

No. 712,779.

Patented Nov. 4, 1902.

W. R. DUNHAM, JR.
STREET RAILWAY SWITCH.

(Application filed June 30, 1902.)

(No Model.)

2 Sheets—Sheet 1.

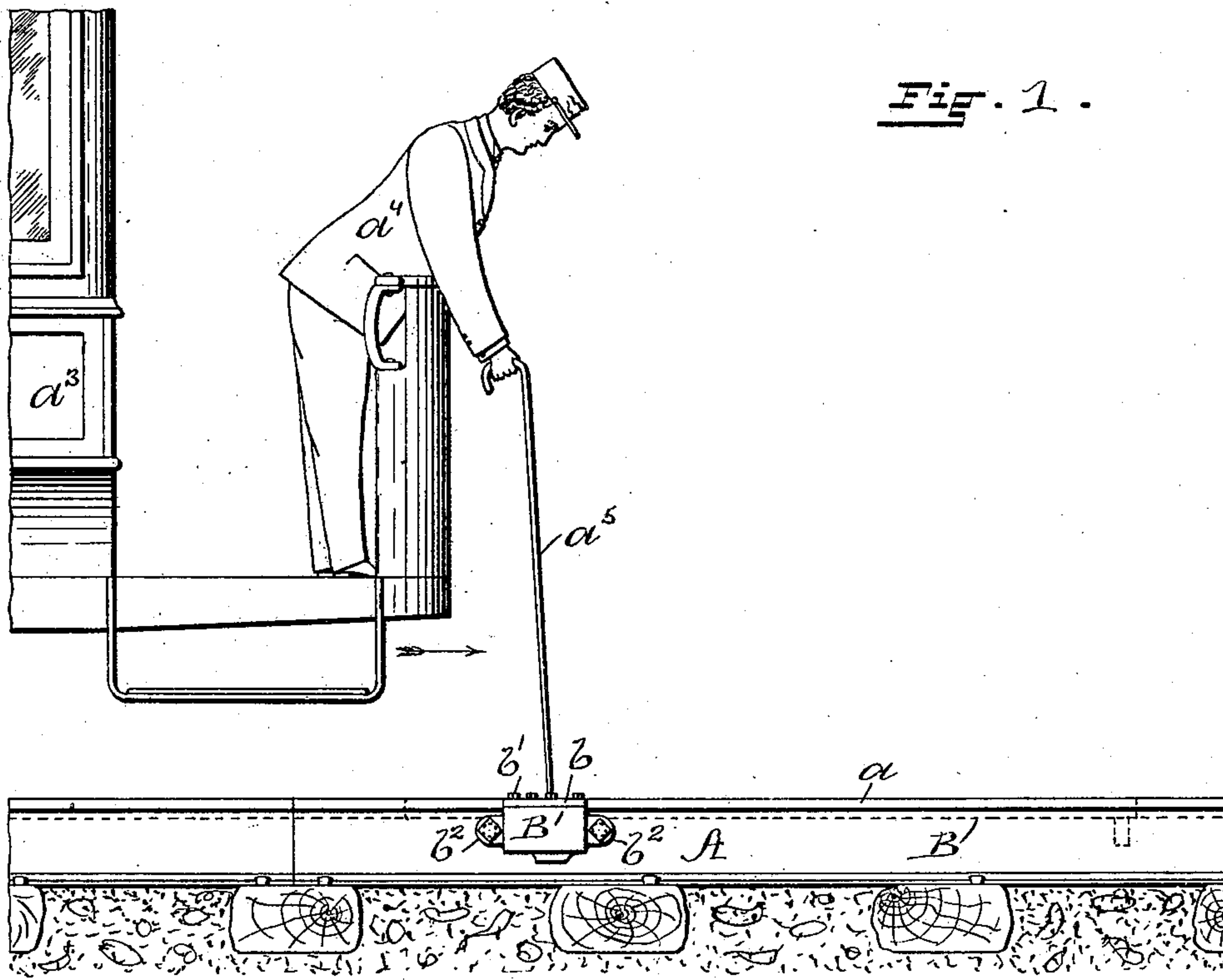
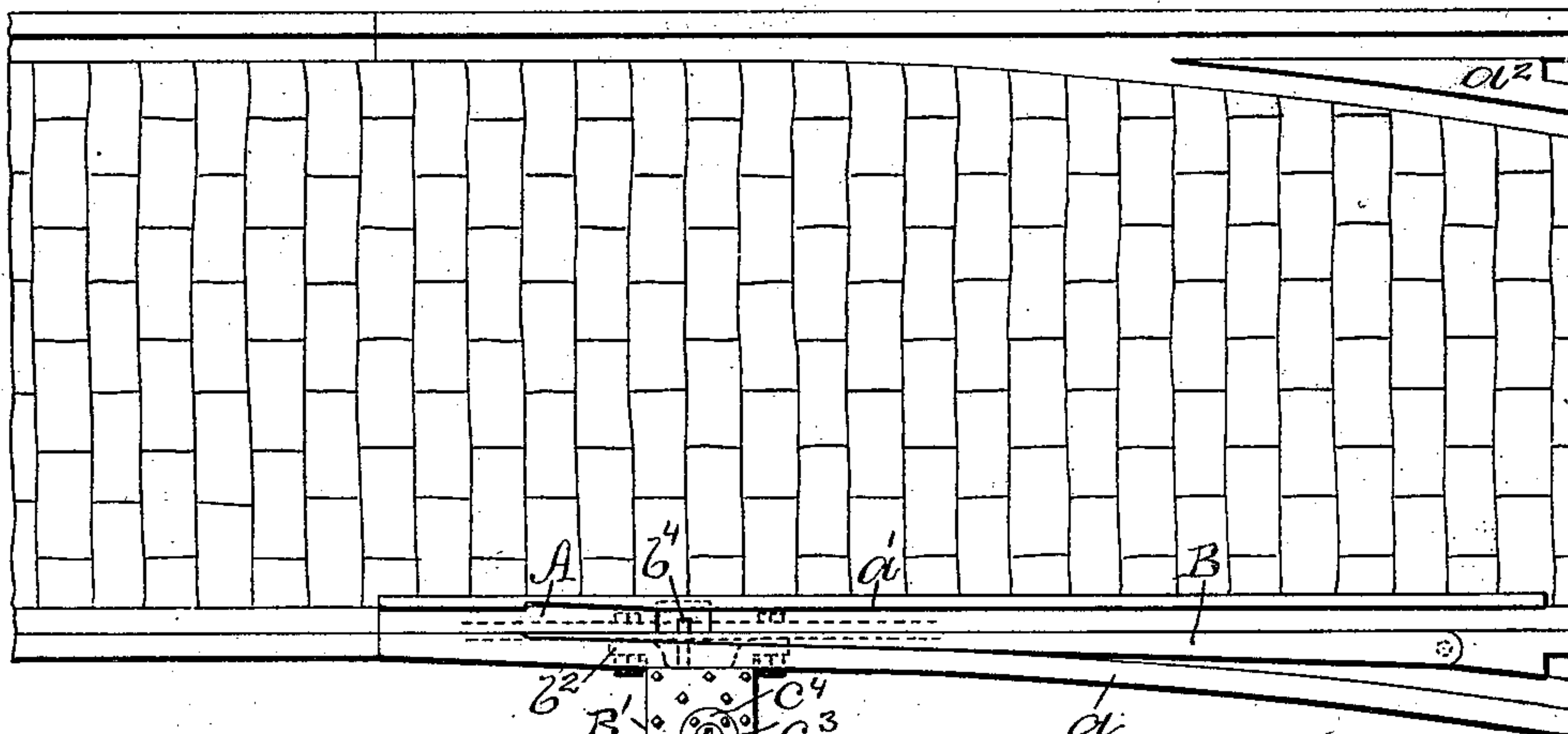


