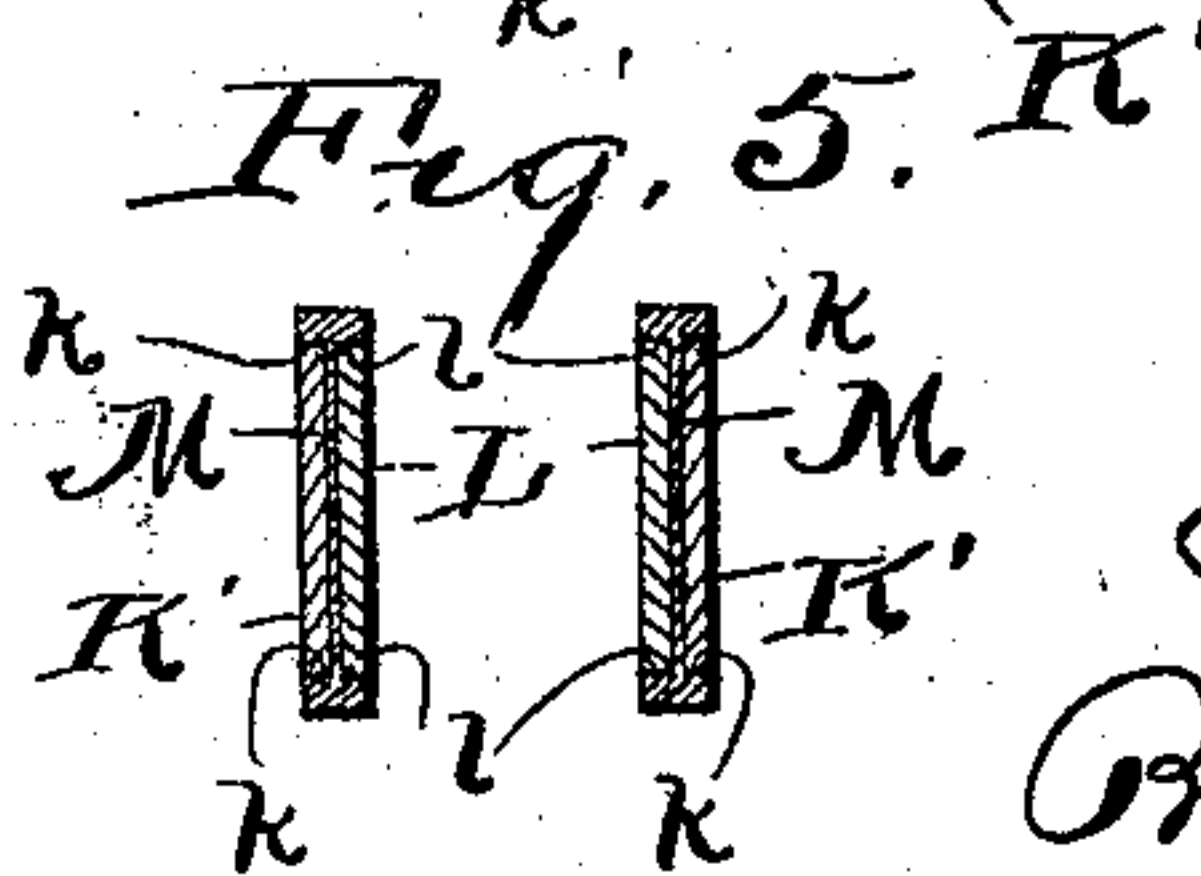
