

No. 624,272.

Patented May 2, 1899.

G. A. WALL.
AUTOMATIC CIRCUIT CLOSER.

(Application filed Mar. 11, 1898.)

(No Model.)

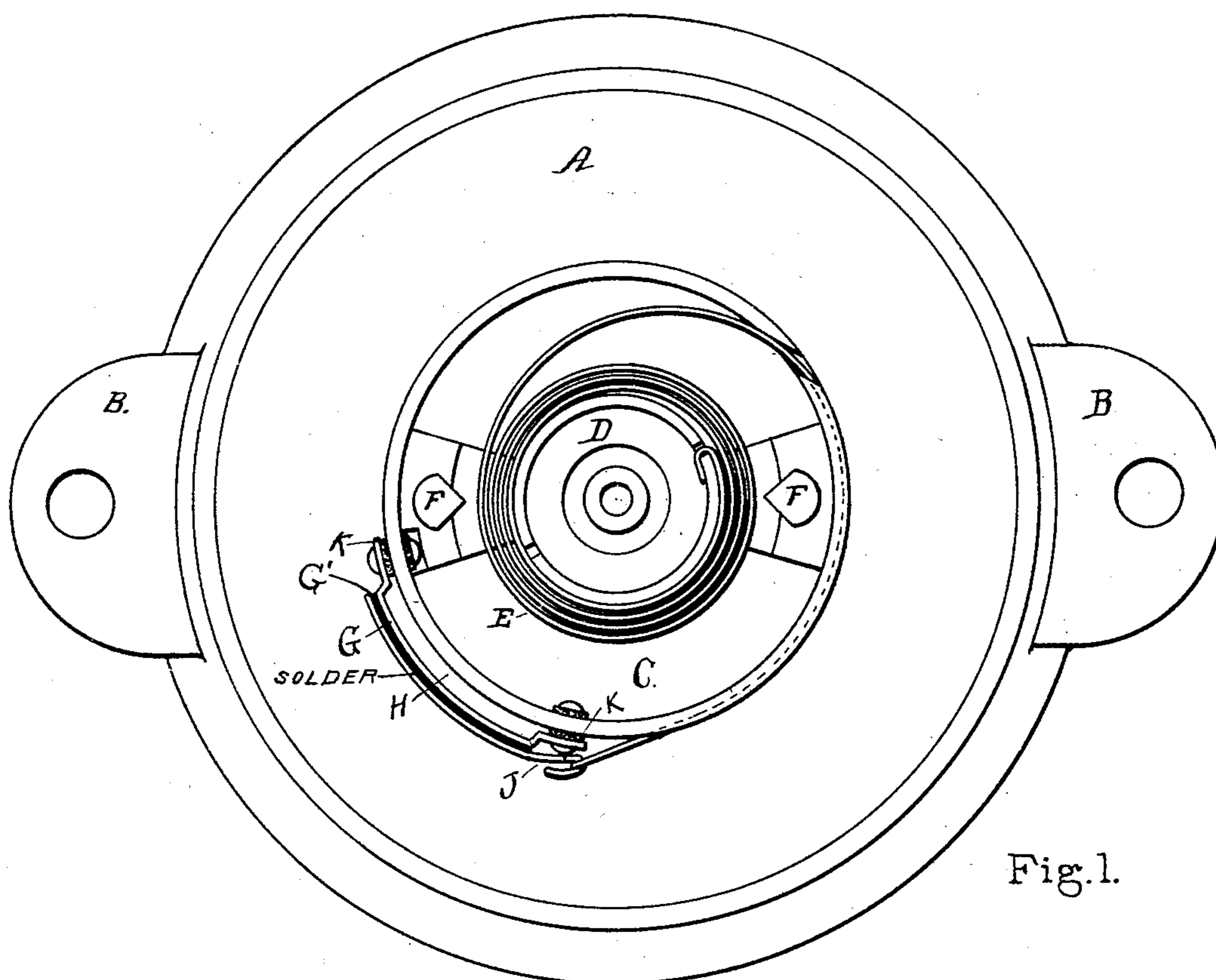


Fig. 1.

