

No. 721,688.

PATENTED MAR. 3, 1903.

J. H. FITCH.  
SWITCH ACTUATING MECHANISM.

APPLICATION FILED APR. 28, 1902.

NO MODEL.

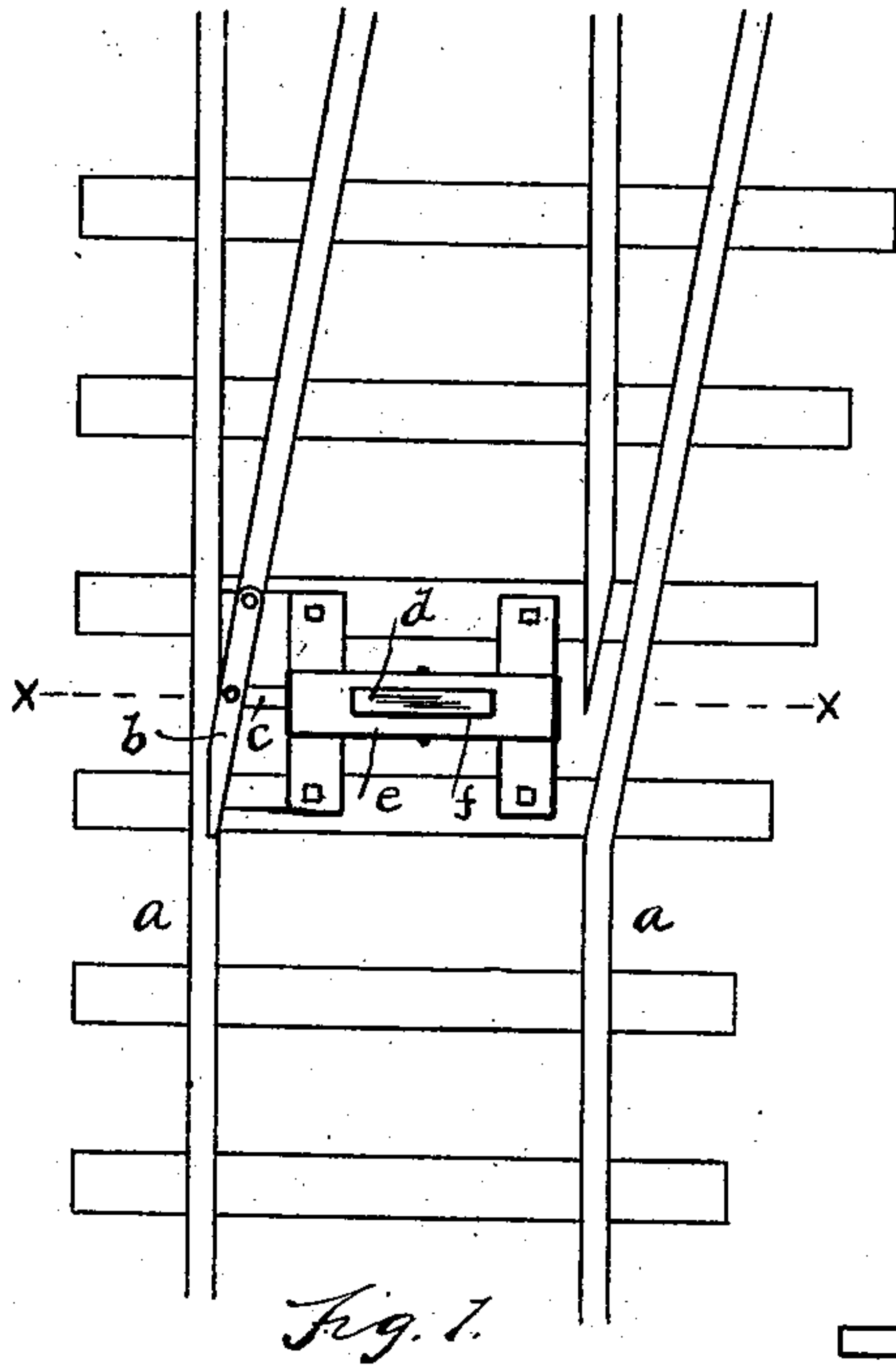


Fig. 1.