Fig. 2.



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2 Sheets—Sheet 2.

Fig. 3.

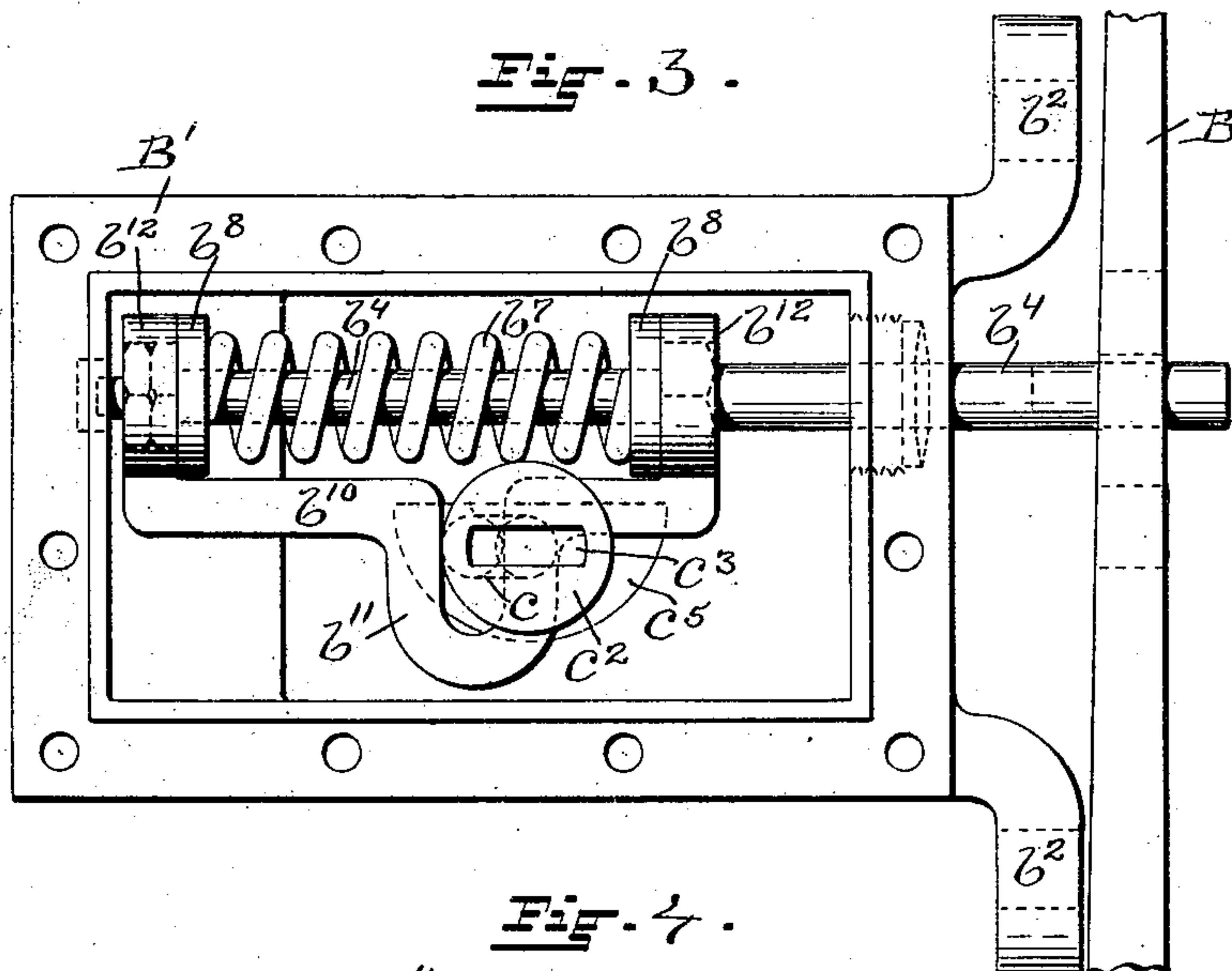


Fig. 4.