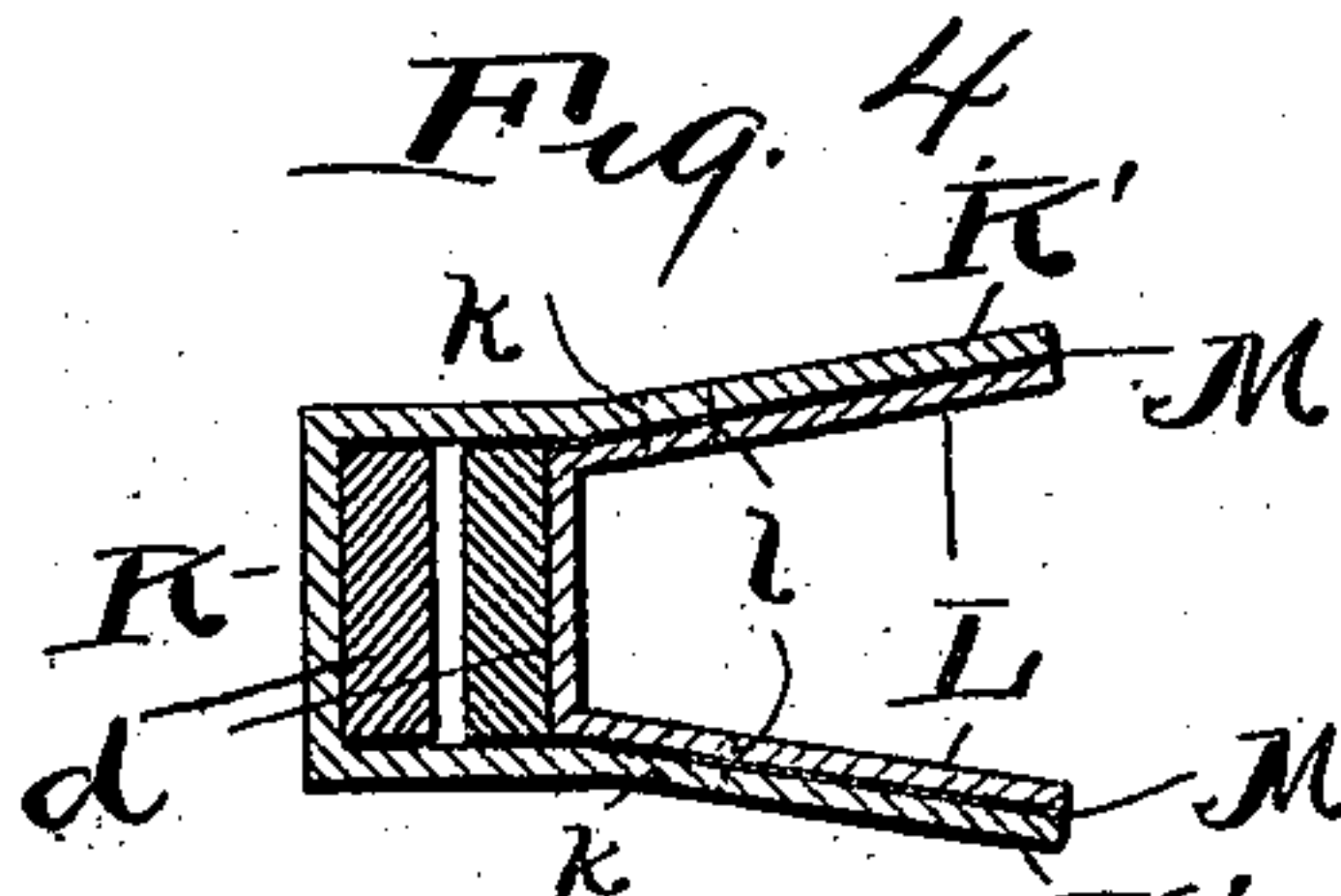
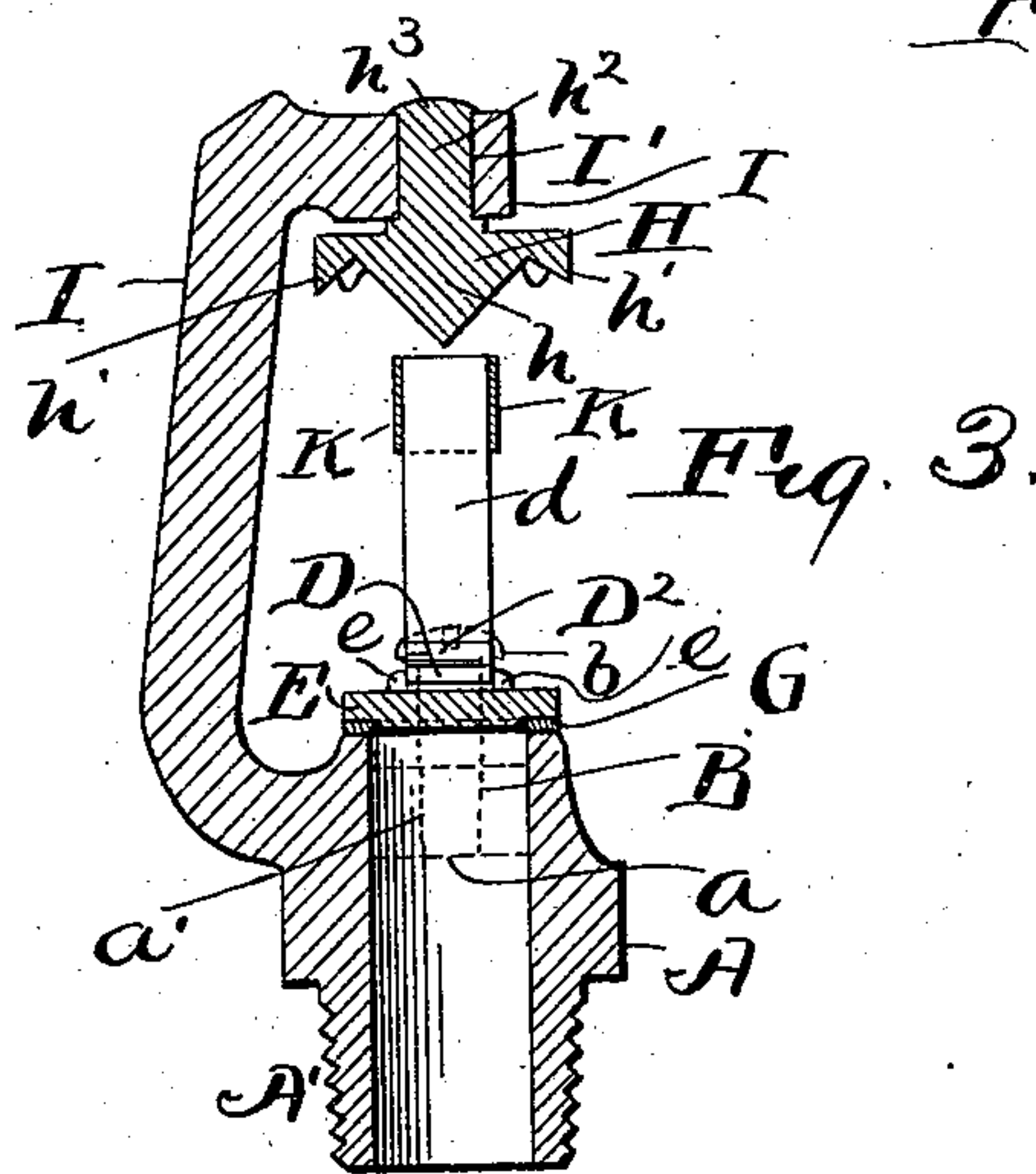