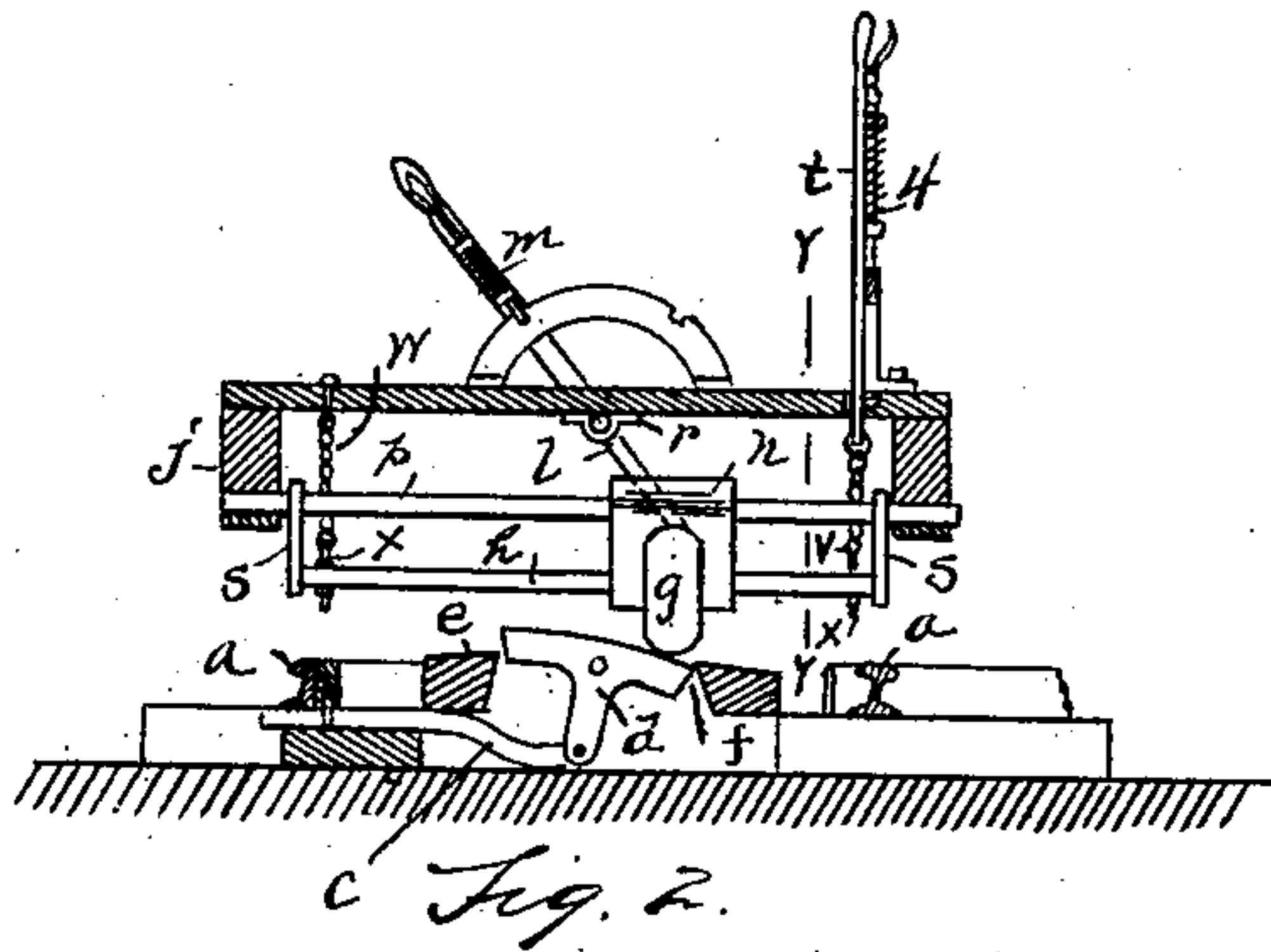


Fig. 2.

