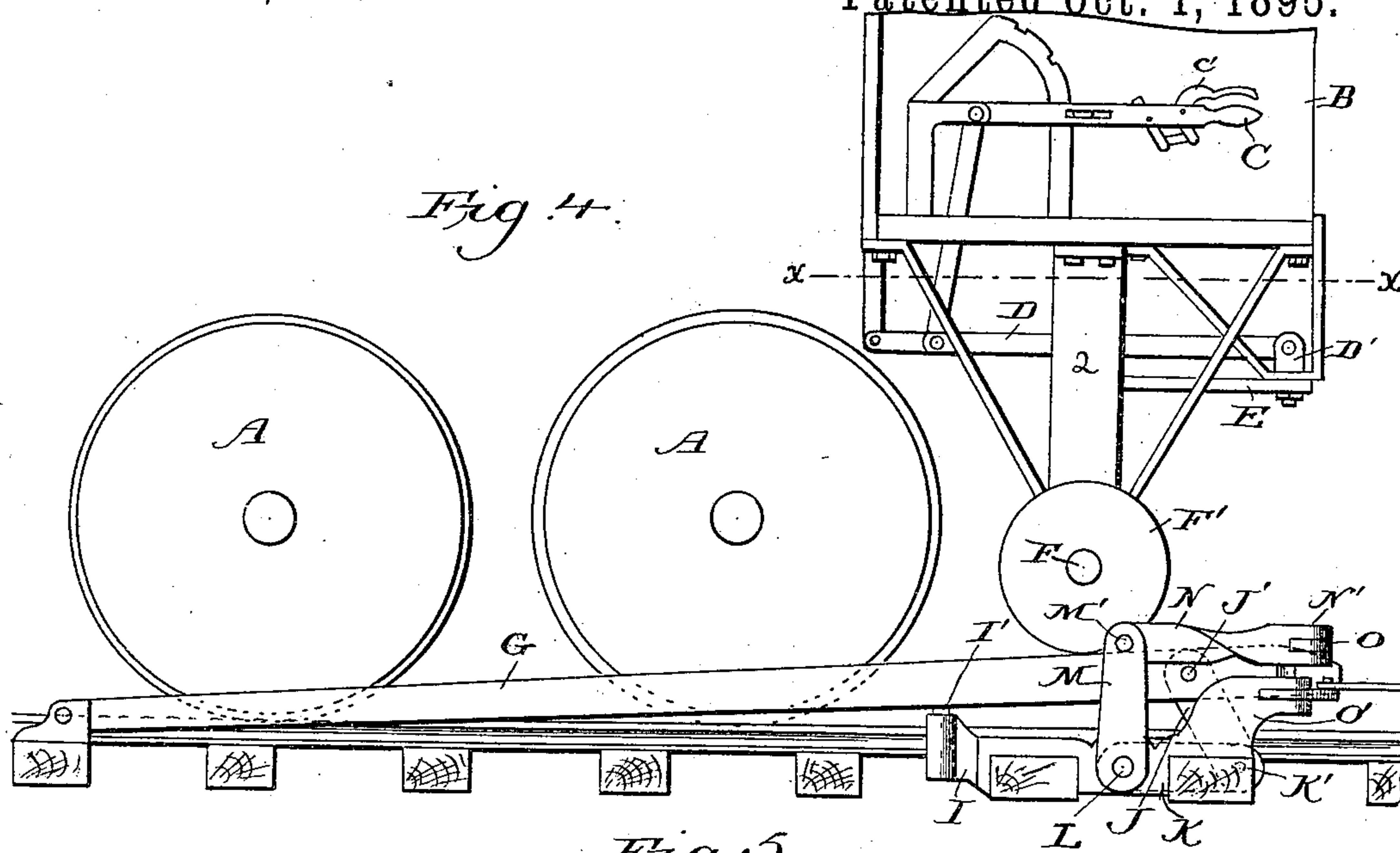
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2 Sheets—Sheet 2.


A. Klawon.
AUTOMATIC SWITCH FOR RAILWAYS.

No. 547,080.

Patented Oct. 1, 1895.



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AUTOMATIC SWITCH FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 547,080, dated October 1, 1895.

Application filed March 19, 1894. Serial No. 504,302. (No model.)

