

No. 701,790.

Patented June 3, 1902.

F. A. CARROLL.  
SWITCH OPERATING MECHANISM.

(Application filed Aug. 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

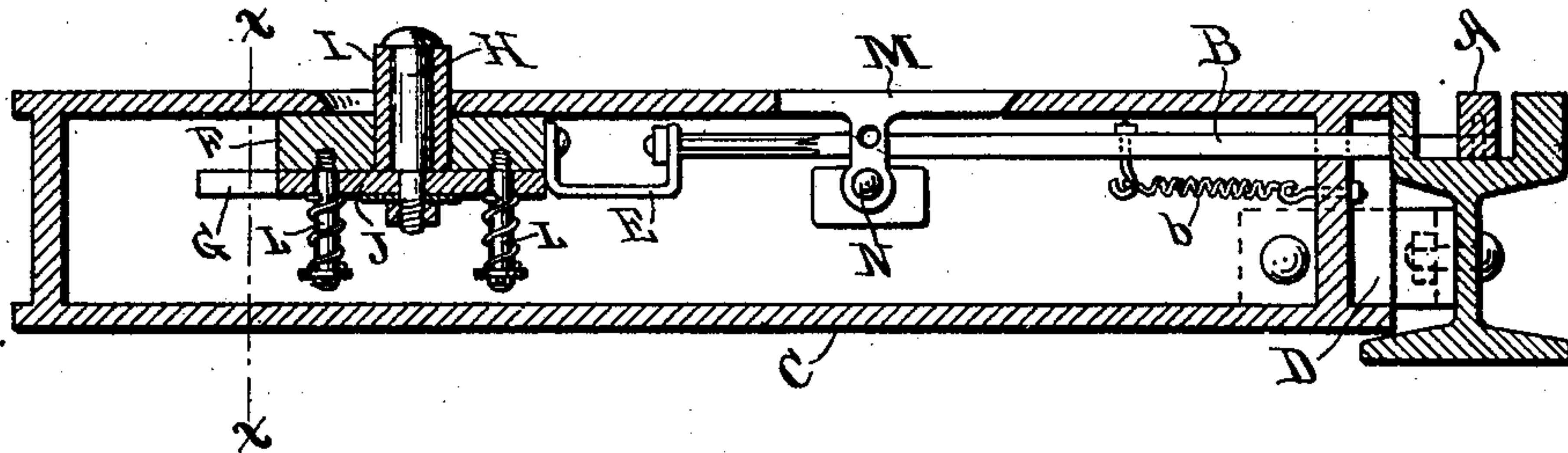


Fig. 2.