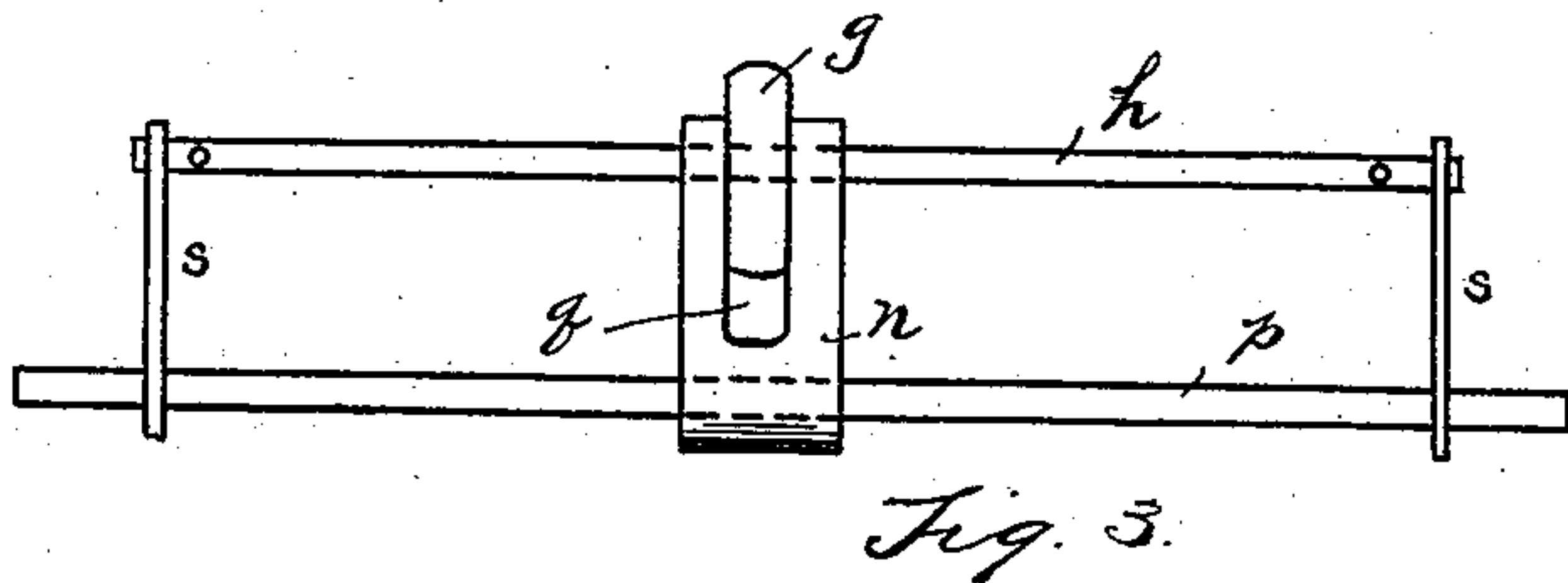


Fig. 3.

