

No. 828,093.

PATENTED AUG. 7, 1906.

N. L. DANFORTH.
AUTOMATIC SPRINKLER HEAD.
APPLICATION FILED MAR. 20, 1905.

FIG. 1.

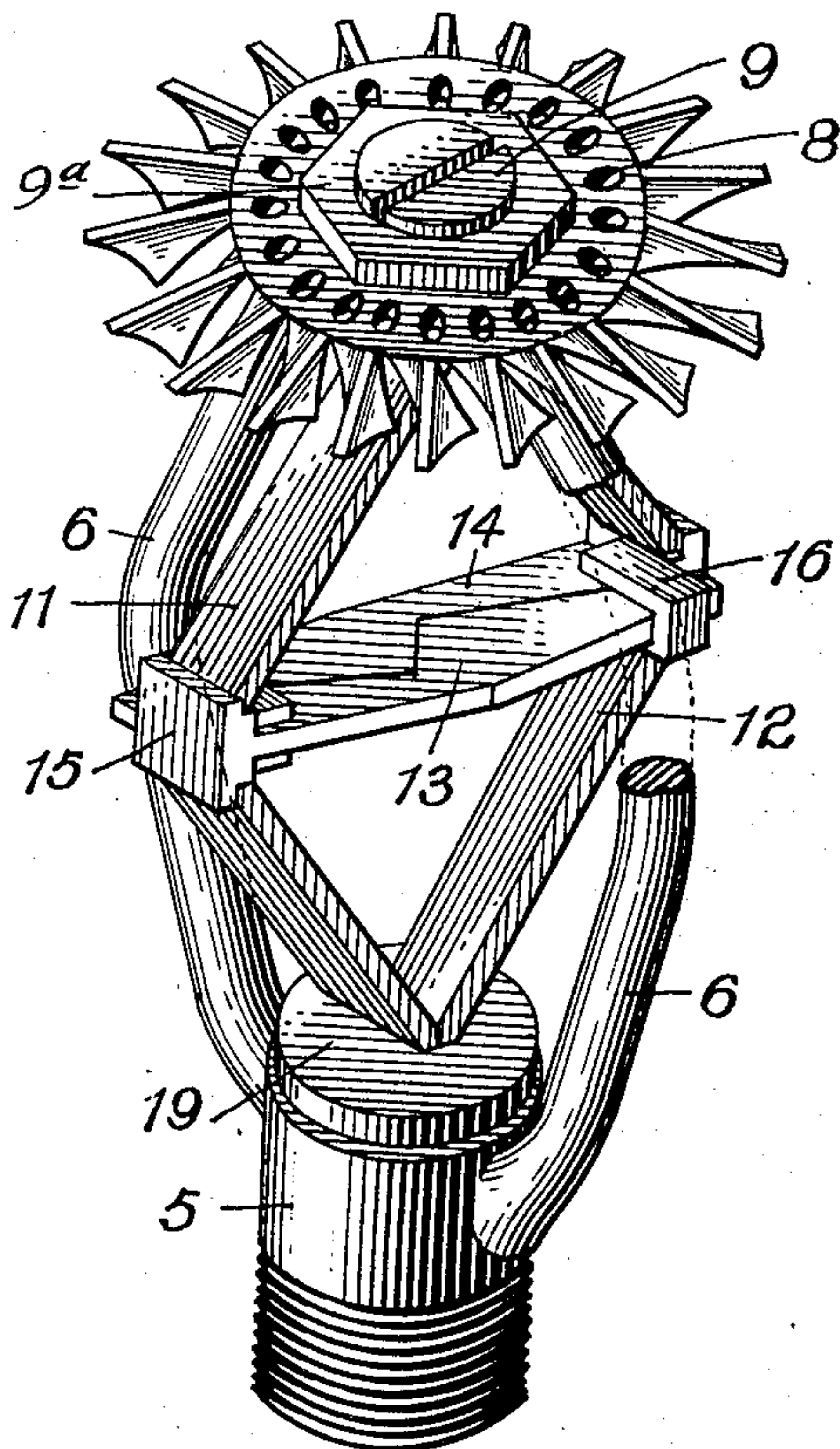


FIG. 2.

