

No. 700,386.

Patented May 20, 1902.

J. A. Tancock & T. C. Cochrill.

AUTOMATIC SWITCH.

(Application filed Mar. 16, 1901.)

(No Model.)

Fig. 1.

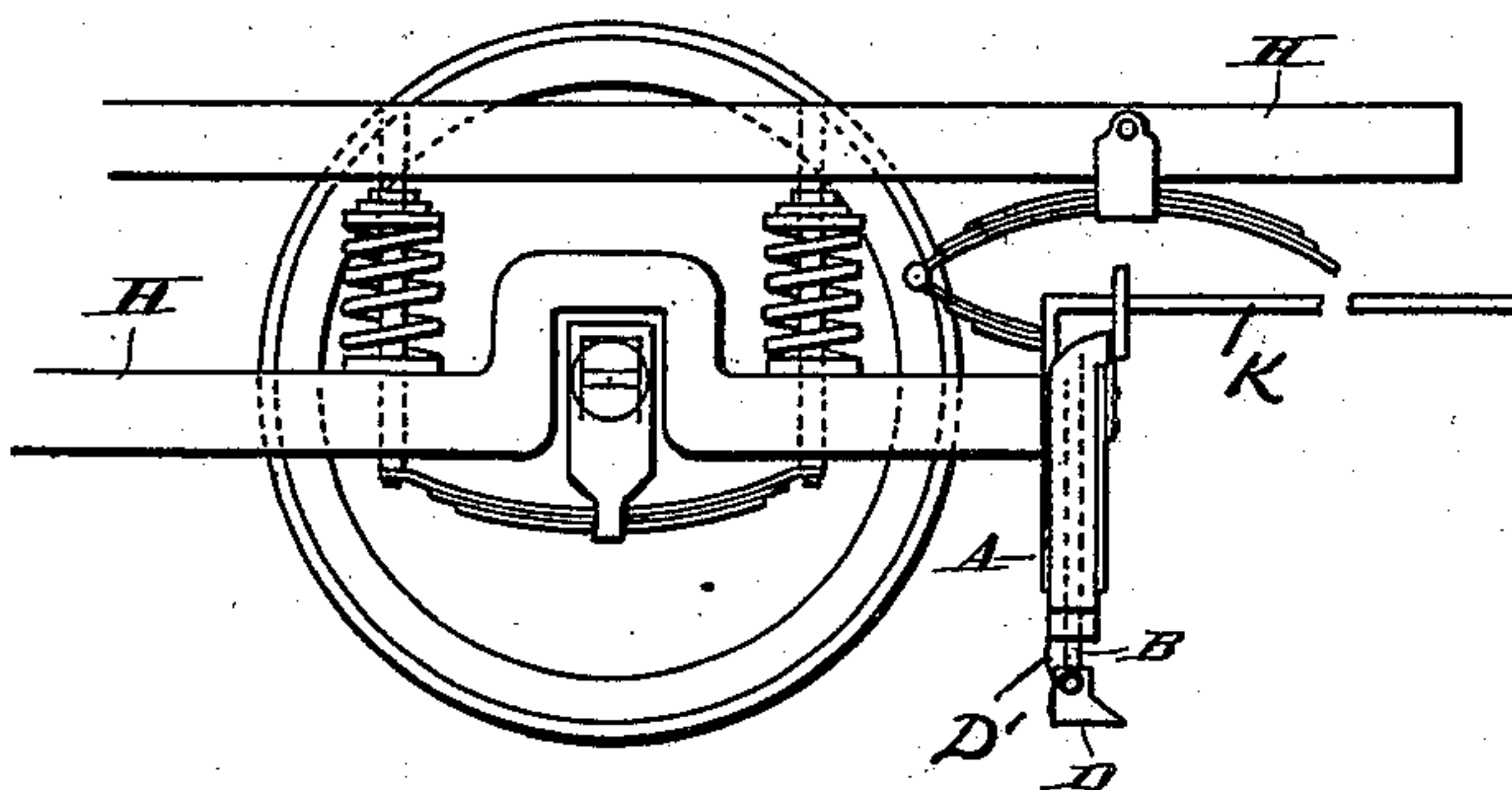
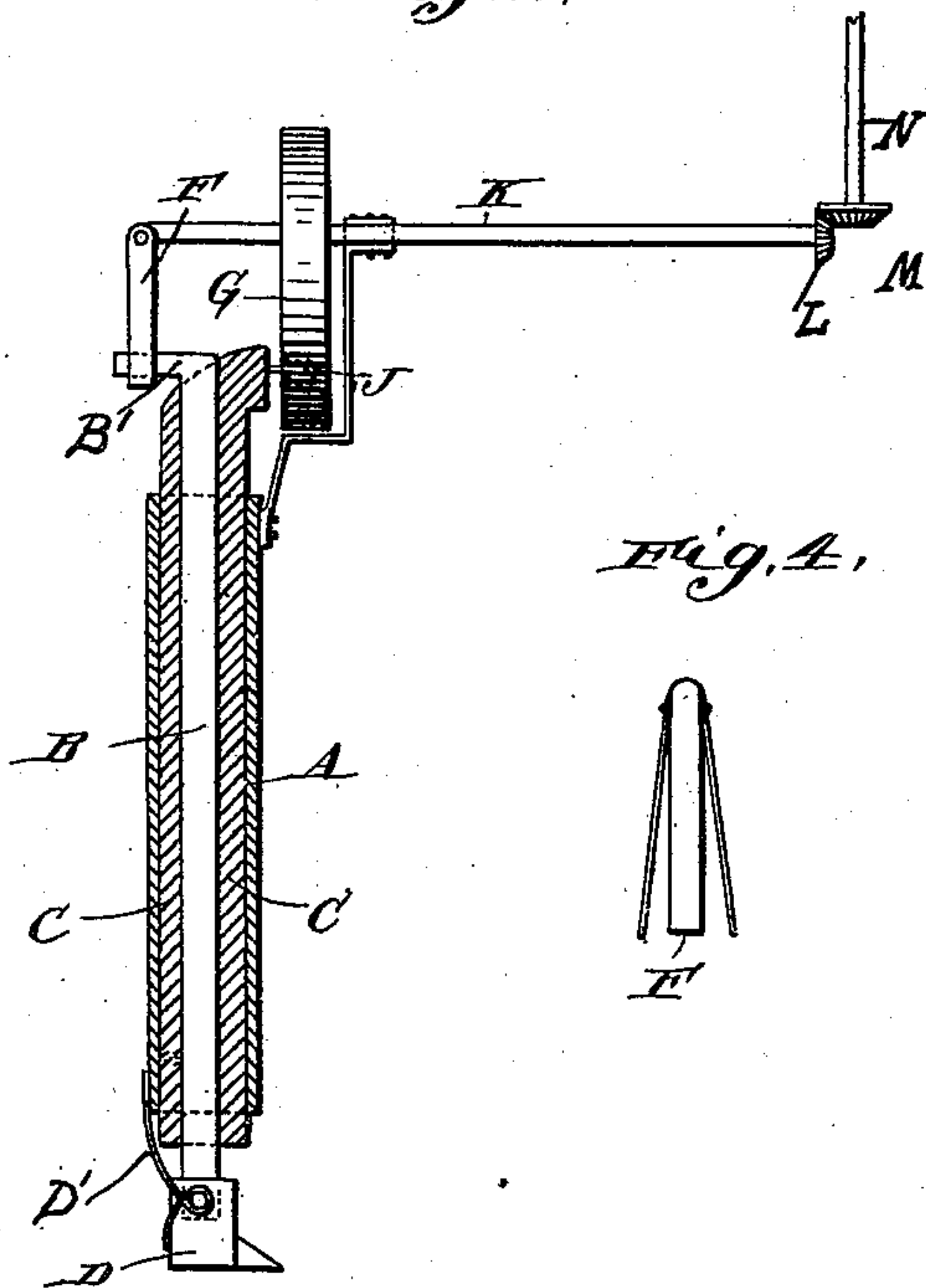