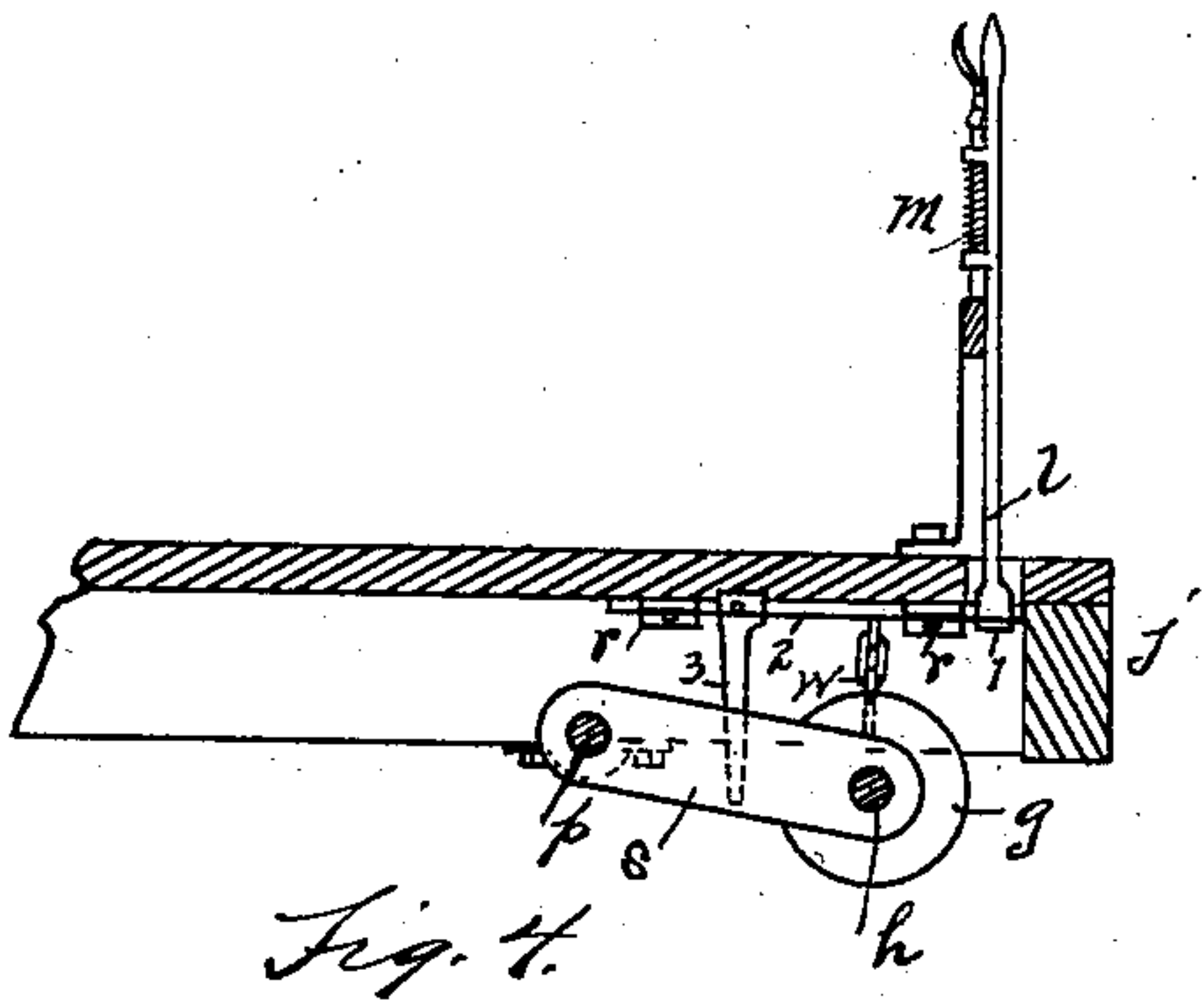


Fig. 4.