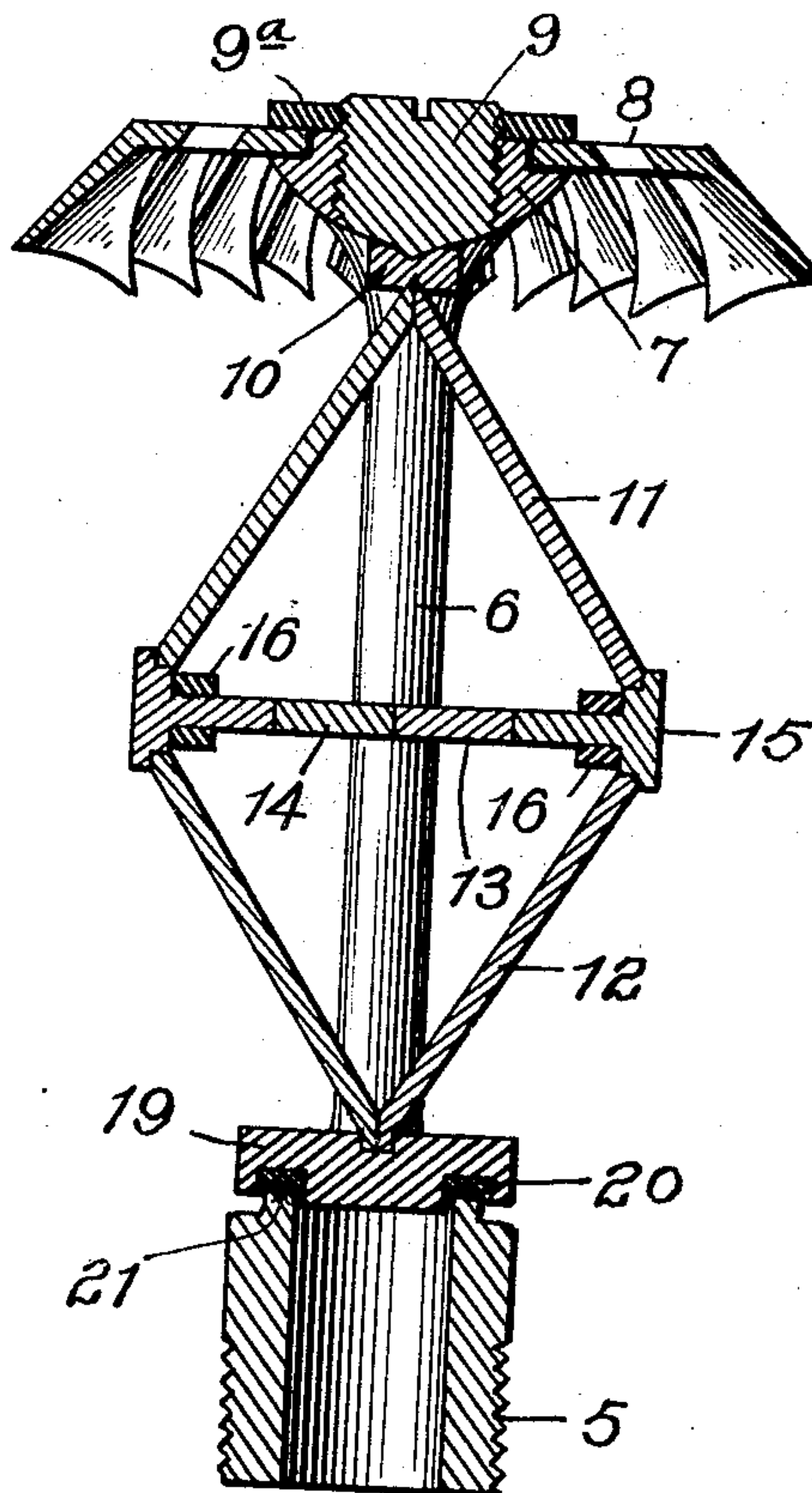


FIG. 3.