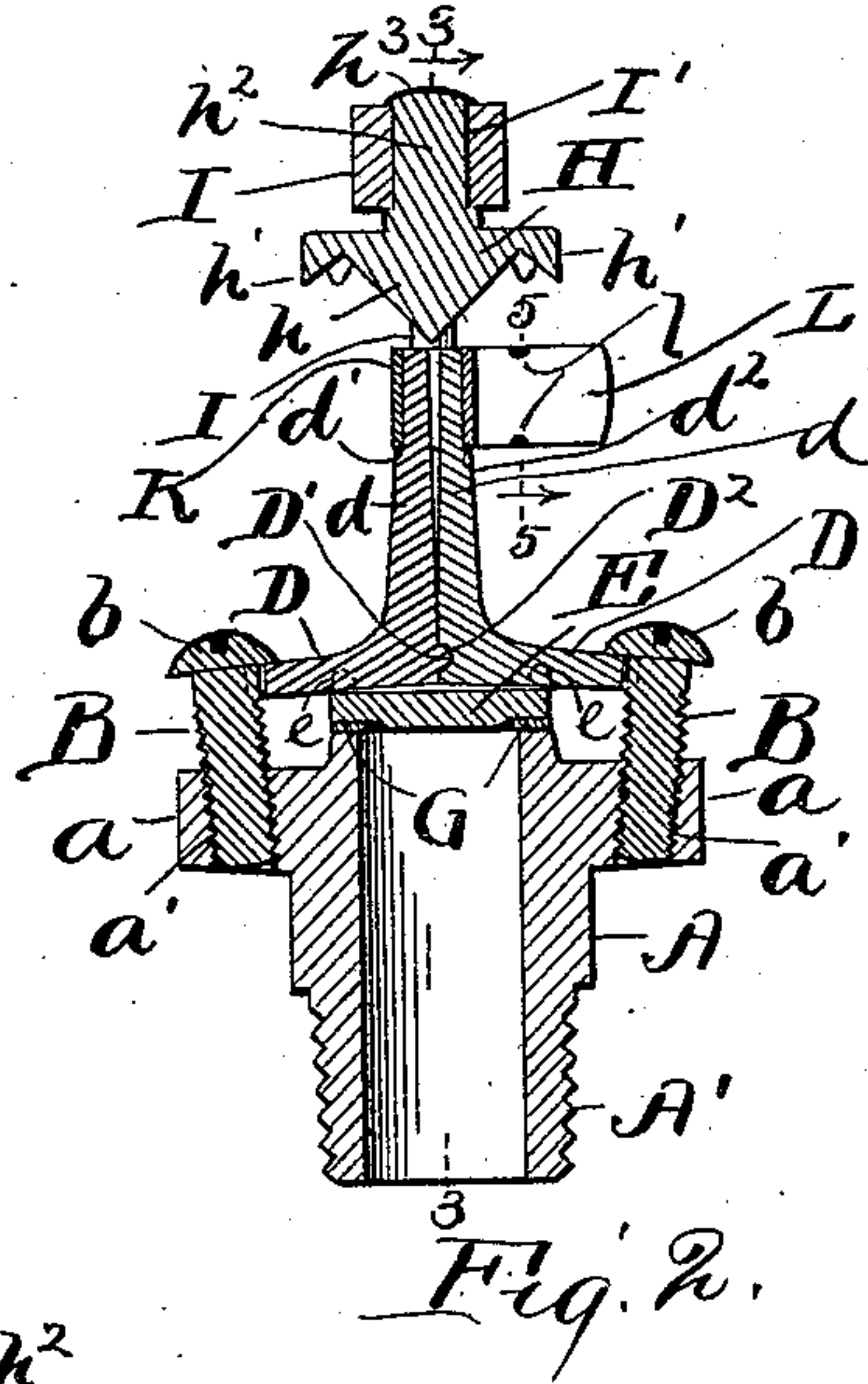