Fig. 2.



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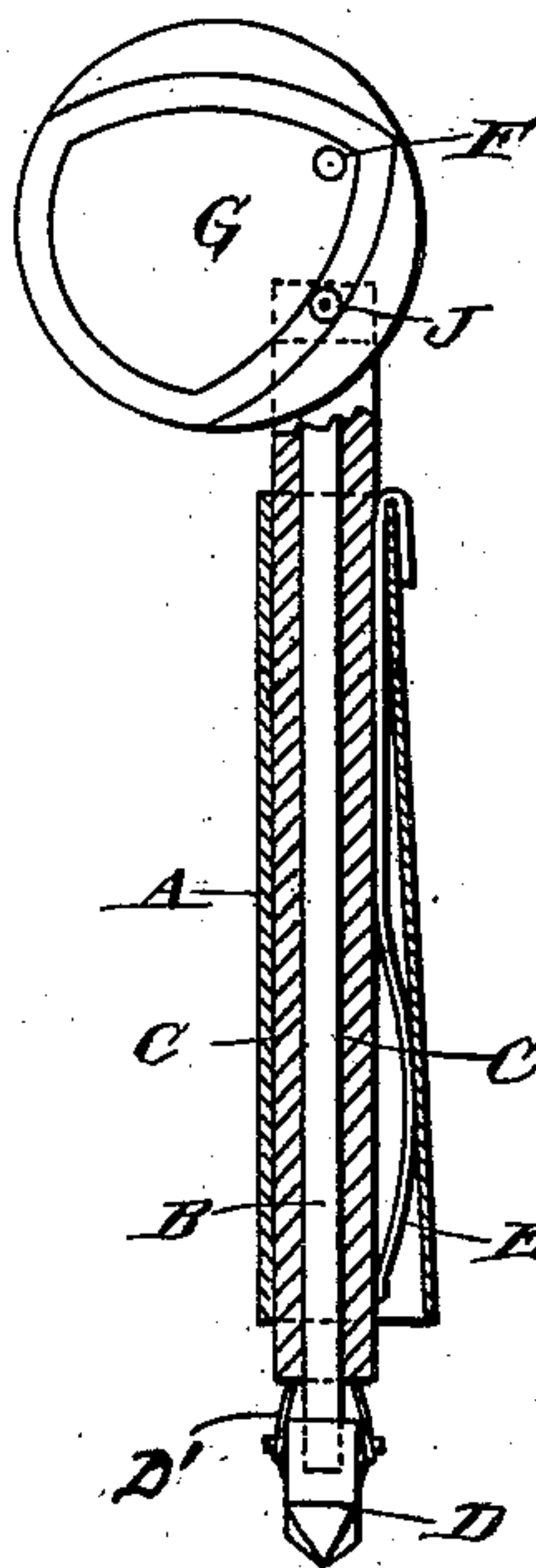
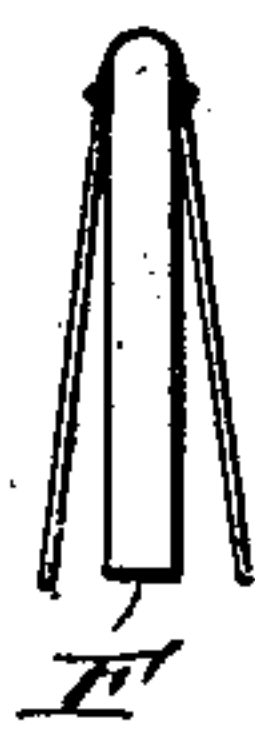


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES A. TANCOCK AND THOMAS C. COCHRILL, OF LONDON, CANADA.

AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 700,386, dated May 20, 1902.

Application filed March 16, 1901. Serial No. 51,539. (No model.)

To all whom it may concern:

Be it known that we, JAMES A. TANCOCK, veterinary surgeon, and THOMAS C. COCHRILL, mail clerk, British subjects, and residents of the city of London, in the county of Middlesex, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Automatic Switches; and we do hereby declare the following is a full, clear, and exact description of the same.

Our invention relates to improvements in automatic switches; and it has for its objects, among others, to provide improved means whereby the motorman is enabled to turn the switch-rail from the car platform or vestibule, and thereby save time and trouble.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation showing the application of the invention. Fig. 2 is a vertical section, on an enlarged scale, with the cam-wheel and other parts in elevation. Fig. 3 is a vertical section at right angles to Fig. 2. Fig. 4 is a detail showing the cam-pin and spring.

Like letters of reference indicate like parts throughout the several views.