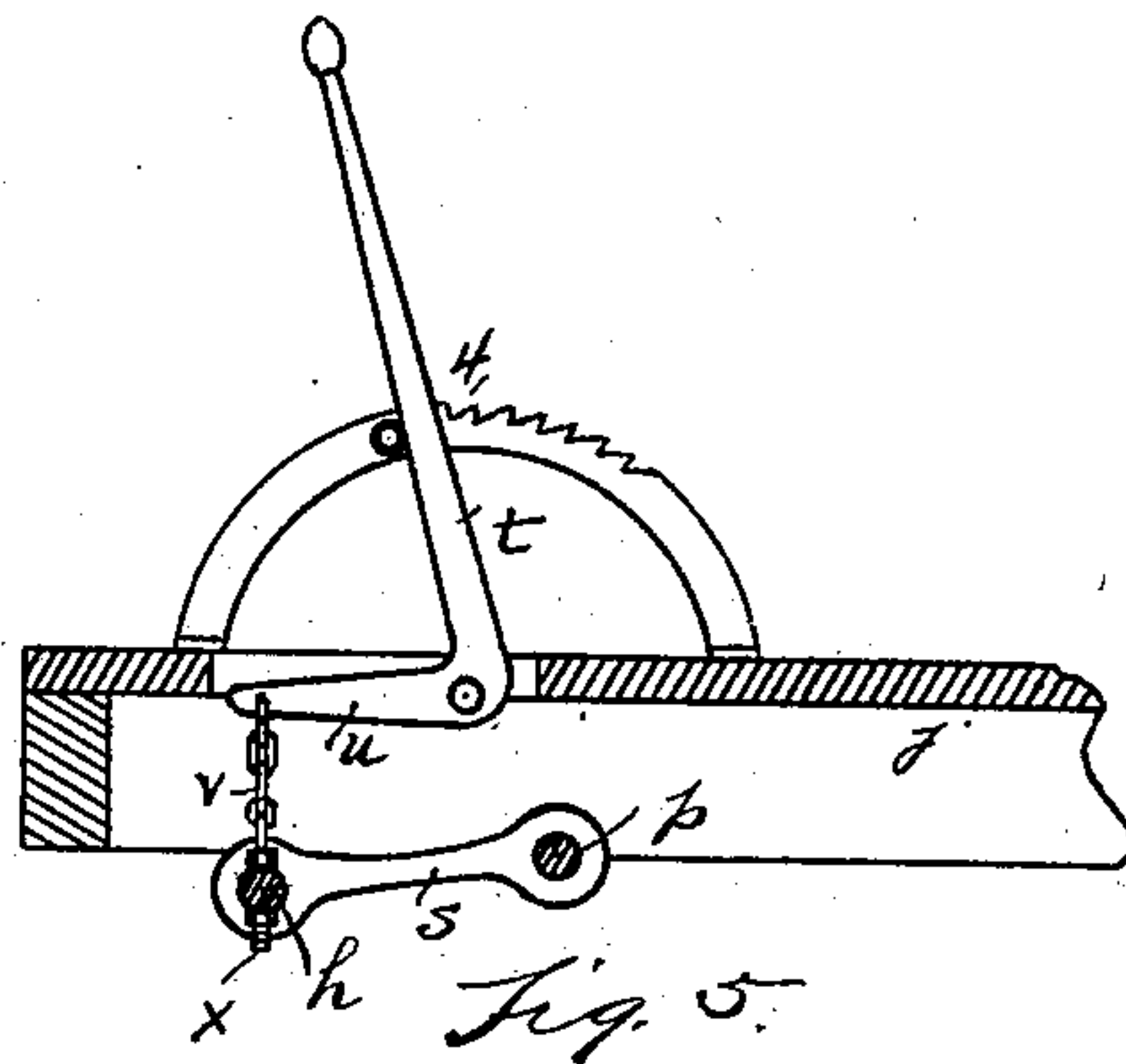


Fig. 5.

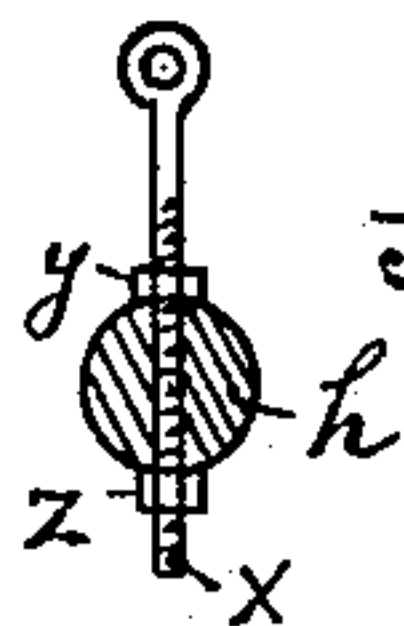


Fig. 6.

