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C. H. BISSELL.
SWITCH AND HOUSING CONSTRUCTION THEREFOR.
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Fig. 1.

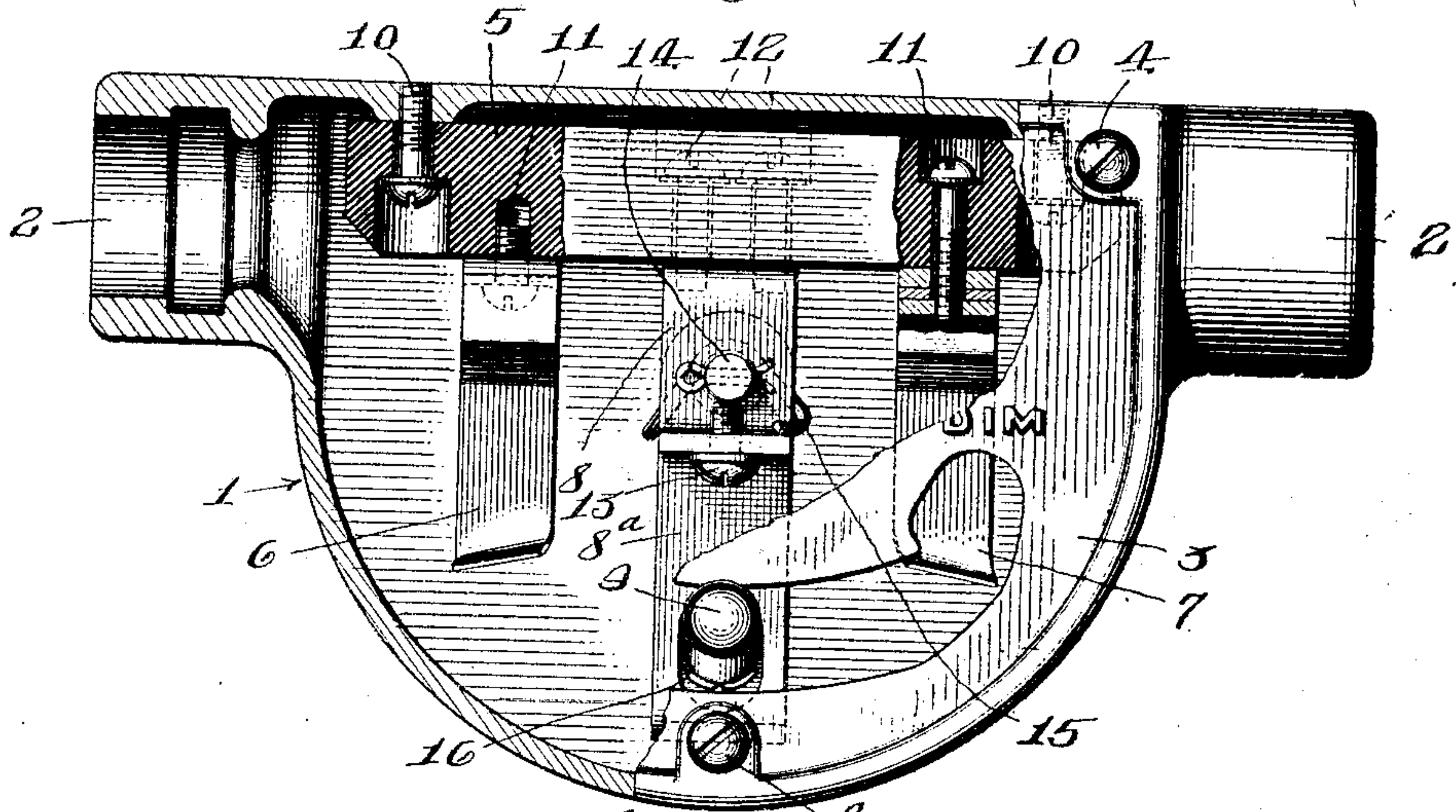


Fig. 2.