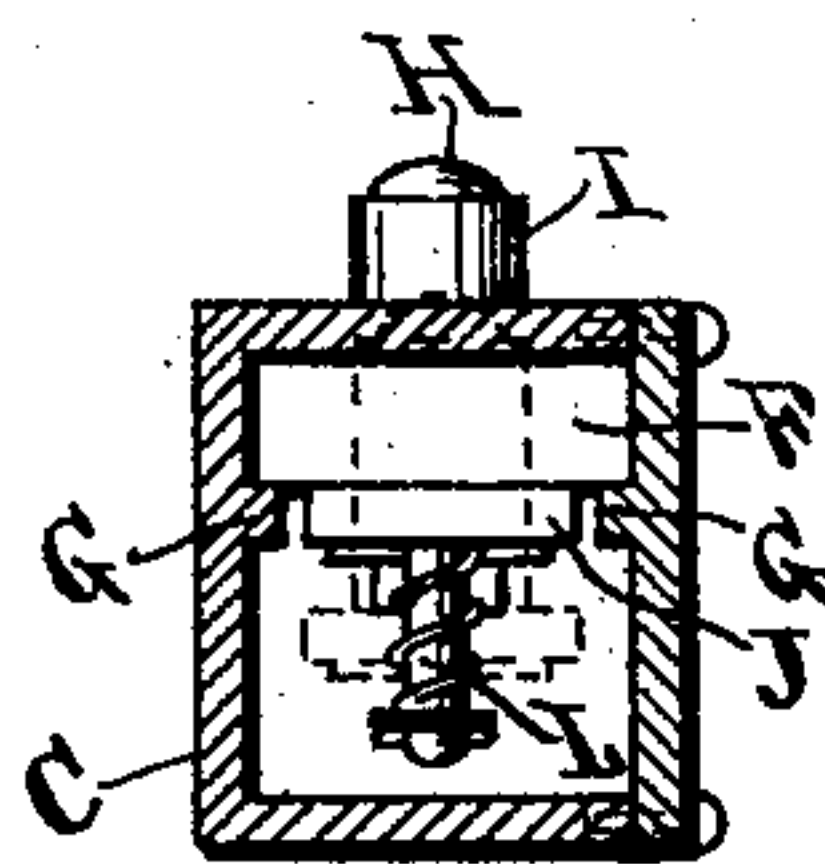
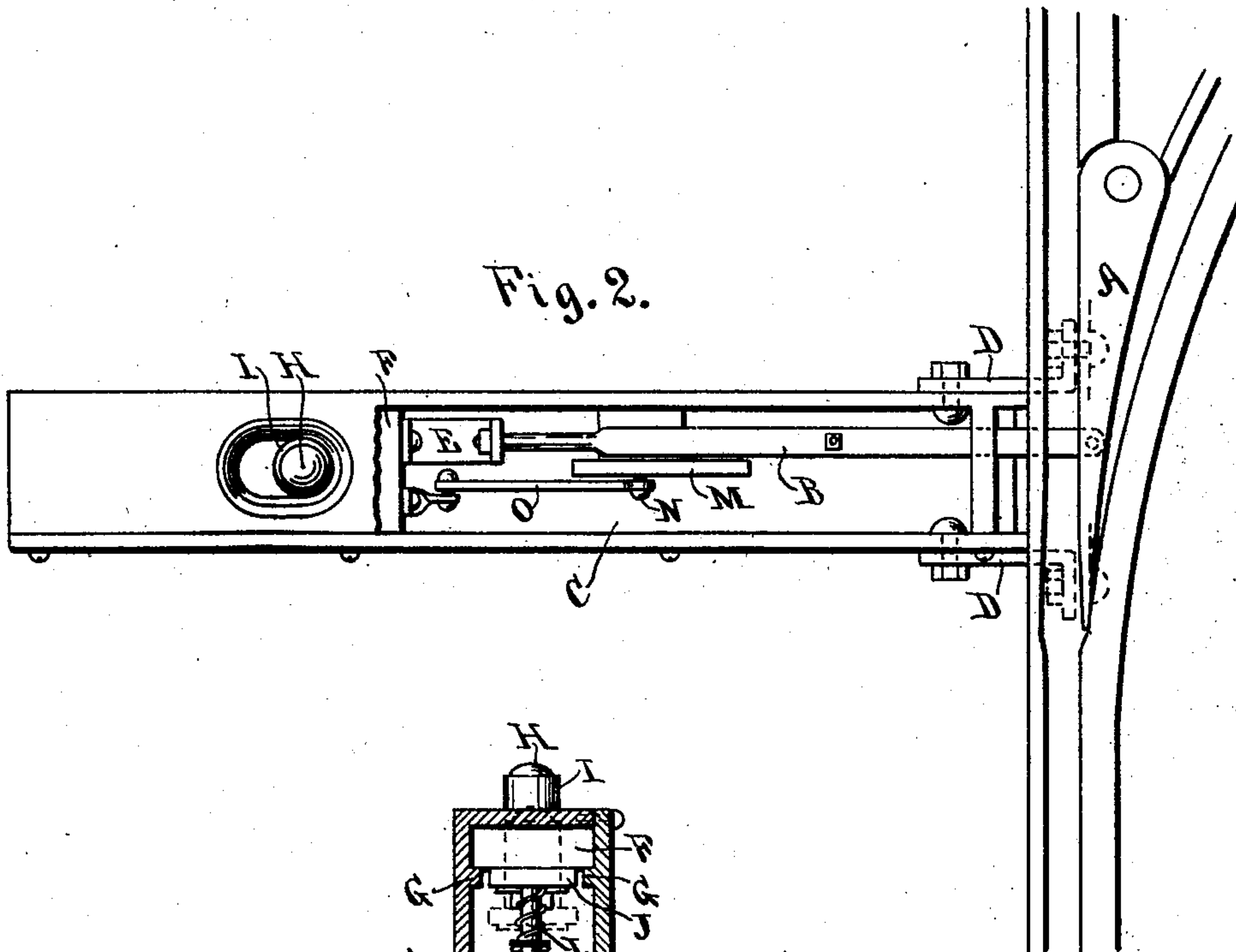