WITNESSES

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# UNITED STATES PATENT OFFICE.

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## SWITCH-ACTUATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 721,688, dated March 3, 1903.

Application filed April 28, 1902. Serial No. 104,943. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. FITCH, a citizen of the United States, residing at Ludington, county of Mason, State of Michigan, have invented a certain new and useful Improvement in Switch-Actuating Mechanism, of which the following is a specification, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object a novel railway-switch-actuating mechanism of superior efficiency, simplicity, and utility; and it consists of the construction, combination, and arrangement of devices hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan view. Fig. 2 is a view in vertical section on the line  $x x$ , Fig. 1. Fig. 3 is a detail view in plan, showing the actuating roller or disk and related parts. Fig. 4 is a view in section on the line  $y y$ , Fig. 2, looking toward the left. Fig. 5 is a view in section on the line  $y y$ , Fig. 2, looking toward the right. Fig. 6 is a detail view of the bolt  $x$ .

More particularly, my invention aims to provide a switch-actuating mechanism for street-railway tracks, although I do not limit myself solely thereto, whereby the switch may be actuated by mechanism on the car easily and readily operated by the motorman.

The mechanism whereby I accomplish my object is durable and not liable to get out of order.

I carry out my invention as follows:

In the drawings,  $a$  represents the railway-tracks, and  $b$  the switch-point. With the switch-point is connected a rod  $c$ , leading to an actuating-lever  $d$  of any suitable construction, preferably fulcrumed in a suitable housing or inclosing case  $e$ . The lever  $d$  is preferably a T-shaped lever fulcrumed through the head in the housing, the housing being constructed with a slot  $f$  to receive said head. The center of the head of the lever preferably extends slightly above the housing. The top of the housing is preferably located flush with the paving between the rails. It will be obvious that either end of the head of the lever may be depressed to actuate the connecting-rod  $c$  to operate the switch, opposite ends of the head of the lever being depressed to actuate the switch-point in opposite directions.

One end of the head of the lever  $d$  will always project slightly above the upper surface of the housing, which is the only portion of the mechanism projecting thereabove.

It will be evident that to operate the switch in opposite directions it will be necessary to provide suitable means for depressing first one end and then the other end of the head of the lever, said head having a rocking movement to actuate the connecting-rod and the switch-point from a moving car. The car, as shown, is preferably provided with an actuating roller or disk  $g$ , said roller being arranged to be shifted laterally or transversely of the car, so as to ride over either end of the actuating-lever, as may be desired. The roller or disk  $g$  is shown located upon a shaft  $h$ . To shift the roller or disk laterally, a lever  $l$  is provided, fulcrumed to the car and extending upward through the floor of the car into a convenient position to be operated by the motorman. The lower end of said lever is arranged to shift the roller or disk laterally in any suitable manner. A pawl or ratchet mechanism  $m$  is also provided, whereby the lever  $l$  may be held in a given position.