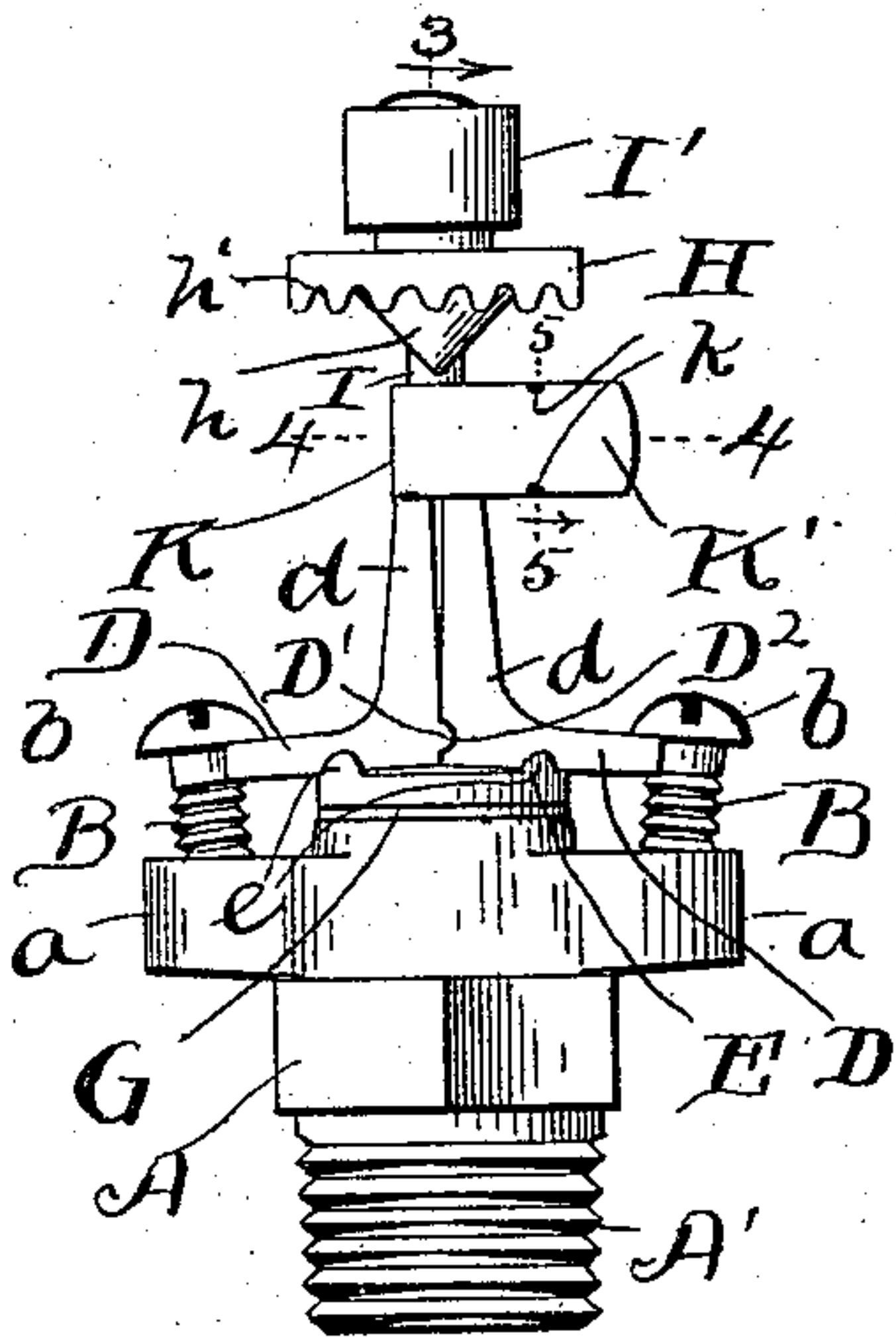


