

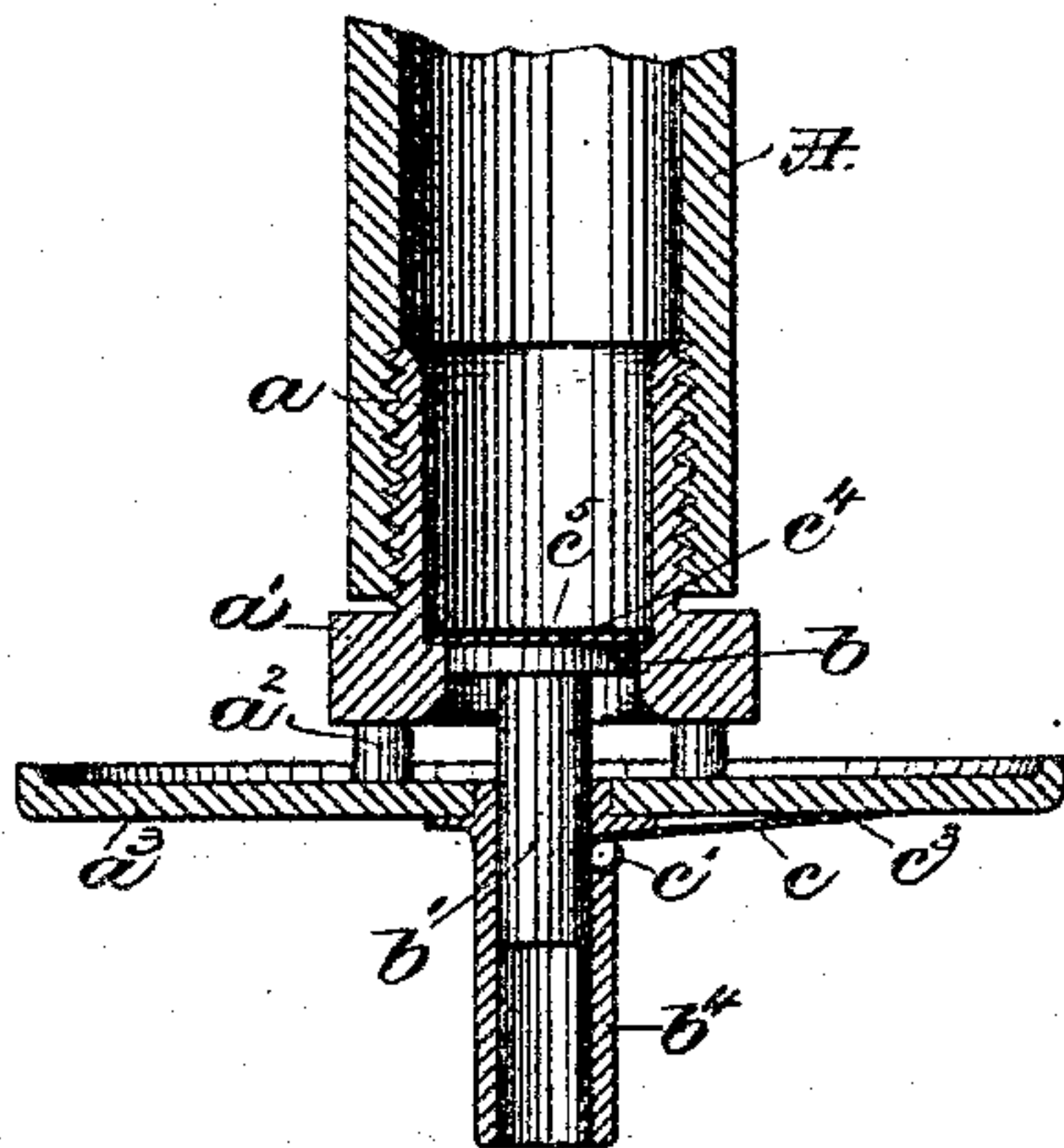
(No Model.)

C. F. ROPER.  
AUTOMATIC SPRINKLER.

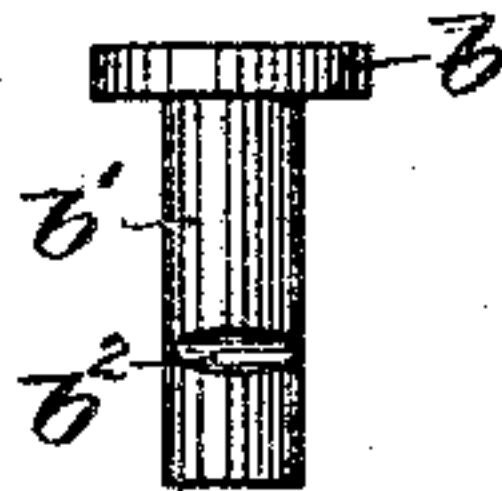
No. 412,204.