As shown in the drawings, to shift the roller or disk  $g$  upon its shaft  $h$  a fork  $n$  is employed, extending astride the roller or disk, said fork having a lateral movement upon a rod  $p$ , supported in the framework of the car  $j$ . The lower end of the lever  $l$  engages in the opening  $q$  between the two arms of the fork  $n$  to shift said fork, together with the roller or disk  $g$ , in either direction. The lever  $l$  might be made all in a single piece, if desired; but I prefer to construct it in three parts, (indicated in Fig. 4 at 2 and 3,) the intermediate rocking portions 2 being journaled in bearings  $r r$ . With one extremity of the portion 2 is engaged the portion 1 of the lever, while with the opposite extremity of the portion 2 is connected the portion 3 of the lever, the portion 3 extending into the slot  $q$ . As so constructed the intermediate rocking portion 2 may be made of different lengths, if desired, so as to set the portion 1 of the lever  $l$  wherever it might be desired in the car. The shaft  $h$  has its extremities rigidly engaged in swinging arms  $s$ , said arms having a swinging engagement upon the rod  $p$ . In case it is desired to lift the roller or disk  $g$ ,



so as to avoid obstructions, a lever *t* is provided, fulcrumed to the car, having an arm *u*, said arm being connected with the shaft *h* in any suitable manner, as by a chain *v*, toward one end of the shaft *h*, the opposite end of the said shaft being connected by a chain *w* to the car.

In order to adjust the length of the chains *v* and *w*, each of them may be connected with a threaded bolt *x*, passed through the rod *h*, nuts *y* and *z* being provided to effect any desired adjustment of the engagement of the bolt *x* with the rod *h*. The roller *g* is normally suspended above the pavement in position to engage the elevated end of the lever *d*. Should it be desired to lift the roller higher, pawl-and-ratchet mechanism 4 may be provided to hold lever *t* in given position. The lever *d* may be of any desired form having a laterally-extended head.

It will be seen that the lever has a single head occupying the opening in the housing and that the movable means attached to the car contacts with and traverses said head transversely of the track to alternately oscillate said lever.

What I claim as my invention is—

1. In a switch-actuating mechanism the combination with the switch-point of an actuating-lever having a laterally-elongated head fulcrumed intermediate its extremities to oscillate transversely of the track, a rod connecting said lever with the switch-point, a housing for said lever provided with a laterally-elongated opening in which the head of the lever is located and above which the extremities of the head of the lever alternately project, and a laterally-movable device carried by a moving car to contact with either end of the head to alternately oscillate said lever transversely of the track in opposite directions.

2. In a switch-actuating mechanism the combination with the switch-point of an actuating-lever having a depending stem and a laterally-elongated head fulcrumed intermediate its extremities to oscillate transversely of the track, a rod connecting said stem with the switch-point, a housing for said lever having a laterally-elongated opening in which the head of the lever is located and through which the opposite extremities of the head of the lever alternately project, and laterally-mov-

able means carried by a car to contact with either extremity of said head to alternately actuate said lever transversely of the track in opposite directions.

3. The combination with a switch-point of an upright actuating-lever, a housing for said lever provided with a laterally-elongated opening therein through which the extremities of the head of the lever alternately project and to which the lever is fulcrumed intermediate the extremities of the head, a rod connecting the lever with the switch-point, a laterally-movable roller carried by a moving car to contact with either extremity of said head to actuate said lever transversely of the track in opposite directions, and means to elevate said roller.

4. The combination with a switch-point of an upright actuating-lever provided with a laterally-elongated head fulcrumed intermediate its extremities to oscillate laterally, transversely of the track, a rod connecting the lever with the switch-point, a housing for said lever provided with a laterally-elongated opening through which the opposite extremities of the head of the lever alternately project, a laterally-movable roller carried by a moving car to contact with either end of said head to actuate said lever transversely of the track in opposite directions, and an operating-lever carried by a moving car to shift said roller laterally to opposite extremities of said head.

5. The combination with a switch-point of an actuating-lever arranged to oscillate transversely of the track and fulcrumed intermediate the extremities of the head, a rod connecting the lever with the switch-point, a laterally-movable roller carried by a moving car to actuate said lever, a transverse rod carrying said roller, a laterally-movable fork astride the roller to actuate the roller, a rod carrying said fork, a lever on the moving car to actuate said fork, and swinging arms connecting said rods and means to elevate said roller.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN H. FITCH.

Witnesses:

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J. M. POLAND.