

(No Model.)

E. M. COOK.  
AUTOMATIC SPRINKLER HEAD.

No. 584,461.

Patented June 15, 1897.

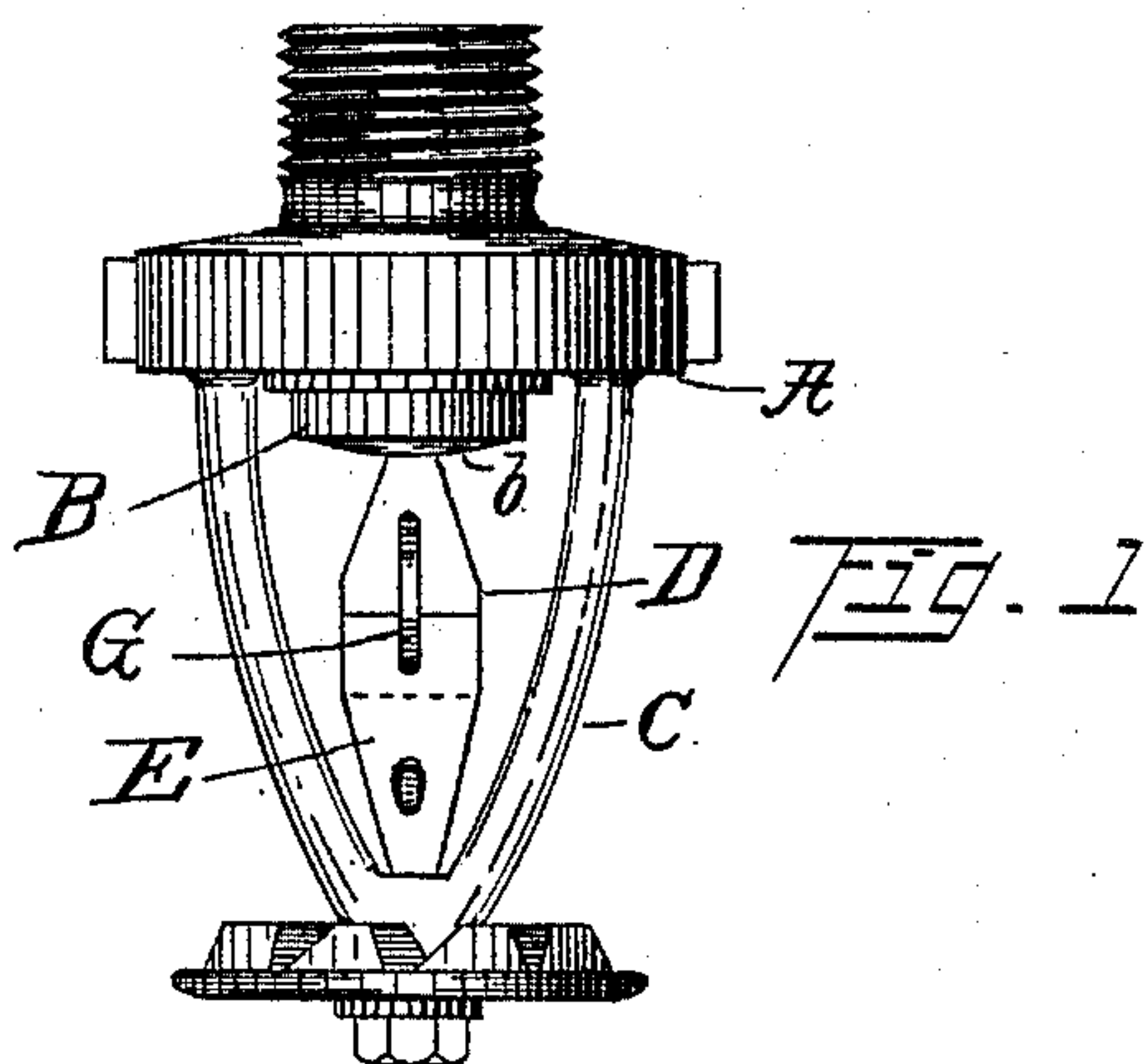
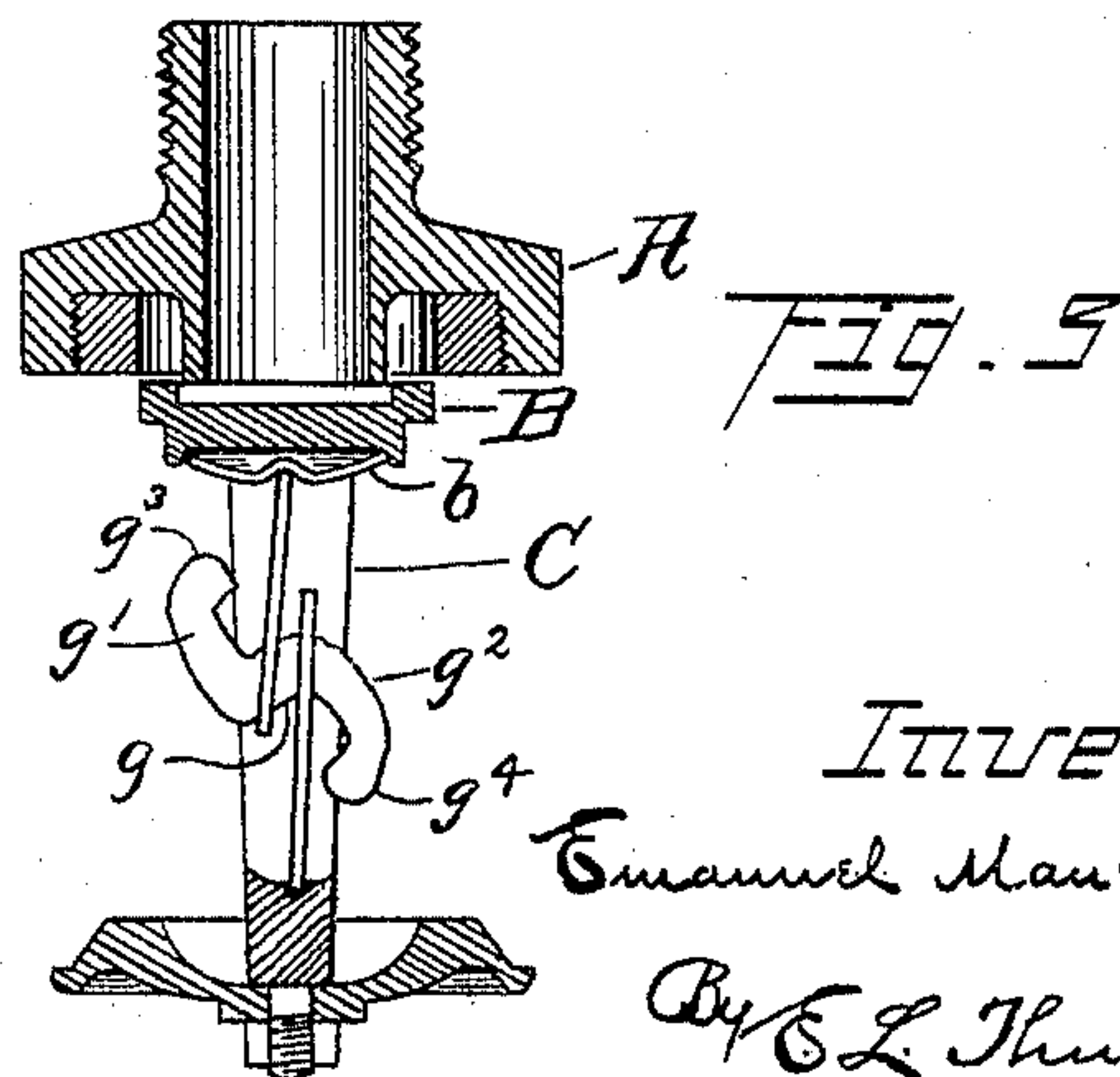
