

(No Model.)

G. A. WALL.

COMBINATION CIRCUIT CLOSER AND SPRINKLER.

No. 547,825.

Patented Oct. 15, 1895.

Fig. 1.

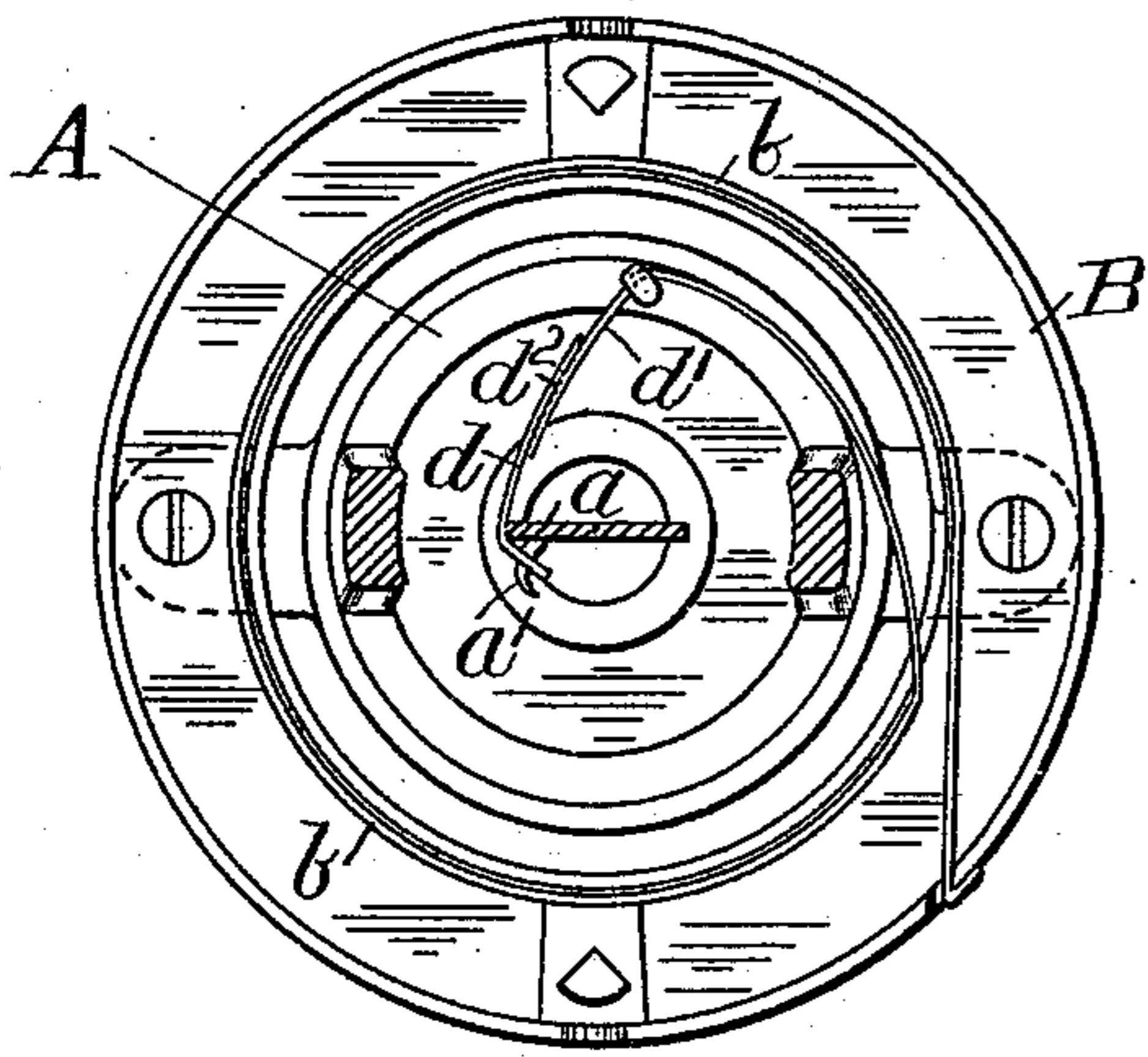


Fig. 2.