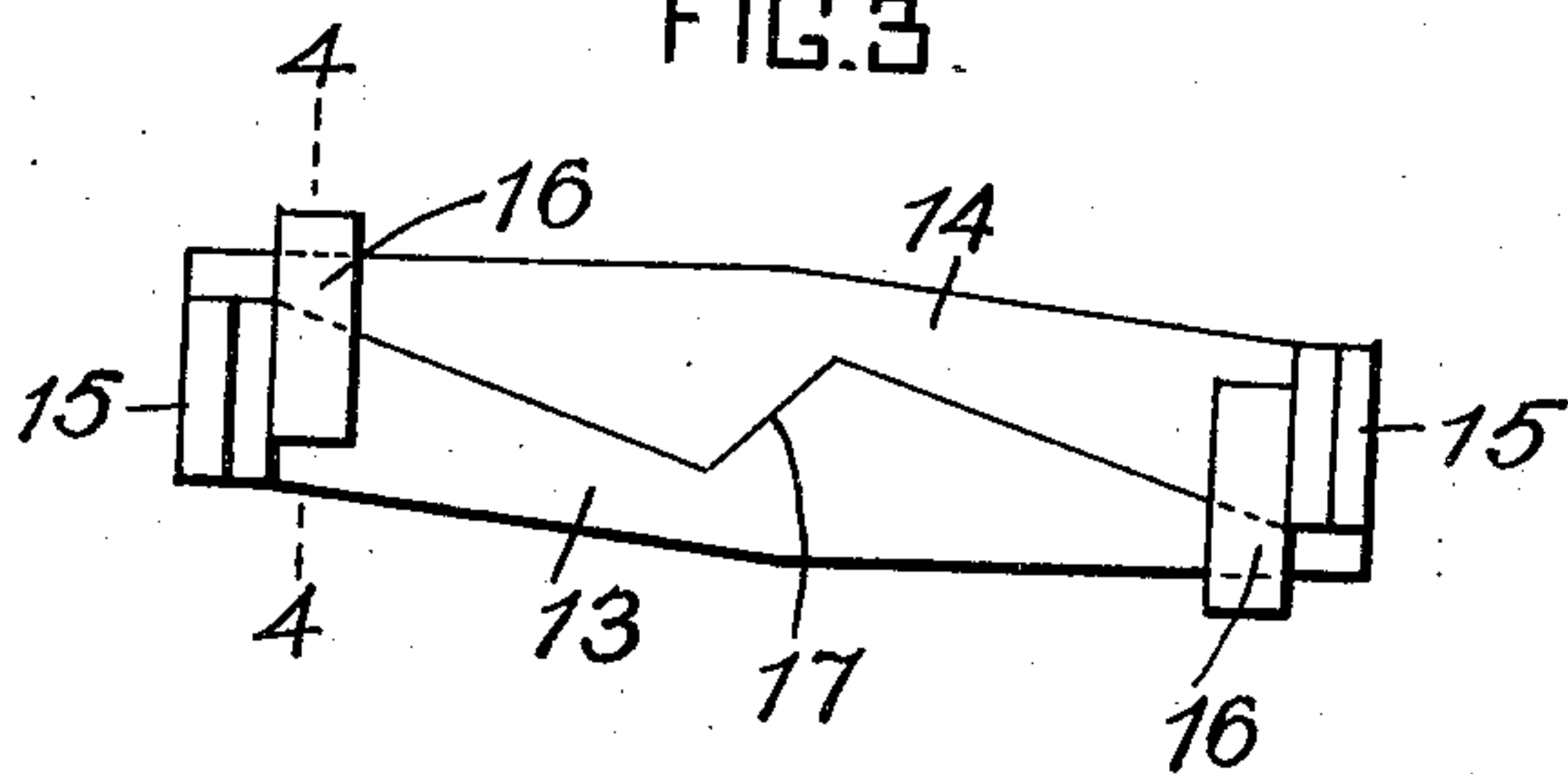
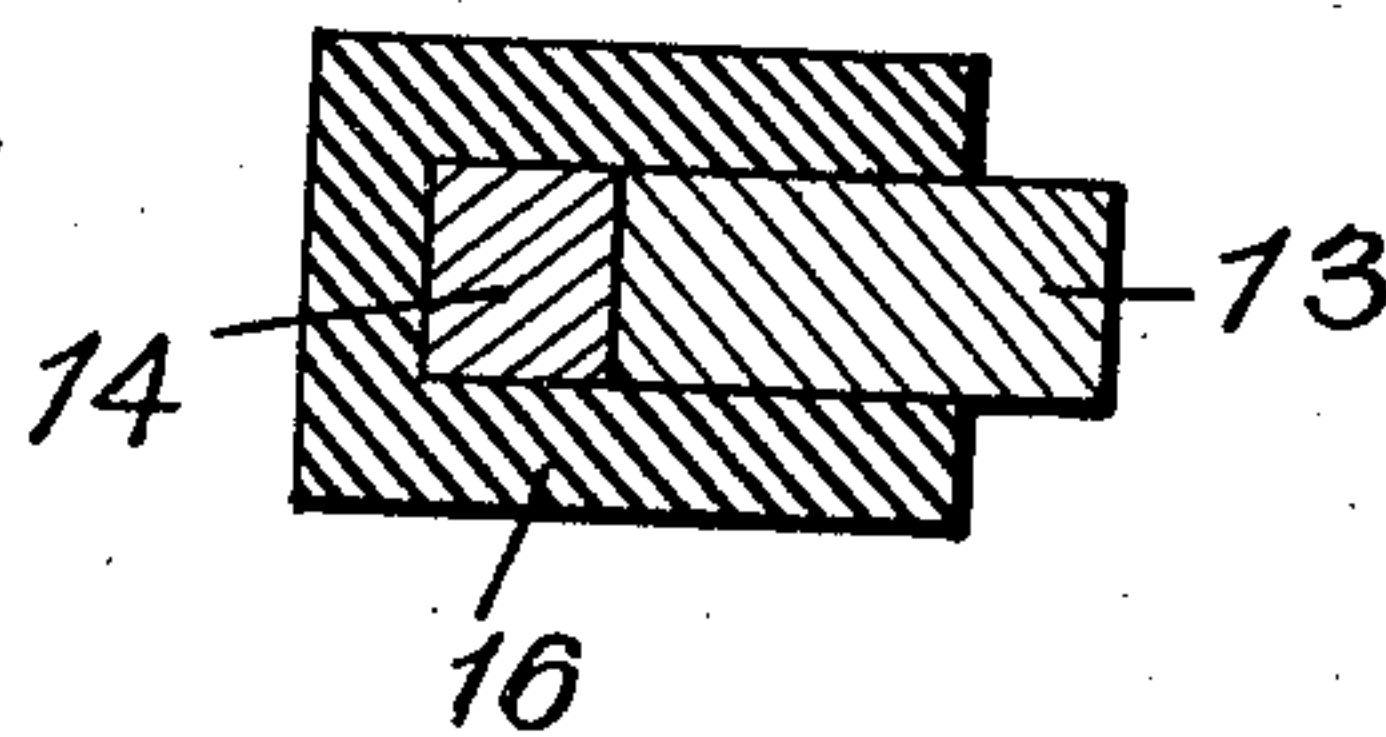


