

(No Model.)

R. BRIGGS.  
FIRE EXTINGUISHER.

No. 262,730.

Patented Aug. 15, 1882.

Fig 1.

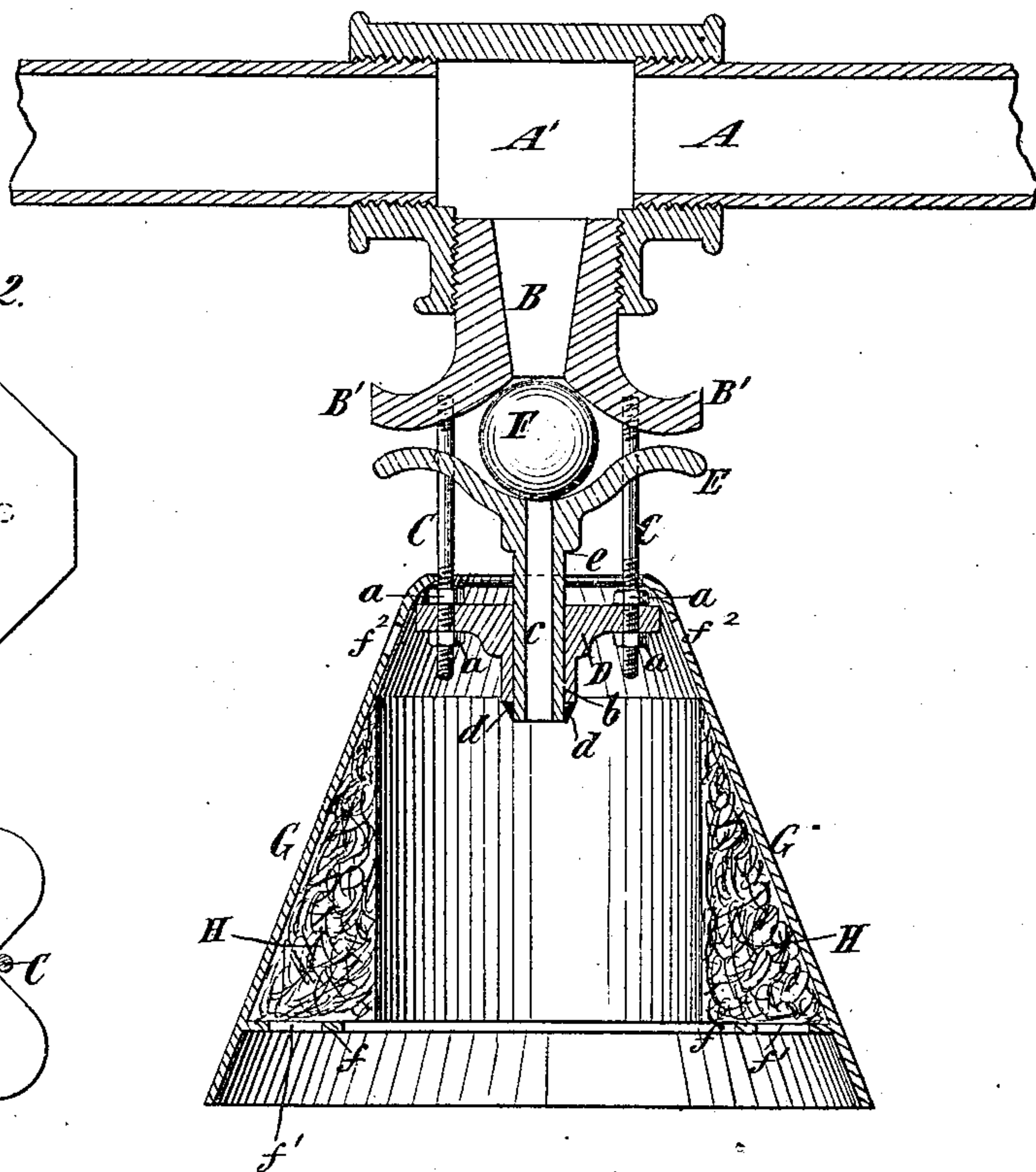


Fig 2.