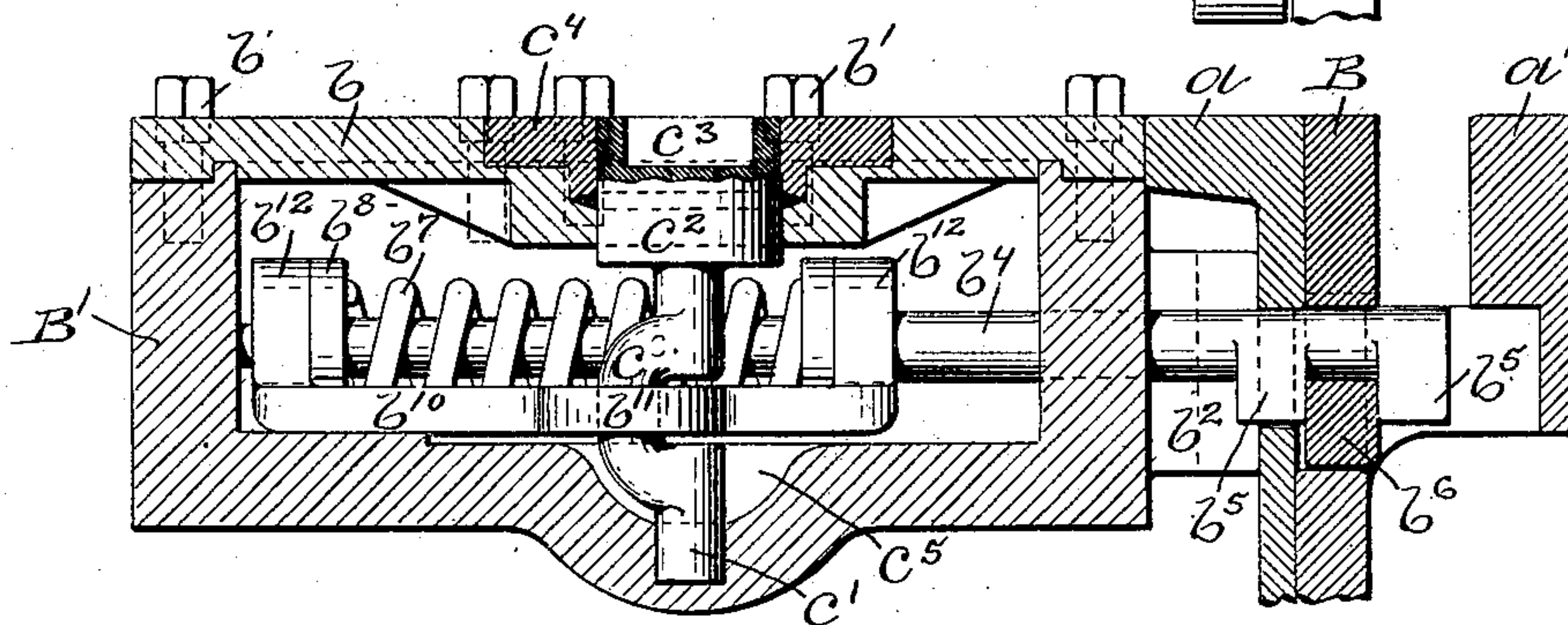


Fig. 5.