Fig. 3.

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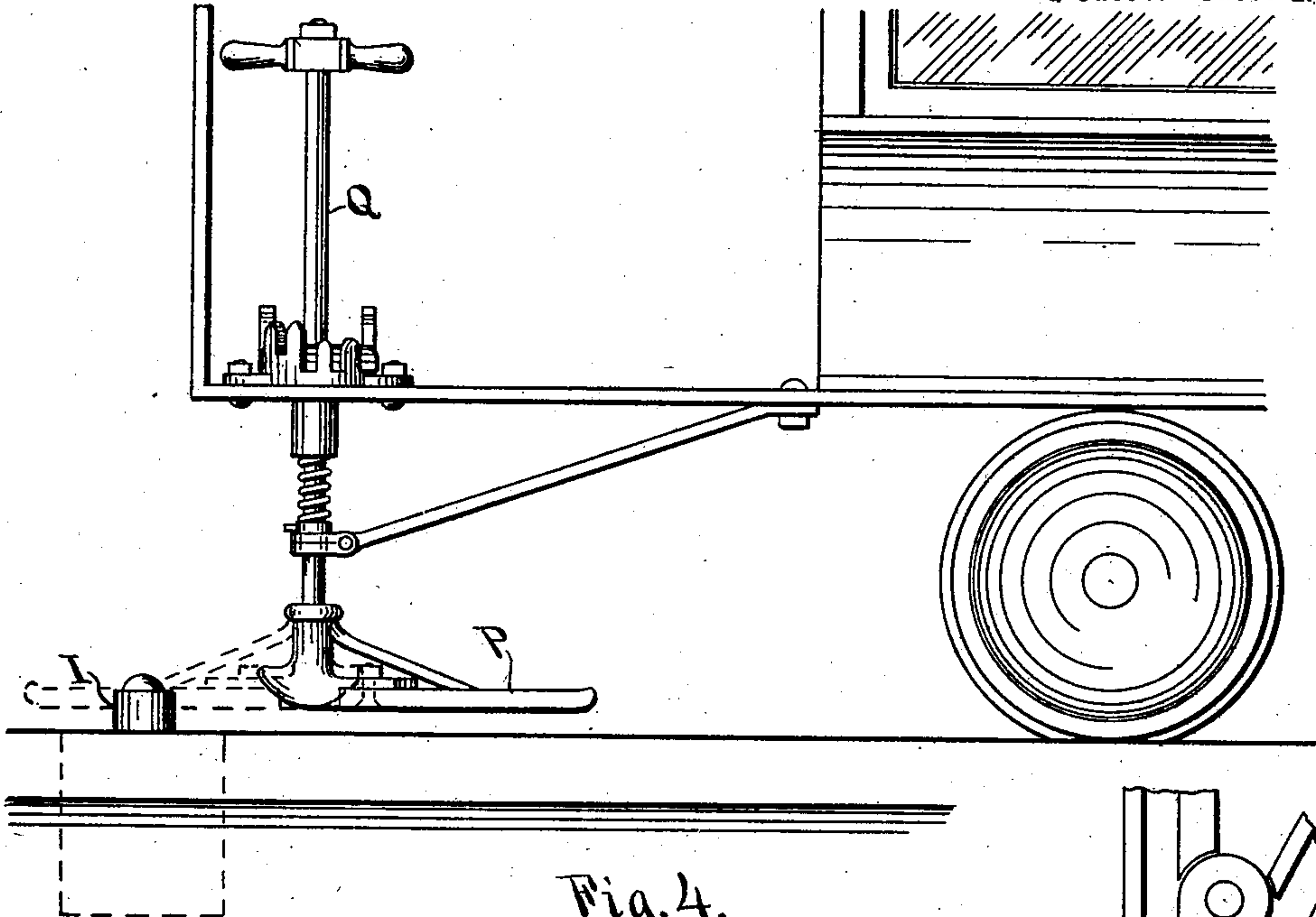