FIG. 4.



WITNESSES:

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AUTOMATIC SPRINKLER-HEAD.

No. 828,093.

Specification of Letters Patent.

Patented Aug. 7, 1906.

Application filed March 20, 1905. Serial No. 251,130.

To all whom it may concern:

Be it known that I, NEWMAN LORING DANFORTH, a citizen of the United States, residing at Buffalo, in the State of New-York, have invented certain new and useful Improvements in Automatic Sprinkler-Heads, of which the following is a specification.

My invention relates to stationary fire extinguisher systems and especially the automatic sprinkler nozzles used therein, and particularly to means for releasing the outlet valve when the temperature rises to the desired point for putting the sprinkler into operation. Its principal objects are, to provide for great strength and rigidity of the holding devices without requiring a heavy or cumbersome fusible device for holding the parts in position; to make a more easy and certainly operating releasing device, and to generally improve the structure and operation of automatic sprinkler heads. These objects and other advantages which will hereinafter appear, I attain by means of the construction illustrated in a preferred form in the accompanying drawing, wherein—

Figure 1 is a perspective view of the head, a part of the frame being broken away;

Figure 2 is a vertical central section taken through the holding frame and the valve;

Figure 3 is a plan view of the collapsible link of the holding frame; and

Figure 4 is an enlarged cross-section taken through the fusible link 16 on line 4-4 in Figure 3.