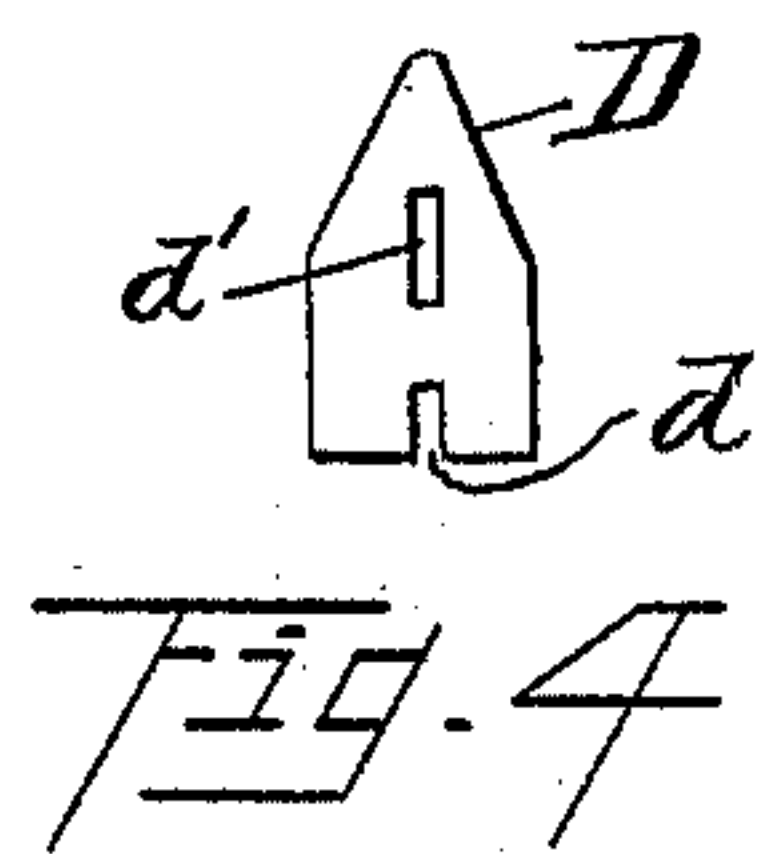
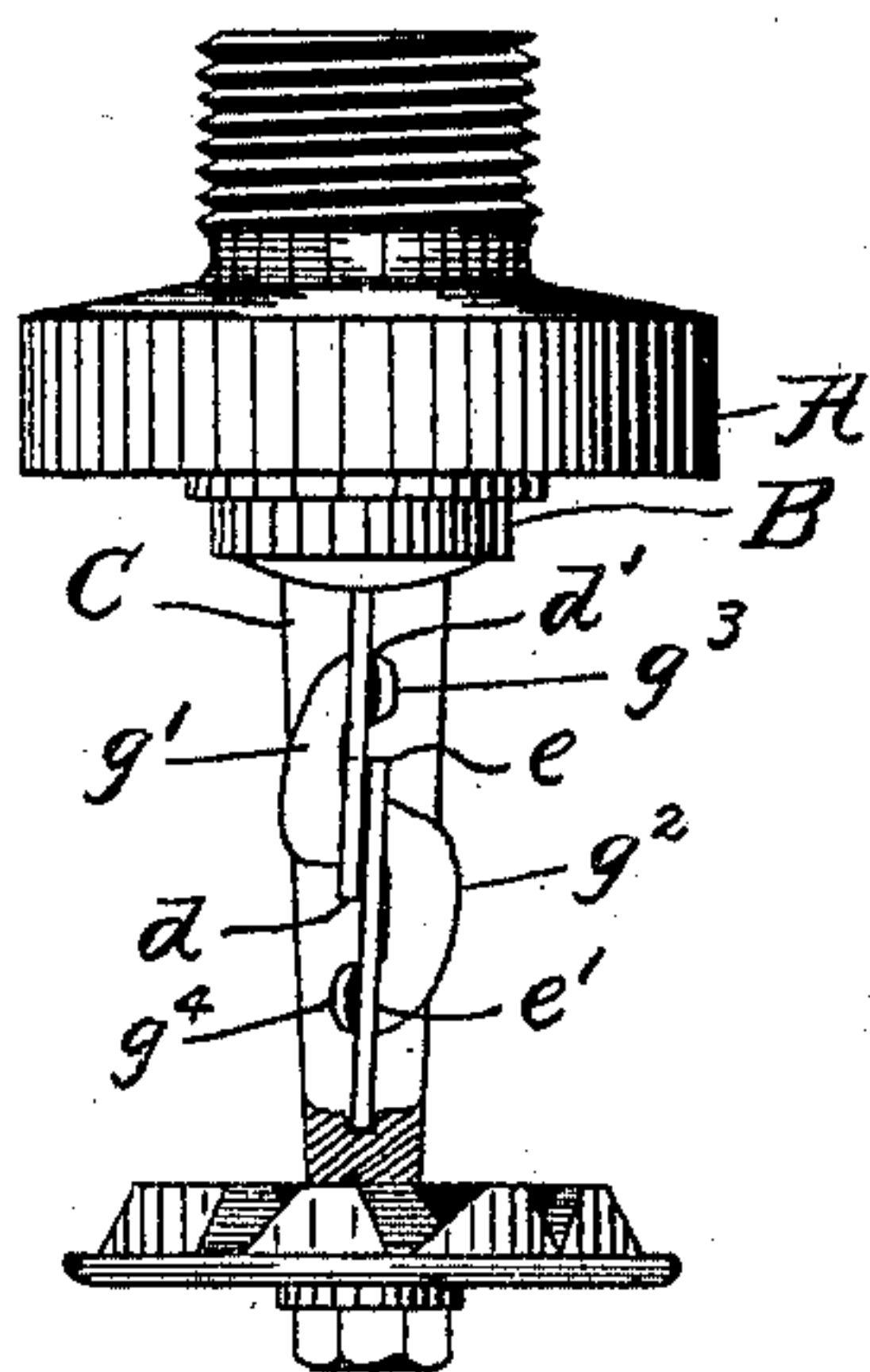