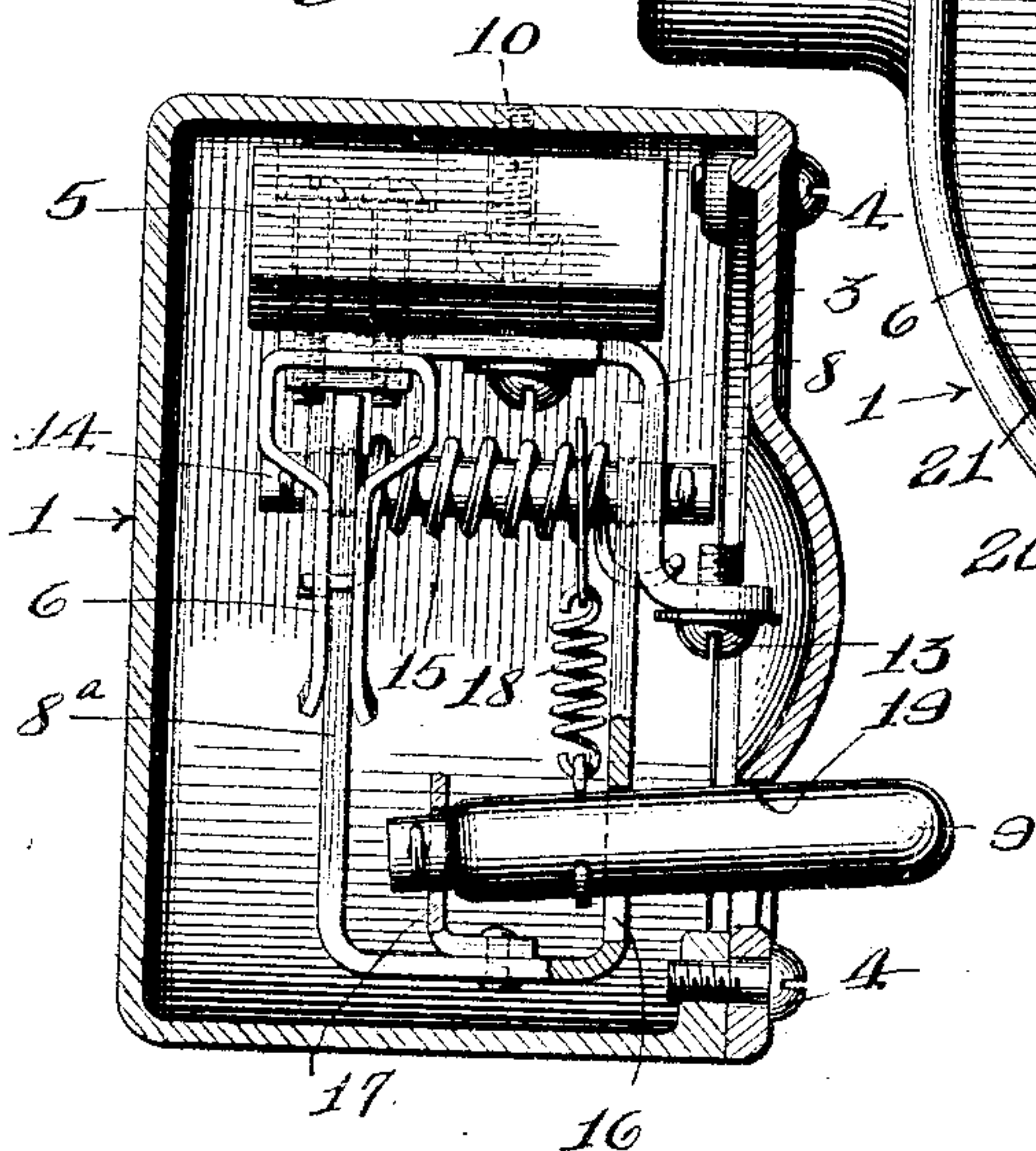
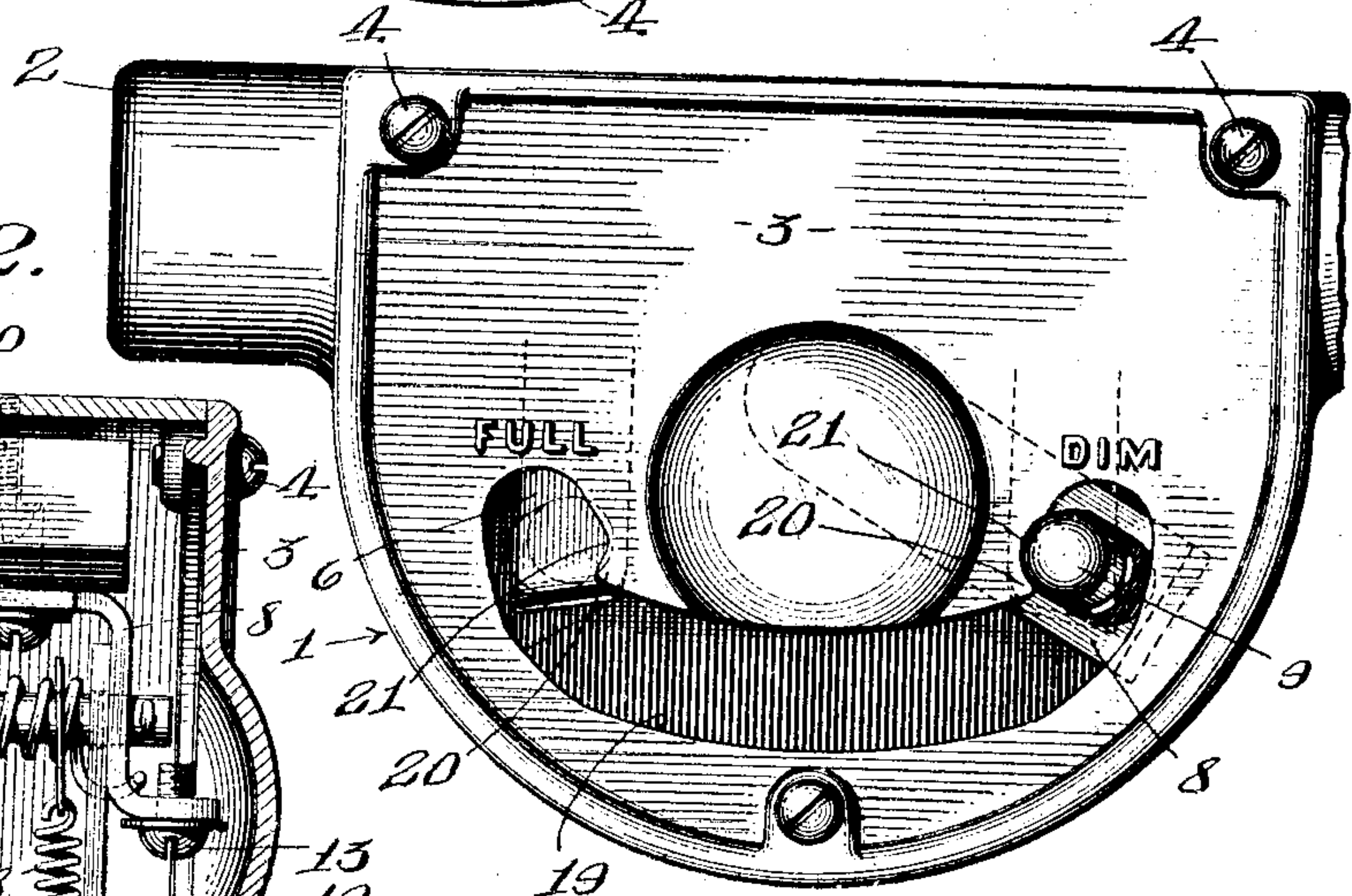