(No Model.)

J. T. HILL.
AUTOMATIC FIRE SPRINKLER.

No. 551,162.

Patented Dec. 10, 1895.



Witnesses.
E. B. Gilchrist
Crowder

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UNITED STATES PATENT OFFICE.

JOHN T. HILL, OF CLEVELAND, OHIO.

AUTOMATIC FIRE-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 551,162, dated December 10, 1895.

Application filed March 12, 1895. Serial No. 541,436. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. HILL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful
5 Improvements in Automatic Fire-Sprinklers; 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 pertains to make and use
10 the same.

My invention relates to improvements in automatic fire-sprinklers; and it consists in certain features of construction and combinations of parts, hereinafter described, and
15 pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a sprinkler embodying my invention. Fig. 2 is an elevation corresponding with Fig. 1, except that in Fig. 2 the device is shown in central vertical section. Fig.
20 3 is a central vertical section on line 3 3, Figs. 1 and 2. Fig. 4 is a transverse section on line 4 4, Fig. 1. Fig. 5 is a section on line 5 5, Figs. 1 and 2.

My improved sprinkling device comprises a short tube or pipe A, the inner end whereof is shown screw-threaded externally, as at A', for screwing the same into a correspondingly-threaded hole of the water-supply pipe. (Not
30 shown.) Tube or pipe A, at its opposite or outer end, is provided with two laterally-projecting lugs or ears a that are provided with screw-threaded holes a' for receiving correspondingly-threaded screws B whose heads b
35 engage the outer sides of co-operating jaws D D that engage the outer side of and secure valve E in its closed position, said valve normally closing the outer end or discharging-opening of pipe or tube A, and a washer G is
40 preferably interposed between said end of the pipe or tube and valve. Jaws D D engage valve E at diametrically-opposite points, respectively. Said jaws extend outwardly a suitable distance beyond the edge of the valve
45 into engagement with the heads of screws B, that, together with the two engaging holes in lugs or ears a, are, of course, also located diametrically opposite each other. One of the jaws D, at its inner end, is provided with a
50 rounded tongue or tenon D' that engages a corresponding groove or recess D² in the inner end of the co-operating jaw. Each jaw

D, at its inner end, is provided with an arm d extending outwardly in line or approximately in line with tube or pipe A. Jaws D
55 are secured in their operative position by any suitable means that holds the outer ends of arms d together, and hence when said means is rendered inoperative the co-operating
jaws, by the pressure exerted upon the outer
60 ends of the jaws by means of screws B, separate and free the valve that is immediately thereupon forced from its seat by the pressure of the water and air under said valve, thereby permitting the water to escape from
65 tube or pipe A and impinge a sprinkler or sprayer H, by which the water is sprayed or sprinkled laterally in all directions over an area, from twenty to twenty-six feet in diameter, according to the water-pressure.
70

Sprayer or sprinkler H consists, preferably, of a disk provided with a centrally-located conical member h arranged in line with pipe or tube A and having its apex presented inwardly in the direction of said tube or pipe,
75 and the aforesaid disk, at its periphery, being provided with inwardly-projecting teeth or projections h' arranged at short intervals along said periphery and equal distances from the apex of the aforesaid conical member of the sprinkling or spraying device, by
80 which construction the water, upon impinging conical member h, is sprinkled or sprayed laterally through the openings formed between teeth or projections h'. The sprinkler
85 has an outwardly-extending stem h² that extends through a hole I' in an arm I that is rigid and preferably integral with tube or pipe A, stem h², at its outer end, having a head h³ formed thereon, which head engages
90 the outer side of arm I.