Fig. 4.

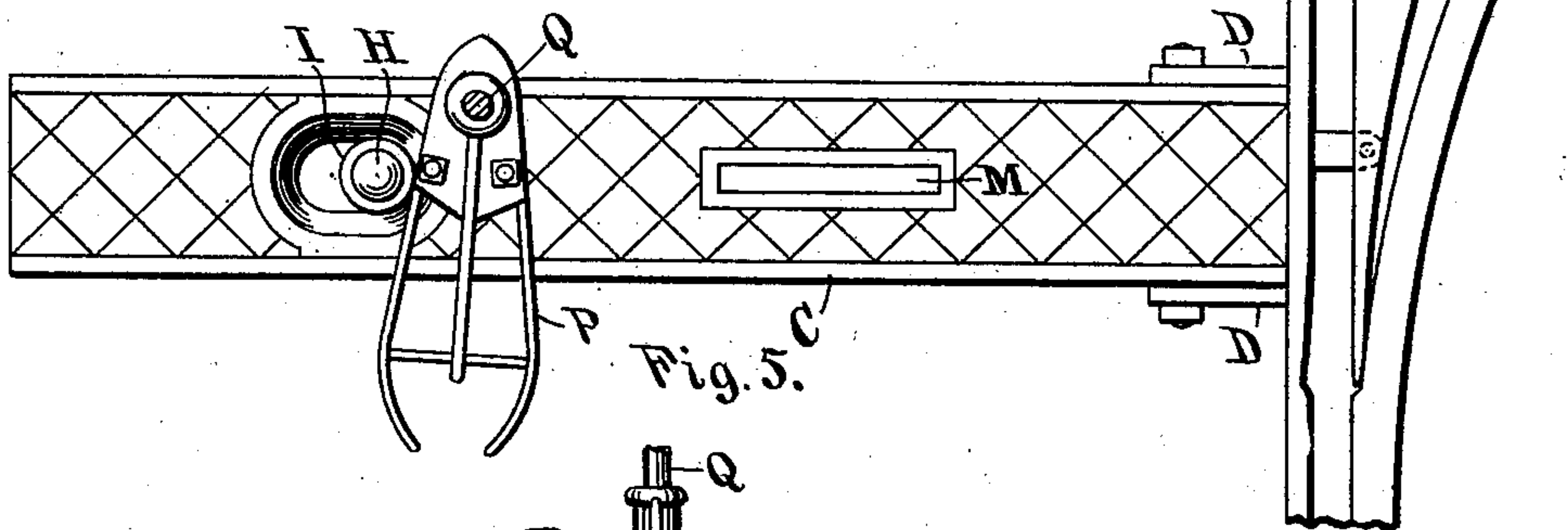


Fig. 5.