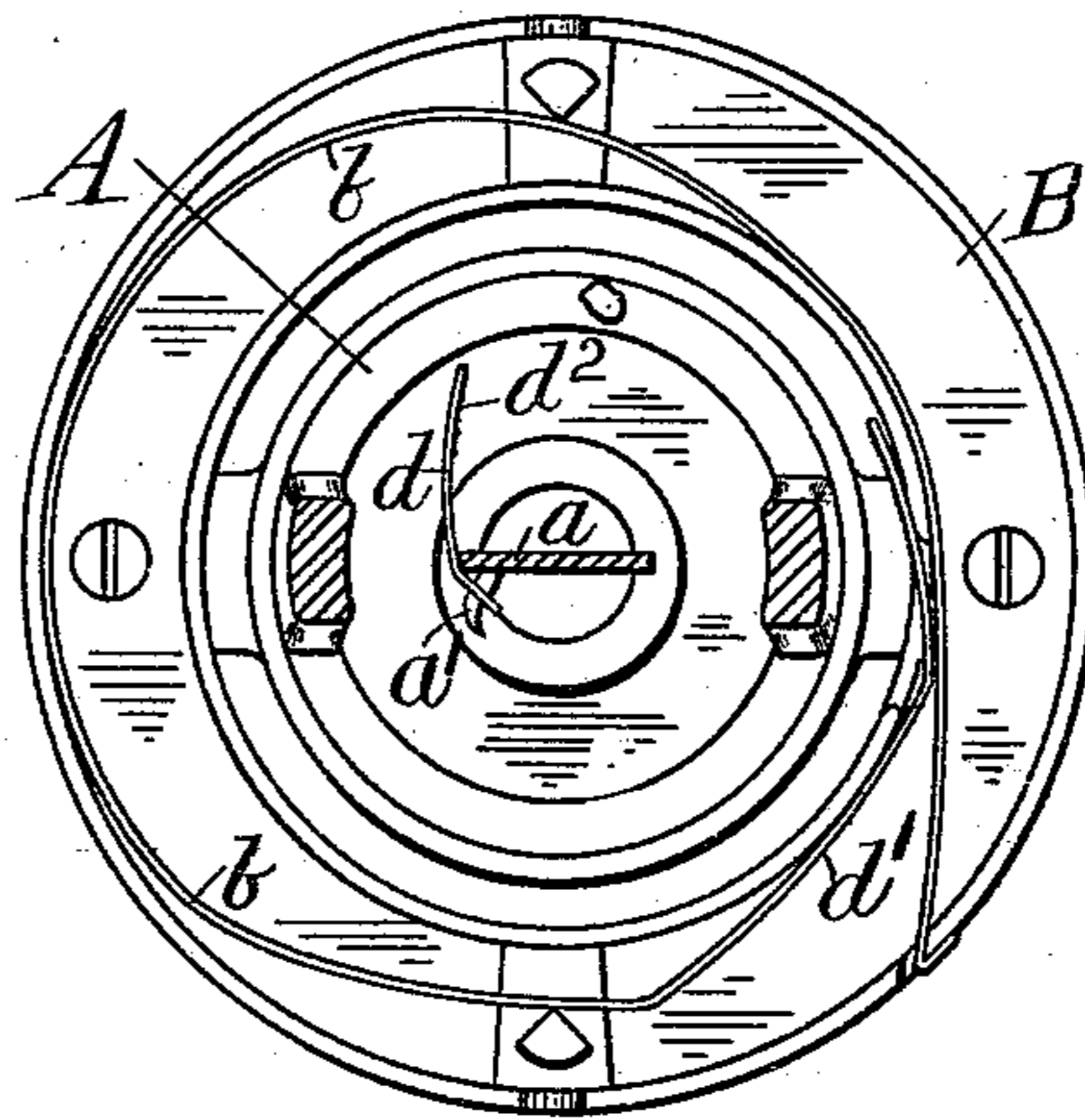


Fig. 4.