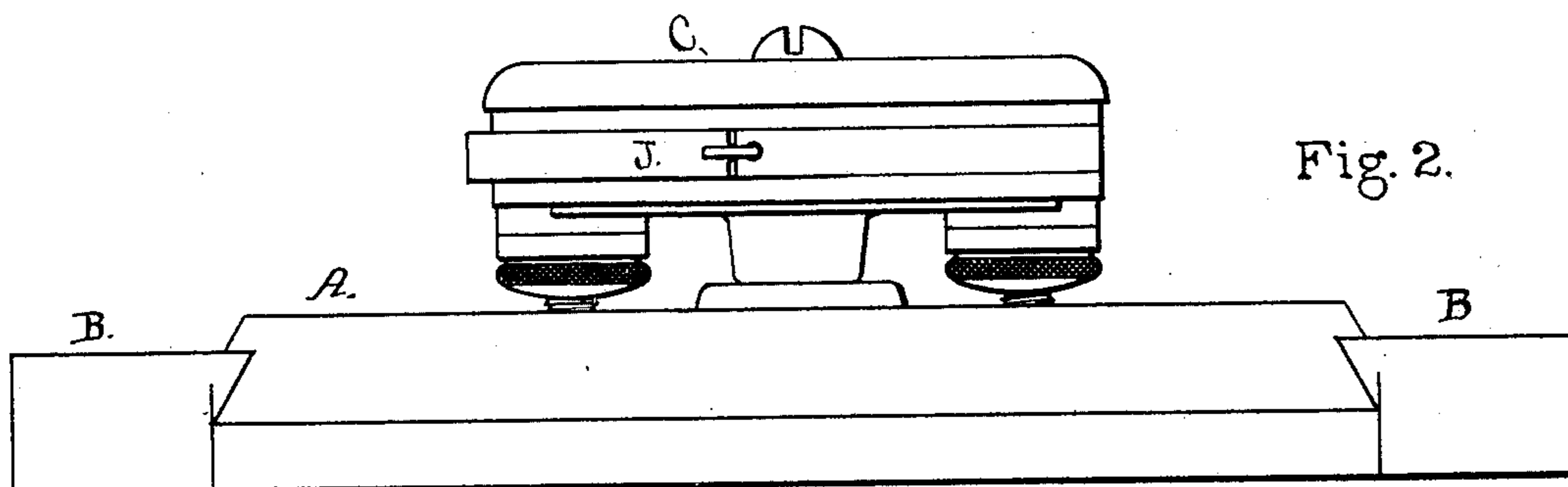


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

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AUTOMATIC CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 624,272, dated May 2, 1899.

Application filed March 11, 1898. Serial No. 673,452. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. WALL, of Providence, in the State of Rhode Island, have made certain new and useful Improvements in Automatic Circuit-Closers; and I do hereby declare that the following specification, taken in connection with the drawings making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is an under view of the circuit-closer ready for action, with the cover removed. Fig. 2 is a side view of the inverted device.

My invention is designed to improve and render more satisfactory in its operation the thermostat or automatic fire-alarm set forth and described in certain Letters Patent of the United States granted to Joel W. White July 31, 1894, and numbered 523,701; and it consists in the improved construction and arrangement of the releasing mechanism whereby an earlier action is secured, as hereinafter described. It is desirable in case of fire that an alarm should be given as early as possible. This cannot be accomplished satisfactorily by reducing the degree of heat necessary to a fusion of the solder. If the solder is too soft and too easily fused, the thermostat will be likely to operate from any material increase in the temperature of the room due to causes other than accidental fire. When thermostats are used in connection with automatic fire-extinguishers, it is also desirable that the operation of the thermostat, in case of any rapidly-increasing heat, such as a fire produces, should precede that of the sprinkler to the end that unnecessary damage by water may be avoided.

In my invention I seek to increase the sensitiveness of the thermostat not by reducing the fusing-point of the solder, but by isolating and insulating the solder as much as possible from the other parts of the device, which tend to absorb or withdraw the heat therefrom.

In my invention, A is a plate or disk, which may be fastened to the ceiling by screws passing through the ears B B. To this plate or disk A the thermostat C is attached.

D is a central post, around which is coiled a spring E, one end of which spring is secured

to said post, while the other end passes through the shell of the thermostat.

F F are electrodes, with which the spring E when released comes in contact, thus closing the circuit and giving the alarm in the well-understood way. In the devices now in use the end of the spring E, which passes out through the shell of the thermostat, is secured upon and directly to the outside of such shell by solder. The securing of the loose end of the spring in this manner does not admit of the free circulation of the heat coming from the fire around and about the fusible solder, so as to secure the earliest possible action of the alarm. When the end of the spring is thus attached directly to the shell, it may be readily ascertained by the use of a sensitive thermometer placed beside the thermostat that the rapidly-increasing heat will cause such thermometer to register a temperature much in excess of the predetermined fusing-point of the solder before the solder will actually fuse. This result is due to the absorbing action of the metals or other substances of which the shell is composed, and the temporary reduction of the force with which the heat attacks the solder. To reduce this withdrawal of the heat to a minimum and render the solder more sensitive to an increase of temperature above its predetermined fusing-point, I attach to the outside of the thermostat-shell a curved frame G, between which and the outside of the shell is an air-space H. To the outside of the frame G, I attach the end of the spring E by means of the solder G', fusible at a low degree of heat. The end of the spring E may be attached directly to the frame G, or it may be extended by means of a strap J hooked there- to and having a curve similar to that of the frame G, as shown in Fig. 1, the latter construction being in my opinion preferable, as it gives more freedom to the operation or release of the spring and reduces the radiation through the spring. Pieces of fiber or other non-conducting materials are used to separate or insulate the feet of the frame G from the shell and are placed between the frame G and the shell upon the outside and also under the rivet-heads upon the inside.

It will now be readily seen that with the

open space H the solder intermediate between the frame G and the continuation of the spring E will be more completely and evenly subjected to the action of the heat, while the
5 insulating-pads K K will serve to prevent the absorption of the heat by the other parts of the thermostat whose temperature is less easily increased.

What I claim as my invention, and desire
10 to secure by Letters Patent, is—

1. In a device of the character described, the combination with a thermostat-shell and electrodes, of a frame secured at its opposite
15 intermediate portion raised to permit the circulation of air around the frame, a spring in operative relation to the electrodes, and a fuse constituting a connection between the spring and frame, substantially as specified.

20 2. In a device of the character described, the combination with a thermostat-shell and electrodes, of a raised frame carried by the shell in a manner to permit the circulation of air around the frame, insulation intermediate
25 of the frame and shell, a spring in operative

relation with the electrodes and having one end soldered to the frame, substantially as specified.

3. In a device of the character described, the combination with a thermostat-shell and
30 electrodes, of an insulated frame raised from the shell to permit the circulation of air around the said frame, a spring in operative relation with the electrodes, and a strip of solder connecting the spring to the frame and
35 disposed longitudinally with respect to the latter, substantially as specified.

4. In a device of the character described, the combination with a thermostat-shell and
40 electrodes, of an insulated frame raised from the shell to permit the circulation of air between the parts, a strap soldered to the frame and a spring connected to the strap and in operative relation with the electrodes, substantially as specified.

GEORGE A. WALL.

Witnesses:

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