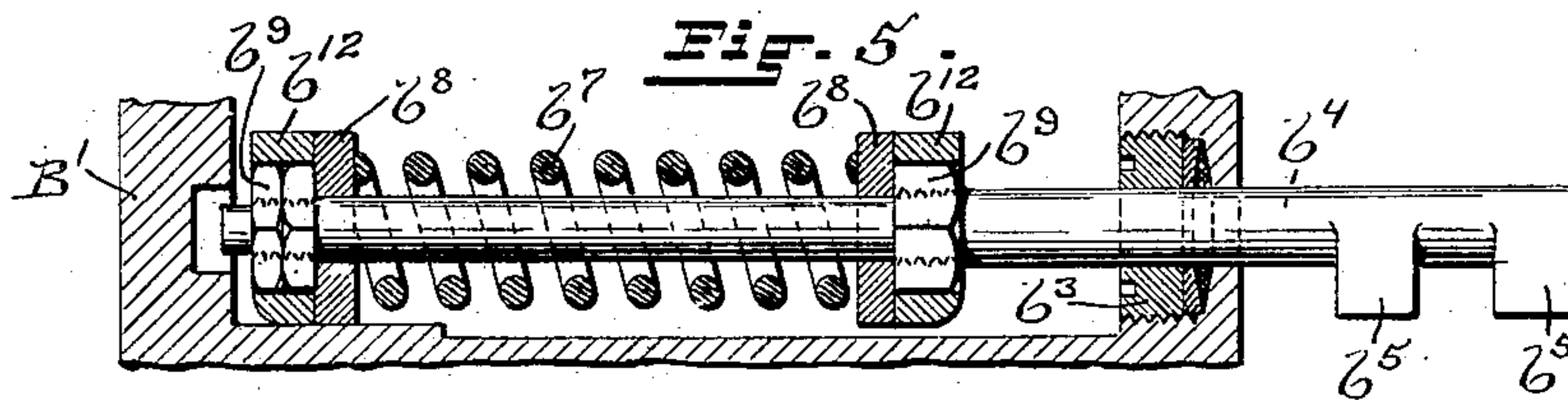
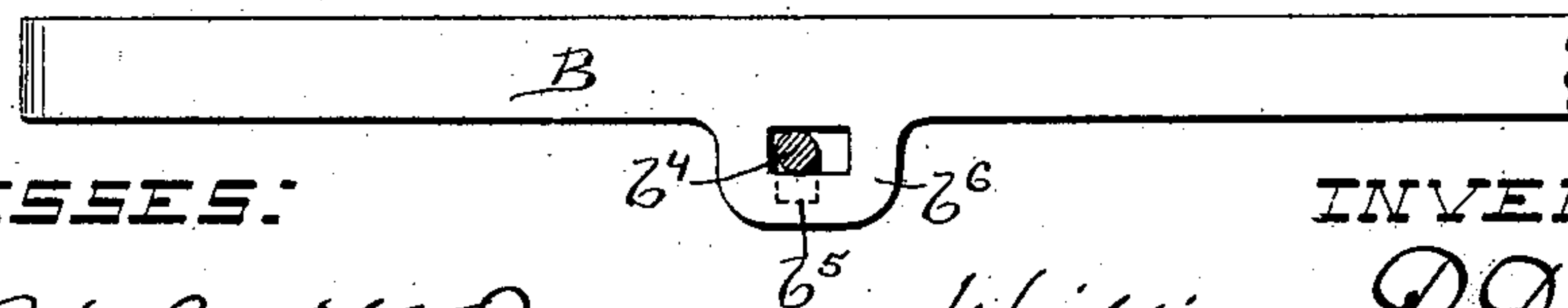


Fig. 6.



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WILLIAM R. DUNHAM, JR., OF PROVIDENCE, RHODE ISLAND.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 712,779, dated November 4, 1902.

Application filed June 30, 1902. Serial No. 113,844. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. DUNHAM, Jr., a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Street-Railway Switches, of which the following is a specification.

On street-railways the switches on the turn-outs or branches are usually controlled by the motorman moving the pivoted tongue to open or close the inlet to the turnout or branch. The tongue, pivoted at one end, lies loose in the channel of the switch and is moved by means of the switch-bar from the rail on one side to the rail on the opposite side of the switch. The jar of passing cars, the crossing of the switch by loaded teams, the passage of lighter carriages, the wheels of which are liable to run in the groove or the depressed portion of the rail, and other causes are liable to move the tongue into the path of the flanges on the car-wheels, causing annoyance and delay.

The object of this invention is to hold the tongue of the switch by a spring-pressure in the desired position; and to this end the invention consists in the peculiar and novel construction by which the tongue may be operated and held in the adjusted position by a coiled spring, as will be more fully set forth hereinafter.

Figure 1 is a side view of a railway-track and part of a street-railway car, showing the operation of setting the switch. Fig. 2 is a plan view of the street-railway track, showing the switch-locking device. Fig. 3 is a plan view of my switch operating and locking mechanism, showing the same connected with the switch-tongue and inclosed in a box. Fig. 4 is a sectional view of the same. Fig. 5 is a sectional view showing the connection of the coiled spring with the bar connected with the tongue. Fig. 6 is a side view of the switch-tongue.

Similar marks of reference indicate corresponding parts in all the figures.