Fig. 3.



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UNITED STATES PATENT OFFICE.

CARL H. BISSELL, OF SYRACUSE, NEW YORK, ASSIGNOR TO CROUSE-HINDS COMPANY,
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SWITCH AND HOUSING CONSTRUCTION THEREFOR.

Application filed May 3, 1919. Serial No. 294,581.

To all whom it may concern:

Be it known that I, CARL H. BISSELL, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Switch and Housing Construction Therefor, of which the following is a specification.

This invention has for its object a switch and housing construction therefor particularly applicable for use in connection with electric headlights of locomotive, electric cars, etc., where ruggedness and simplicity are factors, which construction is especially simple and highly efficient and durable.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a front elevation, partly in section, of a switch embodying my invention, the box therefor being shown in section and the cover of the box as broken away.

Figure 2 is a vertical sectional view taken centrally of Fig. 1.

Figure 3 is a front elevation of the entire switch construction including the housing therefor.

This invention comprises a switch having a movable member or switch arm, a handle connected to said member and having a movement in a direction at an angle to the shifting movement of the handle, a spring for effecting such movement, and a surface against which the spring holds the handle.

1 designates the box in which the switch is housed, said box having means as one or more nipples 2 for connection to conduits enclosing the service wires. The box is open at its front side and said side is provided with a cover 3 secured in position in any suitable manner as by screws 4.

The switch here shown is a double throw knife switch and comprises a base 5 of insulation mounted in the box on one of the walls adjacent the open side, contacts 6, 7 mounted near opposite ends of the base, a conductor 8 mounted on the base between the contacts, a switch member or arm 8^a hinged to the conductor and movable into

engagement with either contact 6, 7 and a handle 9 for operating the arm 8^a.

The base is secured to the box in any suitable manner, as by screws 10. The contacts 6, 7 are knife contacts and are held in position in any suitable manner as by screws 11.

The conductor 8 is Z-shaped in general form, the base of the Z being mounted on the base 1 and secured thereto as by screws 12 extending from the rear side of the base. One arm of the Z-shaped conductor is provided with a binding device 13.