To all whom it may concern:

Be it known that I, AUGUST KLAWON, a citizen of the United States, and a resident of Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to railroad-switches and mechanism for automatically setting, locking, and releasing the same, and aims to provide simple and efficient means for releasing and setting a switch from an engine in approaching from either direction.

The invention consists of a peculiarly constructed trip mechanism mounted on a locomotive or engine, and the mechanism under the control of the engineer for shifting the same to strike an arm on either side of the track and move the switch in the required position or to an intermediate position to pass by both arms when it is not necessary to set or operate the said switch.

The invention also consists of a switch-operating mechanism mounted on a road-bed and connections between the said mechanism and movable arms at a proper distance therefrom and along the track.

The invention further consists of the novel features and peculiar construction and combination of the parts, which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a top plan view of the switch at a junction of the branch-line with the main stem. Fig. 2 is a detail view of the switch-locking mechanism on a larger scale. Fig. 3 is a detail view showing the lock operating and releasing bar. Fig. 4 is a side elevation showing the manner of operating the switch from the engineer's cab. Fig. 5 is a front view of the switch-operating mechanism and the switch-controlling devices and connections. Fig. 6 is a modification of the switch-locking mechanism and the device for releasing the same. Fig. 7 is an elevation of the means shown in Fig. 6. Fig. 8 is a detail view show-

ing the relative position of the spring for holding the locking-lever in engagement at its free end with the notched projection on the base-plate. Fig. 9 is a plan view with the floor of the car removed, showing the operating-levers for throwing in and out of gear the switch-operating device.

Similar letters refer to corresponding parts in the several views of the drawings.

A A represent the drive-wheels of any locomotive; B, a section of the engineer's cab; C, an operating-lever with the usual hand-latch, and D a rod or bar connecting the levers C and E, and having a swivel connection at D' with the forwardly-extending member of the bell-crank lever E, pivoted at E'. The horizontal shaft F is mounted in hangers 2, having elongated vertical slots 2^b therein, and has wheels F' F² at its respective ends to engage with the trip-levers and release and properly set the switch. Bearings E², in which the shaft F is journaled, are yieldingly mounted in the said hangers 2 and hold the said shaft in operative position. An arm E³ projects vertically from the shaft F and engages with the forwardly-extending arm of the lever E.

G and G', H and H' are the trip-levers that are operated by the wheels F' and F². These levers are pivoted at G², G³, H², and H³, respectively, and work in bearings spiked to the ties and are kept from sidewise motion by a pin or arm I' fastened rigidly thereto and working perpendicularly in a sleeve I fastened to a cross-tie. The lever or connecting bar J is pivoted at one end to the trip-lever G at J' and at the other end to the lever K at K', which latter in turn is rigidly fastened to the shaft or rod L. M is a link or arm at the other or outer end of the shaft or rod L and fastened rigidly thereto. The upper end of the link or arm M is pivoted to the connecting-bar N at M', said bar N in turn being pivoted to the lever O at N'. The lever O is bent at its inner end, which bent end passes down through a bearing O', which latter is rigidly fastened to the double lever P at O². At the ends of the double lever P, at P' and P², are attached one end of the wires Q and Q', which latter extend to and are fastened at the opposite end to the lever R at R². The lever R is T-shaped and is pivoted at R³ to the block

or bearing S spiked to the ties. The stem of the lever R is pivoted to the connecting-lever T, which in turn is pivoted to the sliding plate U. The plate U lies underneath the rails with the plate or bar V on the top in such a position that its ends bear against the inner surfaces of the switch-rails, so that when the bar V is moved either way the switch-rails must move with it. Fastened rigidly to the plate U are the pins or rivets U^1 U^2 , which work loosely in slots v in the bar V and are headed at the upper end to prevent the bar V from lifting up from the plate U. These rivets and slots are to allow the plate U to move a portion of its travel before operating the rails in order to unlock the switch, which is as follows: On the sliding plate U and fastened rigidly to it is a lug or cam U^3 with its ends tapering in opposite directions. This lug or double-inclined cam rests against the under side of the switch-locking lever W, pivoted at one end to the fixed base-plate or bearing X at W^1 , while at the other end it drops into a notch in the raised portion V^4 , which is rigidly fastened to or forms a part of the base-plate X. On the plate V and rigidly fastened to or forming a part thereof is a raised portion X' with notches V^5 and V^6 , located a distance apart corresponding to the amount of throw of the switch-rails and the movement of the plate U.