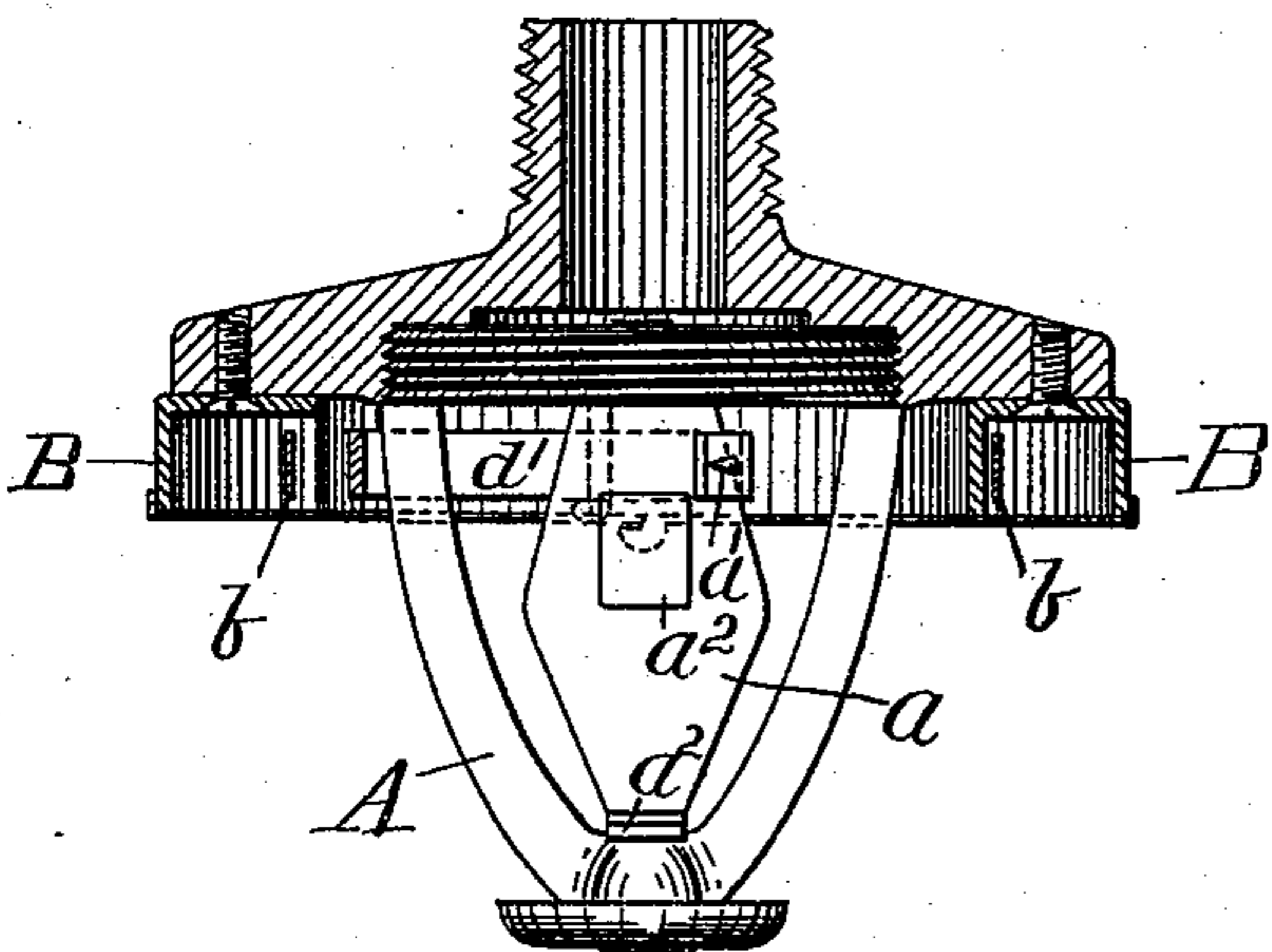
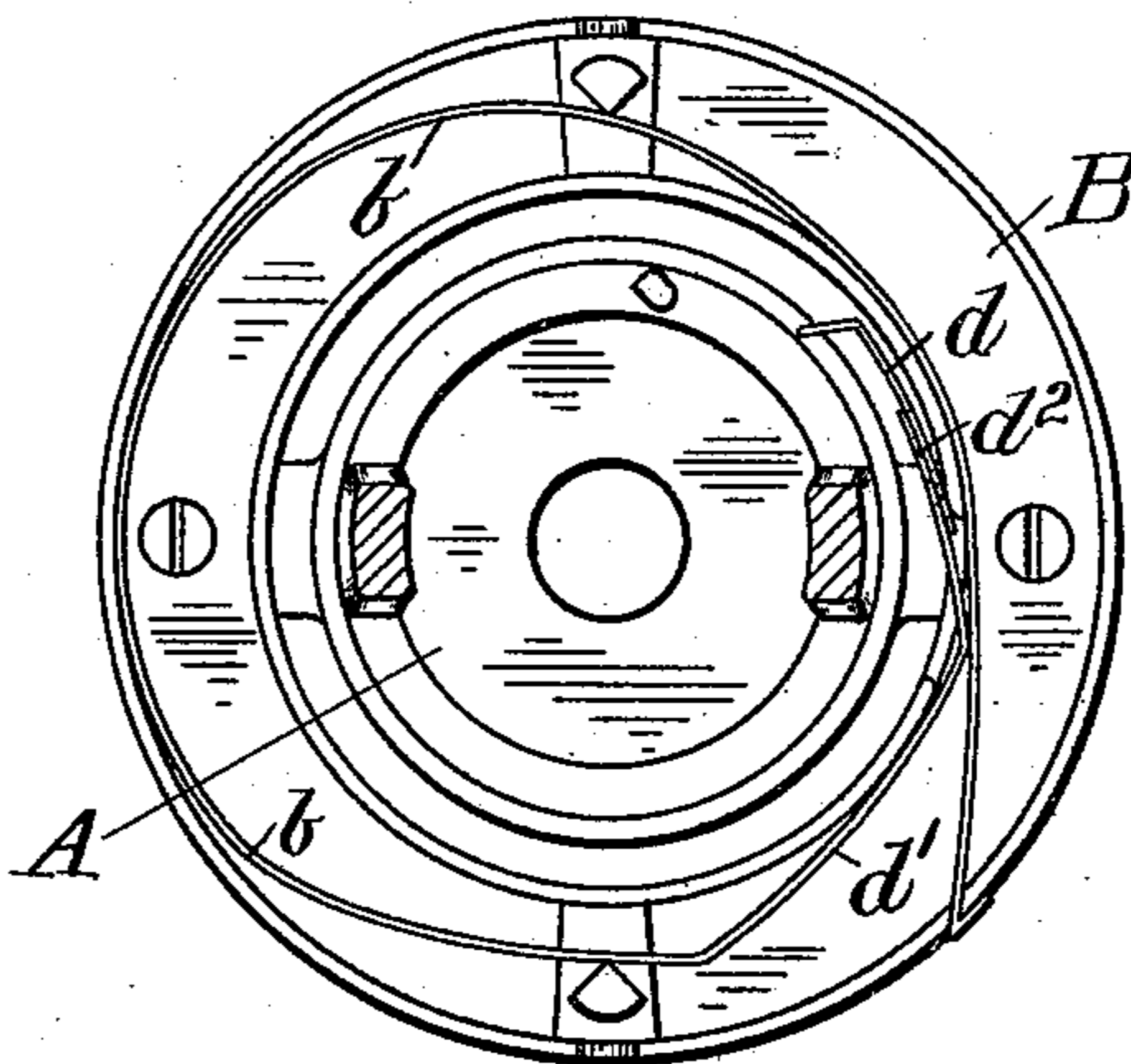