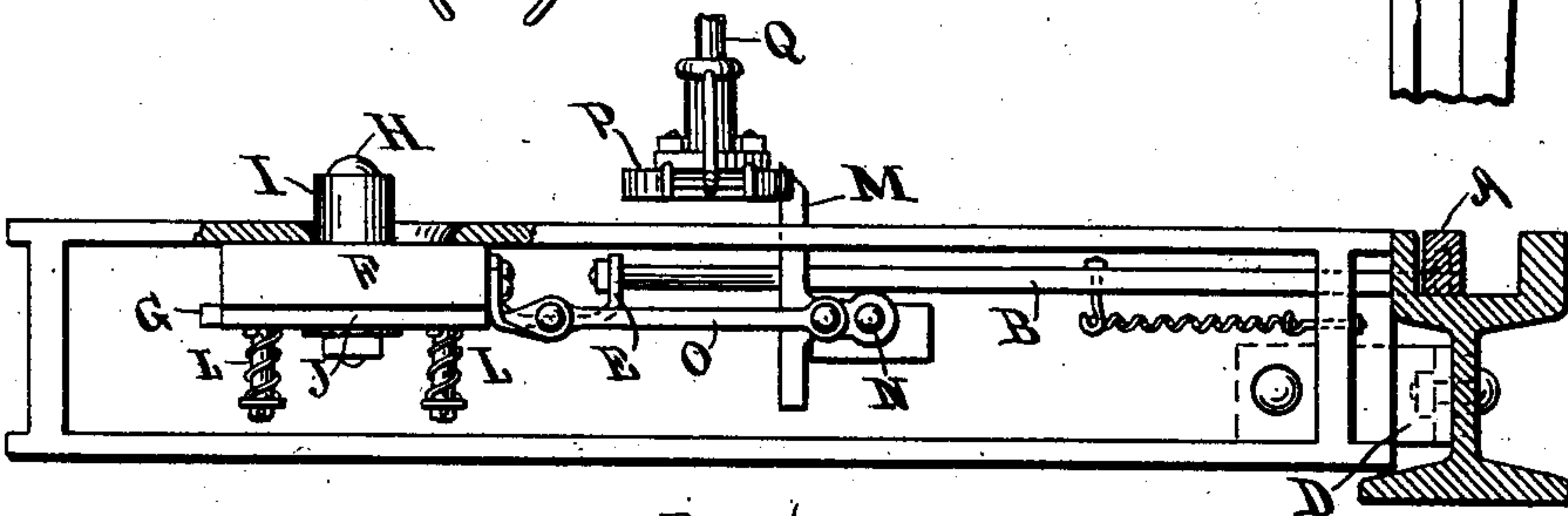


Fig. 6.

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# UNITED STATES PATENT OFFICE.

FRED ALLEN CARROLL, OF PENN YAN, NEW YORK.

## SWITCH-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 701,790, dated June 3, 1902.

Application filed August 23, 1901. Serial No. 73,024. (No model.)

*To all whom it may concern:*

Be it known that I, FRED ALLEN CARROLL, a citizen of the United States, residing at Penn Yan, in the county of Yates and State of New York, have invented a new and useful Improvement in Switch-Operating Mechanisms, of which the following is a specification.

My invention relates to improvements in the operating mechanism of railway-switches. It is intended to provide an improved device by which a switch, preferably spring-operated, may be successively thrown, locked, released, and permitted to return to its normal position by the car or train crew without leaving their stations and in which the obstruction to ordinary traffic is reduced to a minimum.

In the accompanying drawings, Figure 1 is a longitudinal section of the stationary portion of my switch-operating mechanism, the rail and switch-point being shown in transverse section. Fig. 2 is a top plan view, a portion of the cover being removed. Fig. 3 is a cross-section through the line X X in Fig. 1. Fig. 4 shows in elevation a portion of a car provided with the controlling portion of my device. Fig. 5 is a top plan view of my device, showing the controlling-shoe in position to throw the switch; and Fig. 6 is a longitudinal section showing the switch opened. Similar letters refer to like parts in the several views.

In street-railway service it is customary in constructing switches from and to the main line to use but one switch point or tongue and to provide that with a spring attachment whereby the main line is kept normally open. In the drawings, A represents such a switch-point, the ordinary spring by which it is retained in its normal position—*i. e.*, with main line open—not being shown. By this arrangement the switch-point is always held closed, so that the cars may pass up and down the main line, and cars passing into the main line from the switch or side lines will of themselves throw the switch open, the switch-point closing of itself by reason of its spring when the cars have passed. When, however, it is desired to run a car from the main line onto the switch or side line, the switch must be thrown open and held open until the wheels of the car have passed by the switch-point. To accomplish