Patented Oct. 1. 1889.

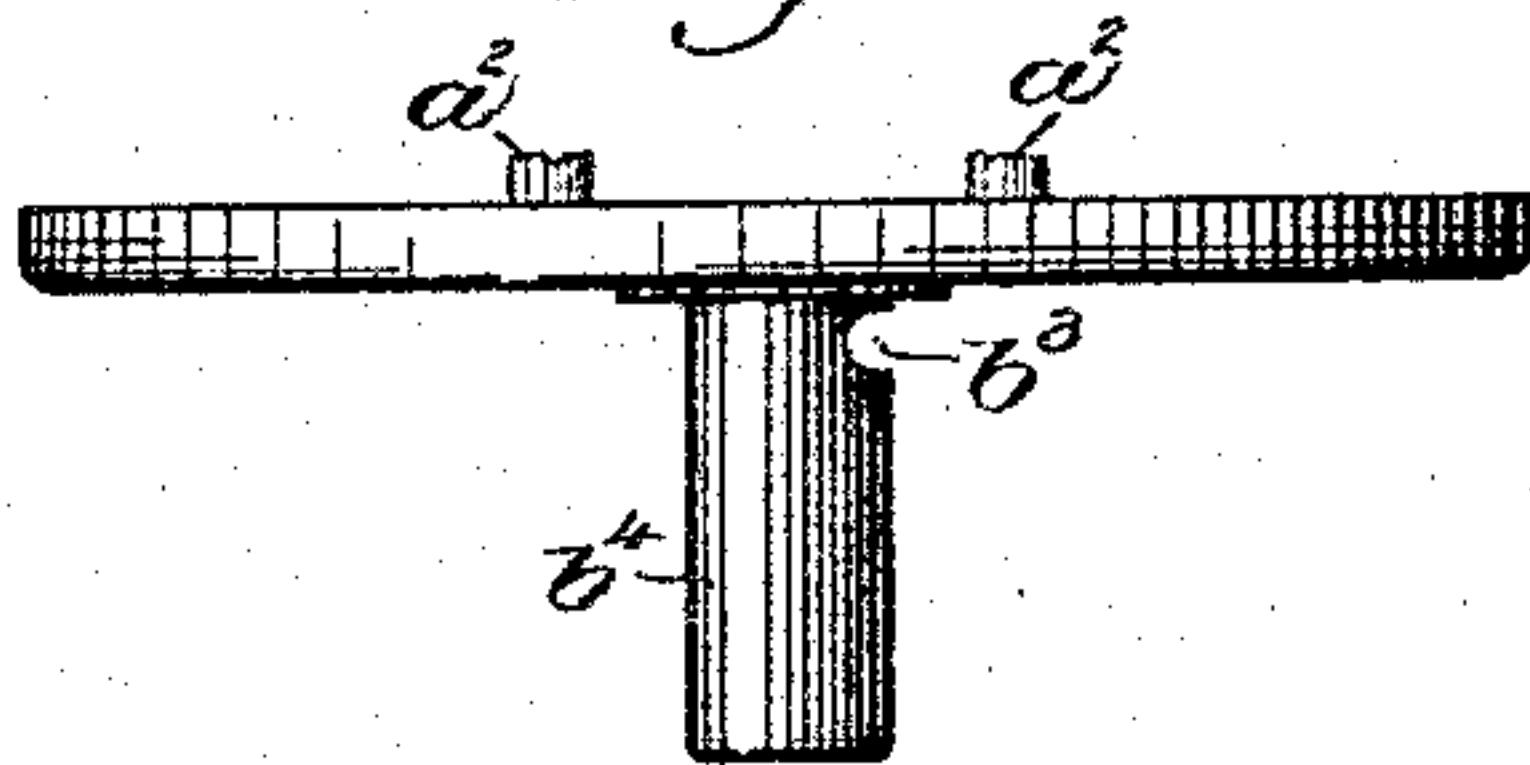
*Fig. 1.*



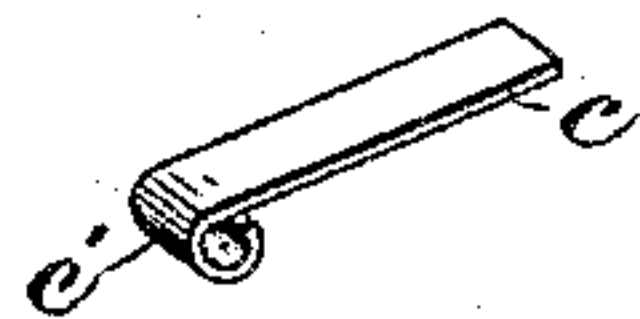
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses.