The water pipe nozzle 5 may be formed in the usual manner, with a rigid frame 6 which has a head 7 upon which is attached a distributing vane 8 held thereon by means of set screw 9 and the nut 9^a as is customary.

The adjusting screw 9 preferably ends in a point and engages a block 10 which has a conical depression to receive the screw, and this block rests upon the holding frame consisting of the diagonal legs 11 and 12 whose ends rest loosely upon the collapsible cross-bar in the middle. This bar is composed of the two like parts 13 and 14, which at their ends are provided with seating heads 15 for holding the diagonal braces 11 and are formed as shown in Figure 3 to engage on inclined surfaces 17, which prevent the two members 13 and 14 from sliding longitudinally past each other without spreading laterally. The ends of the bars 13, 14, are held in contact with each other by means of a strap 16 which engages one of them and is

soldered to the other, being either all fusible or soldered by some material which will melt at the temperature which the sprinkler head is desired to discharge, as will be well understood. The frame formed by the diagonal braces 11 and 12 rests on a valve plate 19 preferably made of porcelain, and this on a pliable washer 20 and a glass or mica disk 21 closing the mouth of the pipe 5 as is usual in such constructions.

It will be observed that in this construction the pressure exerted by the screw 9 upon the frame is directly taken upon the valve 19 and is maintained as long as the two members 13 and 14 of the central retaining strut are not allowed to slide past each other in a longitudinal direction, and this is prevented by the inclined surface 17, since the parts are prevented from spreading motion by the strap 16. Thus a great deal of power in holding the frame on the valve is obtained without placing any very great strain upon the fusible member or solder which holds the straps 16; and it will be understood that when the temperature rises the collapsing of either one of the straps 16, when melted, will allow the corresponding end of the member of the central strut to move out sidewise, thus allowing the surfaces 17 to slide upon one another elongating the brace, and thereupon the ends of the diagonals 11, 12, will be allowed to spread horizontally and release the pressure upon the valve, opening the sprinkler head. The water strikes the vane 8 and this may be provided with inclined wings as shown, in order to revolve when desired, or otherwise to distribute the stream of water in the form of a spray. Various other advantages of this device will readily occur to those familiar with its use.

Having thus described my invention and illustrated its use, what I claim as new, and desire to secure by Letters Patent, is the following:

1. In an automatic sprinkler head the combination with the valve thereof, of a retaining frame comprising diagonal members 11, 12, two retaining bars 13, 14, each held at one end by two of said diagonals and each overlapping the other bar and engaging it on an inclined surface, and fusible links engaging the free end of each bar and retaining it against the other bar, whereby the retaining bars may pull apart longitudinally when the fusible links are melted, and allow collapse of all the diagonal members simultaneously.

2. In an automatic sprinkler head a collapsible frame comprising diagonal members in pairs with their ends opposite each other at the center, a compound retaining link held by said diagonals and comprising two bars engaging each other on an inclined surface and retained together by fusible members engaging their ends, substantially as described.
3. In an automatic sprinkler head the combination with the diagonal retaining braces 11 and 12, and the central retaining strut comprising the members 13 and 14 having the shoulders 15 for seating the diagonal braces and engaging upon a diagonal surface 17, the said members being held together at the ends only by means of the fusible link 16, substantially as described.
4. In an automatic sprinkler head the combination with the valve and rigid frame, the adjusting nut 9 and the diagonal braces 12, of a collapsible central strut for retaining said diagonal braces in place, comprising two members engaging each other so that they are required to spread laterally in order to

slide longitudinally and said parts being prevented from laterally spreading by means of a fusible retaining device 16, substantially as described.

5. In an automatic sprinkler head the combination with a rigid frame containing the adjusting pressure plug 9, a valve and a seating block on the pressure plug, of a collapsible frame between said block and the valve comprising diagonal members having their inner ends opposite each other, and a compound shouldered retaining link consisting of two bars engaging each other on inclined surfaces and each held at one end by two of the diagonals, and fusible links connecting the free end of each bar to the other bar, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

NEWMAN LORING DANFORTH.

Witnesses:

MOREY C. BARTHOLOMEW.

A. GLENNI BARTHOLOMEW.