The complete operation is described thus: The engineer, coming from the direction indicated by the arrow Y, finds the switch closed, so that the engine would continue on the main line Z, but wishing to go on to siding Y' he forces the lever C down to its lowest position, as shown in Fig. 4, and this motion, through the connecting rod or lever D, the bell-lever E, and the rod or pin E^3 , throws or moves the shaft F and wheels F^1 and F^2 , which are fastened to and revolve upon the shaft F, over to the position shown in Fig. 5, which would bring the trip-wheel F^1 over the line of the trip-lever G, so that as the engine moves forward the trip-wheel F^1 comes in contact with the trip-lever G, while the wheel F^2 entirely clears the lever G^1 . The wheel F^1 , as it continues to move forward, depresses the lever G until it reaches its lowest position I. This depression of the trip-lever G imparts a turning movement to the rod or shaft L, through the lever-arms J and K, which is transmitted to the lever-arm N and through the connecting-lever N to the lever O and through it to the lever P. This pulls on the connecting-wire Q^1 , which being fastened to the lever R operates it and through the connecting-lever T moves the plate U along in the direction of the arrow. The bar V, being held on the plate U in the manner set forth, allows the plate U to be moved a sufficient distance before the bar V begins to move. This allows the lug or cam U^3 to raise the locking-lever W before the switch-rails are moved by the bar V.

The locking-lever is held down by a strong

spring f under its pivot. This raising of the lever W disengages it from the notch in the lug V^4 , thus forming a guide or way for it, while it also disengages it (the lever W) from the notch V^6 in the lug X' on the bar V, thus leaving the bar v free to be moved to the proper position to allow the engine to run on the siding. When the rails have been moved as described, the lever W drops into the notch v^5 , thus preventing any displacement of the switch-rails.

The above description applies to any set of trip-lever and connections, all being constructed alike.

Figs. 6 and 7 show a modification in which the sliding plate U is the same as in the other figures, except that the cam-lug U^3 is on the side, as shown, instead of on top. The bar V is the same. The locking-bar 2^a , instead of being pivoted, slides in the bearings 3 and 4, the locking lever or bar being forced to its extreme position by the coil-spring 5, which is in the bearing 3 and presses against the end of the locking-bar 2. On the under side of the locking-bar 2^a is a recess 7, which, when in the proper position, will allow the raised portion v^4 to slide through.

It will be understood that in setting up the invention for practical operation that the various levers will be suitably housed to protect them from the weather and lodgment of foreign matter in the working parts. The connecting rods or cables Q Q^1 will be inclosed in suitably-disposed tubes or casings to prevent tampering therewith and the banking of the earth thereon, which would prevent the free operation of the system.

Having thus described the invention, what is claimed as new is—

1. In a switch, the combination of a switch and actuating mechanism therefor, a cross bar having a cam, a switch bar having a limited movement on the cross bar, and provided with a vertical extension having notches, and a switch locking bar operated by the said cam to release the switch, substantially as set forth.

2. In devices for operating track switches, the combination with a locomotive, of a transverse bar flexibly supported in brackets on said locomotive having wheels at its outer ends adapted to engage the pivoted arms of a track switch, a vertical arm attached to said transverse bar engaged by one arm of an angle lever fulcrumed in the locomotive, the other arm of said angle lever being pivoted to the end of a lever D connected to the operating lever of the device, whereby upon the depression or elevation of said operating lever the said transverse lever is thrown from one side to the other, substantially as and for the purpose described.

3. In a device for operating track switches, the combination with a locomotive, of a transverse bar mounted therein, having wheels at its outer end adapted to engage the pivoted

arms of a track switch, brackets supporting
the said bar having elongated vertical slots,
arms supported in said brackets to form bear-
ings for the said bar, springs mounted on
5 said arms to actuate the same to hold the said
bar at the limit of its downward movement,
and means for moving the said bar laterally,
substantially as and for the purpose described.

In testimony whereof I have signed this
specification in the presence of two subscrib- 10
ing witnesses.

AUGUST KLAWON.

Witnesses:

RUD WORTH,
FRANZ GRENZ.