Referring now to the drawings, A designates the head-block or casing supported in any suitable manner from the truck H of the car in advance of the wheels. This head-block or casing consists of a square socket, the upper end of which is a perfect square, the lower end being oblong, as seen in Fig. 3, to allow of a lateral movement of the plungers, which plungers B and C are disposed one within the other and both within the said casing or head-block, as shown. The upper end of the plunger B is offset laterally, as seen at B' in Fig. 2. The lower end of this plunger B carries the pivoted foot D, the spring D' serving to allow of the necessary movement and tending to keep the said foot normally in

position with its shank in vertical alinement with the plunger.

E is a spring interposed between the casing or head-block A and the plunger C, as seen best in Fig. 3.

The plunger C is square to correspond with the socket of the casing or head-block and at its upper end has the lateral projection J, carrying at its free end an antifriction-roller, which is designed to travel in the cam-groove of the cam-wheel G.

The plunger B is cylindrical in form and moves in a correspondingly-shaped socket in the plunger C, and its portion B' is operated by the pin F, disposed at right angles from the extended end of the shaft K, carrying the cam-wheel G and mounted in suitable bearings. This shaft K carries a bevel-gear L, which meshes with a bevel-gear M on the vertical shaft N, adapted to extend to the vestibule of the car, where it may be operated by the motorman, as will be readily understood, the vestibule not being illustrated. The resistance of said spring being sufficient to firmly hold the lower end of the plunger in proper position to move the free end of the switch-rail, at the same time if said lower end of said plunger should meet with a rigid and immovable obstruction or object in its path, said object being rigid, would overcome the resistance of said spring which would permit the lower pivotal end of the plunger to move upward and backward in a pivotal direction, until it cleared said rigid obstruction, at the same time said spring would be compressed, so that as soon as said lower end of said plunger passed over, and was free from said obstruction said spring would expand, and return the lower end of said plunger to its normal position to operate the switch-rail.

The plungers B and C are operated by means of cam-wheel on a shafting K, running from cam-wheel underneath front platform of car, to which is attached beveled gear, and the whole operated from the vestibule. The cam-wheel is also provided with a stop-pin supported on either side by a spring, Fig. 4, letter F, to move plunger laterally into groove,

behind switch-rail, after the pivotal foot of plunger has been turned by the beveled gear as far as it will go (it being against the side of rail) before it comes to the groove occupied
5 by the switch-rail.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In an automatic switch, the combination of a head-block, two independent plungers
10 vertically movable therein, a pivoted foot carried by one of said plungers, a cam-wheel and connections between said cam-wheel and each of said plungers for reciprocating the same.

2. In an automatic switch, the combination
15 of a head-block, two independently-movable plungers working therein, a pivoted foot carried by the innermost plunger, a cam-wheel, connections between the same and the plungers, for reciprocating the latter, and a spring
20 acting on said foot to keep it normally in a predetermined position, as set forth.

3. In an automatic switch, the combination of a head-block, two independently-movable plungers therein, a pivoted foot on one of the
25 plungers, a cam-wheel with groove, a projection on the outer plunger movable in said groove and an offset on the other plunger actuated by means on the shaft of said cam-wheel, as set forth.

30 4. In an automatic switch, the combination of a head-block supported from the car-truck,

and having socket square at its upper end and oblong at its lower end, plungers in said head-block, one within the other, a spring in the head-block bearing against the outermost
35 plunger, lateral projections on said plungers, and a cam-wheel and connections for engaging both of said projections to operate the plungers, as set forth.

5. In an automatic switch, the combination
40 of a head-block having socket square at its upper end and oblong at its lower end, two independently-movable plungers within the head-block, one within the other, a spring in the head-block acting on the outermost plun-
45 ger, lateral projections on the plungers at their upper ends, a cam-wheel and connections for engaging the said projections to operate the plungers, the outer plunger being square and the inner one round and working
50 in a correspondingly-shaped socket in the outer plunger and springs on opposite sides of the pin that engages the projection of the inner plunger, all substantially as shown and described.
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Dated at London this 6th day of March, A. D. 1901.

JAMES A. TANCOCK.
THOS. C. COCHRILL.

In presence of—

J. W. G. WINNETT,
L. M. HUTSON.