The binding device 13 is for connection to a feed wire, not shown, by means of which the current is carried from the feed wire to the conductor 8 to one branch of the switch arm 8^a, thence to the other arm to one of the contacts 6, 7, when the switch is closed, the arm 8^a being U-shaped in order to provide two conductors, one of which coacts with the conductor 8 and the other with the switch contact 6 or 7.

The switch member 8^a is here shown as U-shaped and the arms thereof are pivoted to the arms of the conductor 8 by a hinge pin 14 and one of the arms of the switch member is movable into and out of engagement with the contacts 6, 7. The switch member normally stands in neutral position and is moved to neutral position from either side of neutral by a spring 15 coiled about the hinge pin 14 and having its ends bearing respectively on opposite edges of the arms of the U-shaped switch member.

The handle 9 is practically a crank handle mounted on the switch member and having a yielding movement at an angle to the movement of the switch arm, that is the handle is movable radially relatively to the axis of the switch member.

In the illustrated form of my switch, the handle extends through a radial slot 16 in the front arm of the switch member and is pivoted at its inner end to a lug 17 carried by the intermediate part of the switch arm and spaced apart from the front arm.

The handle 9 is moved inwardly radially by a spring 18 connected at one end to the handle and at its other end to the hinge pin 14.

The handle projects through a slot 19 in the cover 3. Shoulders 20 project into the slot near its opposite ends forming sockets

or seats 21 into which the handle ratchets when shifted in one direction or the other to engage the knife or switch member with either contacts 6 or 7. The spring 18 pulls the handle against the upper side of the slot and ratchets it in the seat 21.

This switch is particularly applicable for lighting and dimming headlights and in operation, when the handle is moved in one direction from central position, the switch arm engages the contacts 6 to give full light, and when moved in the opposite direction from neutral engages the contacts 7 to dim the light. During the movement of the handle it ratchets automatically into one or the other of the seats 21.

The switch construction is particularly advantageous in that it is simple, strong and weather tight, and further in that it provides an especially simple lock for holding the switch arm in its operative positions.

What I claim is:

1. In a switch, the combination of a movable member, a spring acting on the movable member to give the same a snap action, a handle having movement relatively to said member, a spring acting on the handle to move the same relatively to said member, and a part formed with a shoulder arranged in the path of the handle, the spring being arranged to move the handle into engagement with said shoulder, substantially as and for the purpose described.

2. In a switch, the combination of a movable member, a spring acting on the movable member to give a snap action thereto, a handle having pivotal movement relatively to said member in a direction at an angle to the movement of said member, a part formed with a guide for the handle and a spring acting on the handle to effect the pivotal movement thereof and ratchet the handle into engagement with said shoulder, substantially as and for the purpose specified.

3. In a switch, the combination of a hinged switch arm, a handle mounted on the arm and having a movement radially relatively thereto, a spring connected to the handle and to the axis of said member, a part formed with a guide for the handle, the guide having a cam surface for moving the handle radially against the action of the spring and with a socket into which the handle is moved by the spring, substantially as and for the purpose set forth.

4. In a switch, the combination of a hinged switch arm, a handle mounted on the arm and having a movement radially relatively thereto, a spring connected to the han-

dle and to the axis of said member, a part formed with a guide for the handle, the guide having a surface against which the handle is held by the spring, substantially as and for the purpose described.

5. In a switch, the combination of a movable member, a spring acting on the movable member to give a snap action thereto, a handle having movement relatively to said member, a spring acting on the handle to move the same relatively to said member, and a part formed with a surface against which the handle is held by the spring, substantially as and for the purpose specified.

6. In a switch, the combination of a movable member formed with a slot extending at an angle to the movement of said member, a spring acting on said member to give a snap action thereto, a handle extending through the slot, and movable therein, a spring acting on the handle to move the same in the slot in one direction and a part having a surface engaged with the handle, the spring being located to press the handle against said surface, substantially as and for the purpose set forth.

7. In a switch, the combination of a hinged member formed with a radial guide, a handle having a portion movable along the guide, the handle being pivoted to the hinged member at a point spaced apart from the guide, a spring connected to the handle and to the hinge of said member, and a housing formed with a surface engaging the handle to move the same on its pivot against the action of the spring during the operation of the hinged member and having a shoulder behind which the handle is lodged by the spring, substantially as and for the purpose described.

8. The combination of a box having an opening in one side and a cover for the box having a slot and a socket opening from one side of the slot, of a switch located in the box and comprising a movable member, a spring acting on the movable member to give a snap action thereto toward the neutral position, and a handle extending through the slot, the handle having a movement at an angle to the movement of the switch member, and a spring acting on the handle and holding it against said one side of the slot and moving it into the socket, substantially as and for the purpose specified.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 8th day of April, 1919.

CARL H. BISSELL.