this, the cars in using my improved switch-operating mechanism will be provided with a shoe P, attached to the lower end of an operating-rod Q, passed up through the platform at both the front and rear ends of the car, these shoes and operating-rods being capable of turning on their axes, as shown in Figs. 4, 5, and 6. When it is desired to run a car into the switch or side track, the shoe at the forward platform is set by the motor-man in position to ride against the roller I on the tappet-pin H, which projects through the slot in the top of the box C. This throws the bar B, which connects the slide F with the switch-point A, to the left, thereby shifting the switch-point, which is then locked in its shifted position by reason of the operation of the angle-lever M, pivoted at N and connected to the slide F by the connecting-link O, this locking-lever and its operation being clearly shown in Fig. 6 of the drawings. As the rear platform passes over the box the shoe at that end manipulated by the conductor will strike the projecting arm of the angle-lever M, throwing it to the right and unlocking the slide F, so that the spring attached to the switch-point will throw said point to the right, thereby throwing the main line open for the passage of cars, as before. Where the switch-point is not provided with a spring, a spring may be arranged within the box C, as indicated at b, which shows a spring running from the end of the box to a hook depending from the shifting bar B. If the bar B were rigidly connected to the slide F, a car running in from the side line or switch and throwing the switch open to the main line would cause said switch-point to be locked in such position by reason of the operation of the angle-lever M. In order to avoid this, I provide a yielding connection between the bar B and the slide F, which, as shown, consists of a U-shaped plate E, fastened at the end of the slide F and provided with a hole through which the rounded end of the bar B passes, the end of said bar being provided with an adjusting-nut, so that the length of the bar may be properly adjusted to regulate the distance between the tappet-pin H and the switch-point A. By this arrangement when the switch-point A is thrown open by a car coming in from the side track or switch the



end of the bar B will simply slide through the hole in the plate E without affecting the slide F or bringing the locking-lever M into play. It is clear that any other well-known form of yielding connection may be used between the slide F and the switch A.

In this my improved construction of switch-operating mechanisms the slide F is held against the top of the box by the guiding-cleats G G, cast or otherwise attached to the sides of the box. Projecting downward from each end of the slide F are the studs L L, upon which slides the bar J, suitable springs being provided to retain the bar in its elevated position. To this bar the tappet-pin H is fastened, the roller I passing through a corresponding hole in the slide F. It will thus be seen that when the head of the pin is struck by an animal or vehicle in passing over it will be depressed, as indicated in broken lines, Fig. 3, returning to place as soon as the weight is removed from it. By this arrangement I provide against breakage of the pin or injury to animals or vehicles when coming in contact with the projecting tappet.

D D indicate angle-bars by which the box C is attached to the web of the rail, similar angle-bars at the other end being connected with the rail at that side of the track.

My present invention is intended to be an improvement upon that shown in the United States Letters Patent No. 680,020, granted on my application August 6, 1901. I do not, of course, claim herein anything shown or claimed in that patent.

What I claim is—

1. In a switch-operating mechanism, the combination of a spring-actuated switch-point, a shifting bar connected therewith, a box or housing to receive said bar, a slide within said box, a tappet-pin projecting through a slot in the top of the box, and a loose connection between the shifting rod and slide as and for the purpose set forth.

2. In a switch-operating mechanism, the combination of a switch-point, means, as a spring, for holding said point in its normal position, a slotted plate between the rails transverse to said switch, a slide beneath said plate, a pin connected with said slide projecting through the slot in said plate, and a yielding connection between said switch-point and said slide.

3. In a switch-operating mechanism, the combination of a switch-point, a shifting bar connected therewith, a box or housing to receive said bar, a slide within said box connected to said bar, a tappet-pin projecting through said slide and a slot in the top of the box, studs projecting downward from said slide, a bar guided upon said studs and to which the tappet-pin is fastened, and springs on the studs to support said bar and allow for its depression.

In testimony whereof I have affixed my signature in presence of two witnesses.

FRED ALLEN CARROLL.

Witnesses:

M. F. HOBART,  
O. M. HOBART.