Fig. 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE AUGUSTUS WALL, OF PROVIDENCE, RHODE ISLAND.

## COMBINATION CIRCUIT-CLOSER AND SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 547,825, dated October 15, 1895.

Application filed February 11, 1895. Serial No. 537,874. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE AUGUSTUS WALL, of Providence, in the county of Providence and State of Rhode Island, have invented an Improved Circuit-Closer and Sprinkler Combined, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an inverted plan, partly in section, showing my apparatus ready for use. Fig. 2 is a like plan, but showing the thermostat giving the alarm by the melting solder. Fig. 3 is a like plan showing the thermostat set in operation by the operation of the sprinkler. Fig. 4 is a central sectional elevation.

My invention is the combination of an automatic sprinkler and a thermostat by means of a mechanical connection between that part of the sprinkler which is held by its fusible solder and that part of the thermostat which is held by its fusible solder, whereby the solder which holds the thermostat is freed from those causes which tend to prevent the rise of temperature of the solder which holds the sprinkler, and yet the opening of the sprinkler from any cause also causes the operation of the thermostat, as fully explained below. Heretofore thermostats have been used in connection with sprinklers, and the thermostats have been constructed to be set in operation by a lower temperature than that required to operate the sprinklers; but this use of the two apparatuses is based upon the idea that both will be always subject to practically the same temperature, and this is not the fact, as either may in practice be exposed to a much higher temperature than the other. In Patent No. 523,701, dated July 31, 1894, to J. W. White the circuit-closer and the sprinkler are set in operation simultaneously.