In the drawings, A indicates the switch portion of the railway-track; a , the outer or rail flange of the switch; a' , the inner flange of the switch; a^2 , the frog-point on the track opposite the switch; a^3 , the street-railway car; a^4 , the operator, and a^5 the switch-bar; B,

the tongue of the switch, and B' a box inclosing the tongue-operating mechanism. The box B' is provided with the removable top plate b , connected by a tongue-and-groove joint and secured by the bolts b' b' . The box B' is provided with the lugs b^2 b^2 , by which the box is secured to the web of the outer rail-flange of the switch, as shown in Fig. 4. The end of the box adjoining the switch is provided with the packed plug b^3 , through which the rod b^4 extends. The studs b^5 b^5 , projecting from the rod b^4 , serve to secure the rod to the tongue B, which is provided with the slotted bracket b^6 . By passing the stud b^5 , on the end of the rod b^4 , through the slot in the bracket b^6 and turning the rod the same is secured to the tongue which is held between the two studs b^5 b^5 . The coiled spring b^7 surrounds the rod b^4 and bears at the opposite ends on the washers b^8 b^8 .

The rod b^4 is in the preferred form made tapering and is provided with screw-threads on which the nuts b^9 b^9 are screwed to form abutments against which the washers b^8 b^8 bear. The frame b^{10} has the slotted loop b^{11} and the ends b^{12} b^{12} , which encircle the rod b^4 and are provided with openings in which the nuts b^9 b^9 may slide. The crank c engages with the slot in the loop b^{11} . The lower end c' is stepped in the bottom of the box B'. The upper end is formed into a cylindrical boss c^2 , provided with an elongated slot c^3 , adapted to receive the end of the switch-bar a^5 . The cylindrical boss c^2 is rotatably supported in the journal-bearing c^4 , secured in the top plate b . The coiled spring b^7 is of sufficient strength to hold the washers b^8 b^8 firmly against the ends b^{12} b^{12} of the frame b^{10} and resist the strain exerted by the crank c on the frame in moving the rod b^4 and the tongue B to operate the switch. The crank c is turned by the operator a one-half turn to move the tongue B from one position to the other and in either position locks the frame b^{10} . The recess c^5 in the bottom of the box B' is semicircular in plan, the straight side forming the stop which limits the rotation of the crank to a half-turn. When the tongue B is in the desired position and a force is exerted against the side of the tongue tending to open the switch, the tongue may yield to such force against the resistance of the coiled

spring b^7 ; but the reaction of the coiled spring will replace the tongue to its original position. Should dirt, stones, or ice prevent the movement of the tongue close against the side
 5 flanges of the switch, the crank may still be turned a half-turn to lock the frame b^{10} , and one of the ends b^{12} of the frame will bear hard on the adjacent washer b^8 , acting to compress the coiled spring, the ends b^{12} of the frame b^{10}
 10 being free to slide on the nuts b^9 b^9 . All the joints of the box B' being made water-tight, the mechanism is protected against dirt and frost.

Having thus described my invention, I claim as new and desire to secure by Letters
 15 Patent—

1. In a switch-operating device, the combination with a crank rotatably mounted, an operating-slot in the end of the crank, and a sliding frame operated by the crank, of a rod
 20 connected with the tongue of the switch, a coiled spring surrounding the rod, and two sliding abutments bearing on the ends of the coiled spring, as described.

2. In a street-railway switch, the combina-

tion with the tongue and the rod b^4 connect- 25
 ed with the tongue, of the nuts b^9 b^9 in screw-thread engagement with the rod; the washers b^8 b^8 and the coiled spring on the rod, the slotted frame b^{10} having the ends b^{12} b^{12} and the crank c rotatably supported and provided 30
 with an operating-slot, as described.

3. In a street-railway switch, the combination with the switch-body and the tongue B , the box B' , the cover, the journal-bearing in the cover, and the semicircular recess c^5 , of 35
 the rod b^4 connected with the tongue, the nuts b^9 b^9 secured to the rod, the washers b^8 b^8 and the coiled spring on the rod, the frame b^{10} having the ends b^{12} b^{12} , and the crank c , having the slot c^3 , operating the frame b^{10} , as 40
 and for the purpose described.

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

WILLIAM R. DUNHAM, JR.

Witnesses:

ADA E. HAGERTY,
 J. A. MILLER, Jr.