The means employed to hold the upper ends of jaw-arms d together consists preferably of a metallic clamp or strap K that extends around the three outer sides of one
95 arm d, as shown in Fig. 4, and past the oppositely-located outer sides of the other arm d, the portions K' of the clamp or strap that extend outwardly beyond said last-mentioned arm d diverging somewhat toward their outer
100 or free extremities. A metallic U-shaped piece L is interposed between said diverging members of clamp or strap K, the central member of which U-shaped piece engages

the central outer side of the adjacent jaw-arm d , and the end members whereof are soldered, as at M, to members K'. By the construction just described it will be observed
 5 that when a fire or solder-fusing heat occurs in the room wherein my improved automatic fire-sprinkler is employed the solder-holding members K and L together will fuse and render jaws D D inoperative, thereby permitting
 10 the valve to be automatically lifted, and resulting in the operation of the sprinkler. Diverging members K' and member L, at oppositely-located edges of said members, are preferably provided with registering recesses
 15 k and l , respectively, which recesses are also filled with solder, by which construction, in conjunction with the solder between opposing surfaces of members K' and L, clamp or strap K is securely held in its operative position until the fusion of the solder.

Arm d , around whose three outer sides the clamp extends, preferably engages a shoulder d' formed upon said arm, and arm d of the other jaw (which arm is engaged by the
 25 central member of U-shaped piece L) is preferably provided with a shoulder or seat d'' for member L.

To positively avoid any objectionable or too much adhesion between the opposing
 30 surfaces of arms d of jaws D and between said jaws and valve G, said parts are so constructed or arranged that the jaws only engage each other at their inner ends below their arms d and only engage the valve at
 35 or near the edge of the latter.

Washer G is composed of aluminum or other substance or material that will not objectionably adhere to the opposing surfaces of the valve and pipe or tube A, so as not to
 40 obstruct the operation of said valve.

Sprayer H, it will be observed, is supported from a single arm I, and said arm is made as thin as practicable, so that interference with the spray in the operation of the device shall
 45 be reduced to a minimum. I would also remark that valve E, at each jaw-engaged portion, is provided with two lugs e , engaging opposite sides, respectively, of the engaging jaw and preventing lateral displacement of
 50 the jaw.

What I claim is—

1. In an automatic fire-sprinkler, the combination with a short-tube or pipe A, and valve E seated at and closing the outer end
 55 of said pipe or tube, of two co-operating jaws

engaging the outer side of the valve, said jaws being arranged transversely of and at opposite sides, respectively, of the valve; screws engaging and bearing against the outer side of the outer ends of the jaws, and
 60 secured to the aforesaid tube or pipe, each jaw, at its inner end, having an outwardly-extending arm; means for holding together the outer ends of said jaw-arms, said means being secured in its operative position by
 65 solder or fusible metal, and a suitably-supported sprinkler or sprayer located at the outer end of the jaw-arms and in line with the aforesaid pipe or tube, substantially as set forth.

2. In an automatic-fire-sprinkler, the combination with pipe or tube A and valve E, of the two jaws D D having outwardly-extending arms d d , one of said jaws provided with the tongue or tenon D', and the co-operating
 75 jaw having the groove or mortise D²; screws B B; means for holding the jaw-arms together, said means being secured in its operative position by solder or fusible metal, and the suitably-supported sprinkler or sprayer
 80 H, all arranged and operating substantially as shown, for the purpose specified.

3. In an automatic fire-sprinkler, the combination with a tube or pipe A, and valve E seated at and closing the outer end of the
 85 pipe or tube, said valve being provided with two pairs of lugs e arranged at opposite sides, respectively, of the valve, the lugs of each pair of lugs being located a suitable distance apart, two jaws engaging the outer side of
 90 the valve between the lugs of the aforesaid pairs of lugs and extending beyond opposite sides, respectively, of the valve; means engaging and bearing against the outer side of the outer ends of the jaws, each jaw, at its
 95 inner end having an outwardly-extending arm; means for holding together the outer ends of said jaw-arms, said means being secured in its operative position by solder, and a suitably supported sprinkler or sprayer H
 100 arranged at the outer end of the jaw-arms and in line with the aforesaid pipe or tube, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this
 105 26th day of December, 1894.

JOHN T. HILL.

Witnesses:

C. H. DORER,
 L. WARD HOOVER.