My invention is an improvement upon the apparatus shown in the White patent, and its best form is in the combination of a sprinkler A with a thermostat B by means of a strip  $d$ , of thin metal, which is attached to the movable part  $a$  of the sprinkler, and a second strip  $d'$ , of thin metal, which is attached to the movable part  $b$  of the thermostat, these two strips  $d$  and  $d'$  being held together by a fusible solder.

In the drawings I have shown that form of thermostat described in the White patent, as

that is the best form known to me, and I have also shown the strip  $d'$  integral with the movable part  $b$  of the thermostat; but that is simply for convenience, as the strip  $d'$  serves mainly as a connection between spring  $b$  and strip  $d$ , as will be clear when it is remembered that strip  $d'$  might be a short piece of wire suitably connected to spring  $b$ , instead of being integral with spring  $b$ , as shown. The hook  $a'$  on the plate  $a$  hooks into the end of strip  $d$ . The solder used at  $d^2$  in connecting the strips  $d$   $d'$  may be fusible at a lower temperature than the solder used at  $a^2$  to keep the sprinkler closed; but in the form of apparatus shown in the drawings the same solder may be used at both  $a^2$  and  $d^2$ , for the reason that when the apparatus is exposed to heat the solder at  $d^2$  will reach the melting-point much sooner than that at  $a^2$ , because of the much greater quantity of metal to be heated before the solder at  $a^2$  can be brought to the melting-point, and also because the water in the pipe to which the sprinkler is attached retards the rise of temperature of the sprinkler, and consequently retards the melting of the solder at  $a^2$ .

I have shown my invention as embodied by combining the White thermostat with the Grinnell sprinkler, both of which are well-known, and therefore need not be here described; but it will be clear that my invention is applicable to any other forms of thermostat and sprinkler, and also that the connection between them, which I have shown as the strips  $d$   $d'$ , soldered together at  $d^2$ , will require to be varied to suit the different thermostats and sprinklers to be combined, for the principle of my invention is the combination of a thermostat and an automatic sprinkler in such wise that the motion of the moving part of the sprinkler will cause or allow the thermostat to close the circuit, and also in such wise that the thermostat will operate automatically when the apparatus is exposed to heat before the sprinkler will operate, and my apparatus, the best form of which I show in the drawings, is wholly new, so far as I have any reason to believe, in combining these two features—namely, the mechanical control of a thermostat more sensitive than a sprinkler by a sprinkler less sensitive than the thermostat—thereby attaining a mode of opera-

tion and a result of great value and not attainable with any other apparatus heretofore known.

5 In practice a large number of my combined sprinklers and thermostats will be so arranged as to prevent or greatly diminish loss from fire and water, and as each of them is so constructed that it is practically impossible for  
10 of temperature until after one at least of the thermostats has closed its circuit an alarm will be given in case of fire before the sprinkler can operate to unduly damage the premises by an excessive discharge of water, while  
15 if any one of the sprinklers should be accidentally opened in any way its opening will cause the thermostat to perform its function as a circuit-closer, for in my new apparatus the thermostat is not only a thermostat proper,  
20 that is made to close its circuit by a rise of temperature, but is also a mechanical circuit-closer set in operation by the operation of its sprinkler.

What I claim as my invention is—

25 1. In combination an automatic sprinkler whose moving member is held by fusible sol-

der; a thermostat whose moving member is held by fusible solder out of contact with the metal of the sprinkler; and a mechanical connection secured at its inner end to the moving member of the sprinkler, and carrying at its outer end the solder of the thermostat; whereby the solder of the thermostat is freed from the causes which tend to prevent the rise of temperature of the solder of the sprinkler. 35

2. In combination an automatic sprinkler whose moving member is held by fusible solder; a thermostat whose moving member is a spring under tension; and a strip connected at its inner end to the moving member of the sprinkler, and at its outer end by fusible solder to the spring of the thermostat; to place the solder of the thermostat out of contact with the metal of the sprinkler, and free the solder which controls the thermostat from the causes  
40 which tend to prevent the rise of temperature of the solder which controls the sprinkler. 45

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Witnesses:

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