Fig. 2



Witnesses.

*L. Griswold*

*Edwin C. J. De Vis*

Inventor.

*Emanuel Mancy Cook*

*By E. L. Thurston*  
his atty.



# UNITED STATES PATENT OFFICE.

EMANUEL MANEY COOK, OF INDIANAPOLIS, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE GENERAL FIRE EXTINGUISHER COMPANY, OF OHIO.

## AUTOMATIC SPRINKLER-HEAD.

SPECIFICATION forming part of Letters Patent No. 584,461, dated June 15, 1897.

Application filed July 8, 1895. Serial No. 555,239. (No model.)

*To all whom it may concern:*

Be it known that I, EMANUEL MANEY COOK, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Automatic Sprinkler-Heads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention belongs to the class of sprinkler-heads which are connected at intervals to water-distributing pipes suspended in a building and are held closed under normal conditions by means which permit them to open automatically when the temperature is raised by the breaking out of a fire in their vicinity.

The invention relates particularly to the strut or brace which is employed to hold the sprinkler-valve closed; and the object of the invention is to provide and combine with the sprinkler and its valve a strut of novel construction which with very little strain upon the fusible solder with which its parts are connected will hold the valve closed, but which in the presence of the proper degree of heat will quickly and surely separate into its component parts, to the end that the valve shall be completely released. The invention consists in the construction and combination of the parts hereinafter described and claimed.

In the drawings, Figure 1 is an elevation of the improved sprinkler-head. Fig. 2 is a side view with one side of the yoke broken away. Fig. 3 is a view similar to Fig. 2, but showing the valve open. Fig. 4 is a view of the upper part of the strut.

Referring to the parts by letter, A represents an automatic sprinkler-nozzle, B a disk valve for closing it, and C a yoke attached to the nozzle in the usual way. *b* represents a spring-cap which is preferably used, and when used lies against the outer side of the valve. The strut or brace for holding the valve closed consists of three pieces D, E, and G, which are constructed and connected in the manner to be presently explained. When in use for the intended purpose, one end of the strut

engages the middle point of the valve B or spring-cap *b*, if the latter be used, while its other end engages the lower part of the yoke, wherefore it holds the valve closed so long as its parts remain connected.