Frank E. Emery  
Fred. S. Greenleaf

Inventor

Charles F. Roper,  
by Lewis & Henry  
Attys.



# UNITED STATES PATENT OFFICE.

CHARLES F. ROPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO GEORGE DRAPER & SONS, OF SAME PLACE.

## AUTOMATIC SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 412,204, dated October 1, 1889.

Application filed June 8, 1889. Serial No. 313,557. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. ROPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Automatic Sprinklers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to automatic sprinklers of that class in which the valve controlling the supply of water or other medium, as gas, is held closed by means of a fusible solder or other material having a low melting-  
15 point.

My present invention has for its object to provide an automatic sprinkler of the class referred to which shall be simple in construction, yet most efficient in operation.

20 My invention therefore consists, essentially, in the combination, with a valve-casing adapted to be secured to a supply-pipe, of a valve fitted into said casing and provided with a stem having a peripheral groove or slot, a support having a slot to correspond in position with the slot when the valve is closed, and a retaining-plate to operate substantially as will be described.

30 Figure 1 is a vertical section and elevation of a sufficient portion of an automatic sprinkler embodying my invention to enable it to be understood, the valve and its stem being shown in elevation; Fig. 2, a detail of the valve removed; Fig. 3, a detail in elevation of the deflector and its attached sleeve or support, and Fig. 4 a detail to be referred to.

35 The pipe A, the threaded nipple  $a$ , forming part of the valve-casing  $a'$ , provided with the feet  $a^2$ , secured to the deflector-plate  $a^3$ , and having the annular ledge  $a^4$ , may be substantially such as shown and described in another application, Serial No. 313,566, filed by me June 8, 1889.

45 The valve-casing  $a'$  receives within it the valve  $b$ , preferably a disk, to which is secured the valve stem or rod  $b'$ , provided on its periphery with a transverse groove or slot  $b^2$ , which comes opposite a similar slot  $b^3$  in a

support shown as a tube or sleeve  $b^4$  when the valve is in its normal or closed position, 50 as shown in Fig. 1. The valve  $b$  is retained closed by means of a retaining device, preferably a metal plate, bent or rounded at one end to form an enlargement  $c'$ , (see Fig. 4,) which is extended through the slot  $b^3$  of the sleeve 4 55 and into the groove  $b^2$ , the said bar having its outer end secured to the deflector by the fusible solder  $c^3$ . The valve is rendered water-tight, preferably, by one or more disks  $c^4$ , of tin-foil, and the packing  $c^5$ , of paraffine, 60 (indicated by heavy dark lines  $c^5$ , Fig. 1,) the said disk of tin-foil resting upon the annular ledge  $a^4$ .

In the operation of my improved sprinkler the valve  $b$  is maintained closed until the 65 temperature of the locality in which the sprinkler is located reaches a point at which the solder  $c^3$  fuses. When this point is reached, the plate  $c$  drops by gravity, assisted by the pressure of the water upon the valve, 70 the latter being forced below the valve-casing and, as herein shown, upon the deflector.

In order that the plate  $c$  may not be accidentally retained in operative position, and thereby maintain the valve  $b$  entirely or partially closed after the solder has melted, the 75 groove  $b^2$  is preferably made of a depth less than one-half of the diameter of the enlargement  $c'$  on the plate  $c$ , so that when the solder becomes melted the force of the water 80 will throw the plate  $c$  out of the slot  $b^3$  in the sleeve or support  $b^4$ .

I claim—

1. In an automatic sprinkler, the combination, with a valve-casing adapted to be se- 85 • cured to a supply-pipe, of a valve fitted into said casing and provided with a stem having a peripheral groove or slot, as  $b^2$ , a support having a slot to correspond in position with the slot  $b^2$  when the valve is closed, and a re- 90 taining-plate, as  $c$ , to operate substantially as described.

2. In an automatic sprinkler, the combination, with a valve-casing adapted to be se- 95 cured to a supply-pipe and a deflector secured to said casing, of a valve fitted into said cas-

ing and provided with a stem having a peripheral groove or slot, as  $b^2$ , a support having a slot to correspond in position with the slot  $b^2$  when the valve is closed, and a retaining-plate, as  $c$ , having one end secured to the deflector and its other end inserted into said groove, substantially as described.

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

CHARLES F. ROPER.

Witnesses:

E. D. BANCROFT,

H. F. SEARLES.