The piece D is preferably stamped from a sheet of brass or other suitable material. It has a notch *d* in one end, and in its most perfect form has also a slot *d'* between its ends, as shown.

The piece E is similar to the piece D in form, having the notch *e* in one end and the slot *e'* between its ends.

The piece G is approximately S-shaped. Its middle part *g*, when the pieces are connected and secured in place to hold the valve closed, is substantially horizontal, and its length is substantially equal to the combined thickness of the two pieces D and E. The substantially vertical parts *g'* *g''* of the piece G extend in opposite directions from opposite ends of the part *g*. In its completeness and perfection the piece G is also provided with substantially horizontal ends *g'''* *g''''*, which extend in opposite directions from the outer ends of the parts *g'* *g''*.

When the three pieces are assembled to form the strut, the part *g* of the piece G lies in the notches *d* and *e* in the pieces D and E, respectively. The overlapping portions of the pieces D and E are in contact. The parts *g'* and *g''* of the piece G lie against the outer sides of the parts D and E, and the ends *g'''* and *g''''* pass through the slots *d'* and *e'*, respectively. When in this position, easily-fusible solder having any desired melting-point is applied, so as to unite all of the parts which, as above explained, are in contact. This solder will adhere to the projecting ends *g'''* *g''''*, forming a sort of bur, which, since said ends are fitted nicely to the slots *d'* and *e'* will prevent the withdrawal of said ends through the slots.

When the strut above described is holding the valve closed, very little of the strain is borne by the solder. The endwise thrust of the pieces D and E is against the part *g* of the piece G. The relative position of the three pieces cannot change until the piece G is turned like a lever, in substantially the manner indicated in Fig. 3. The bearing-



points of the pieces D and E upon the part *g* are so close together that they exert only a little leverage tending to turn it, and this tendency is resisted not only by the solder which fastens the parts together, but to a great degree by the burs of solder upon the ends  $g^3 g^4$ . Nevertheless, the leverage of the pieces D and E upon the part *g* is sufficient to cause it to turn in the direction shown in Fig. 3 when the solder is softened by heat, and the softened solder acts substantially like a lubricant to facilitate the relative movement of the parts. Immediately the part G begins to move the parts of the three pieces begin to separate, as shown in Fig. 3, wherefore the breaking up of the strut and the complete release of the valve is insured. The sprinkler-head above explained is adapted for use in either a wet or dry pipe system.

20 Having described my invention, I claim—  
In an automatic fire-extinguisher, the combination of a nozzle, a valve-disk, and a yoke

attached to said nozzle, with a strut engaging with said disk and yoke and composed of, first, the piece D having a notch in its inner end and a slot between its ends, and, second, the piece E having a notch in its inner end and a slot between its ends, and, third, the piece G having a substantially horizontal central part which lies in said notches, two parts  $g' g^2$  which extend in opposite directions from opposite ends of said central part, and two approximately horizontal ends  $g^3 g^4$  which extend in opposite directions from the outer ends of said parts  $g' g^2$  and lie in said slots respectively, and easily-fusible solder for connecting said pieces, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

EMANUEL MANEY COOK.

Witnesses:

ADDIE L. HARDY,  
MARIA E. MURRY.

Correction in Letters Patent No. 584,461

It is hereby certified that the assignee in Letters Patent No. 584,461, granted June 15, 1897, upon the application of Emanuel Maney Cook, of Indianapolis, Indiana, for an improvement in "Automatic Sprinkler-Heads," should have been described and specified as *The General Fire Extinguisher Company, of New York*, instead of "The General Fire Extinguisher Company, of Ohio," and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 27th day of July, A. D. 1897.

[SEAL.]

WEBSTER DAVIS,  
*Assistant Secretary of the Interior*

Countersigned:

BENJ. BUTTERWORTH,  
*Commissioner of Patents.*