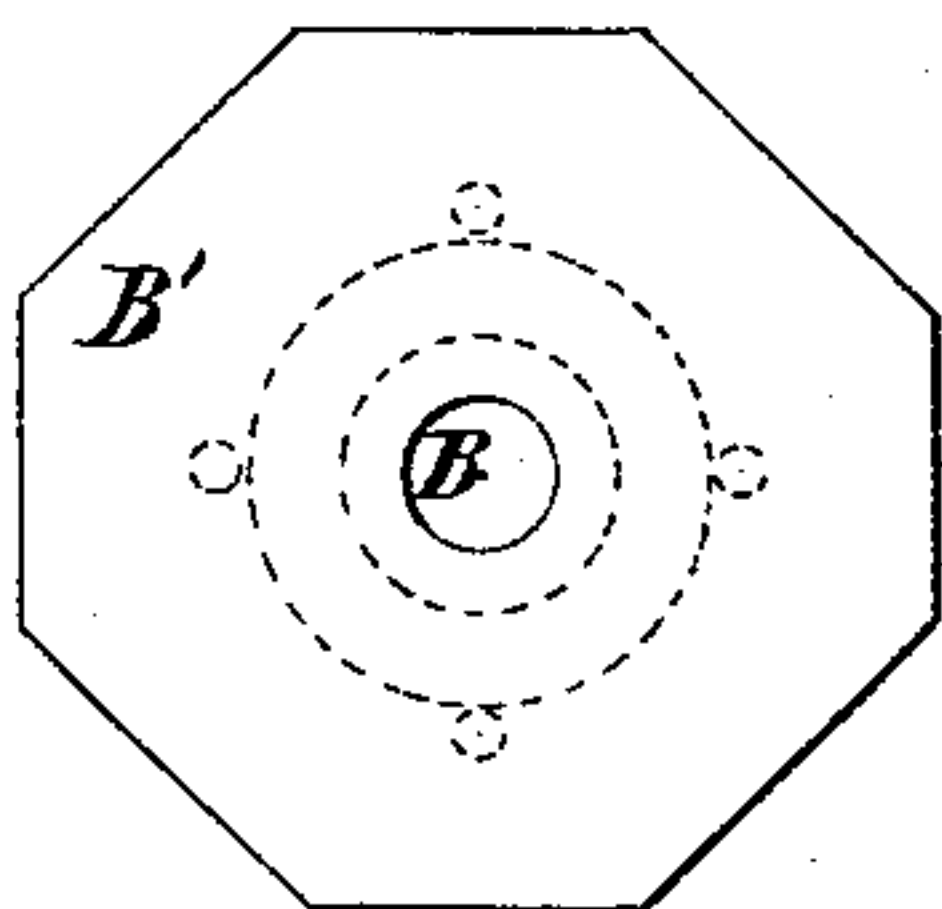


Fig 3.

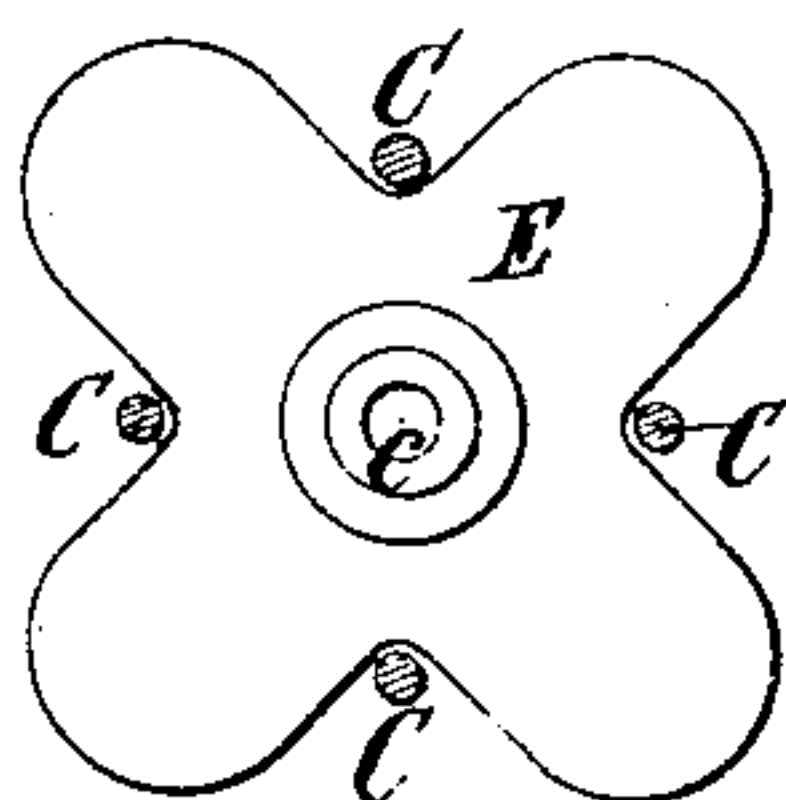


Fig 4.

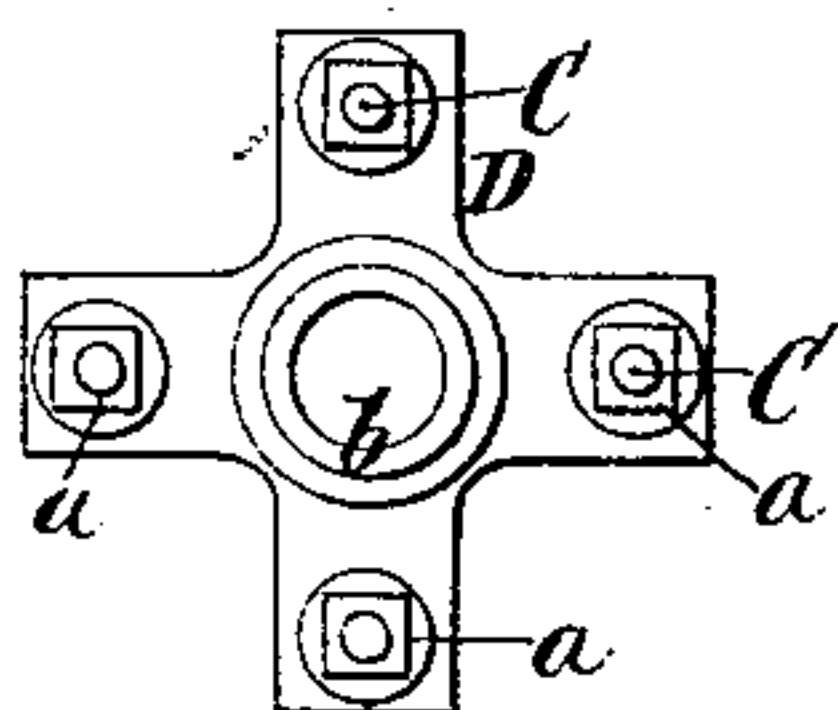
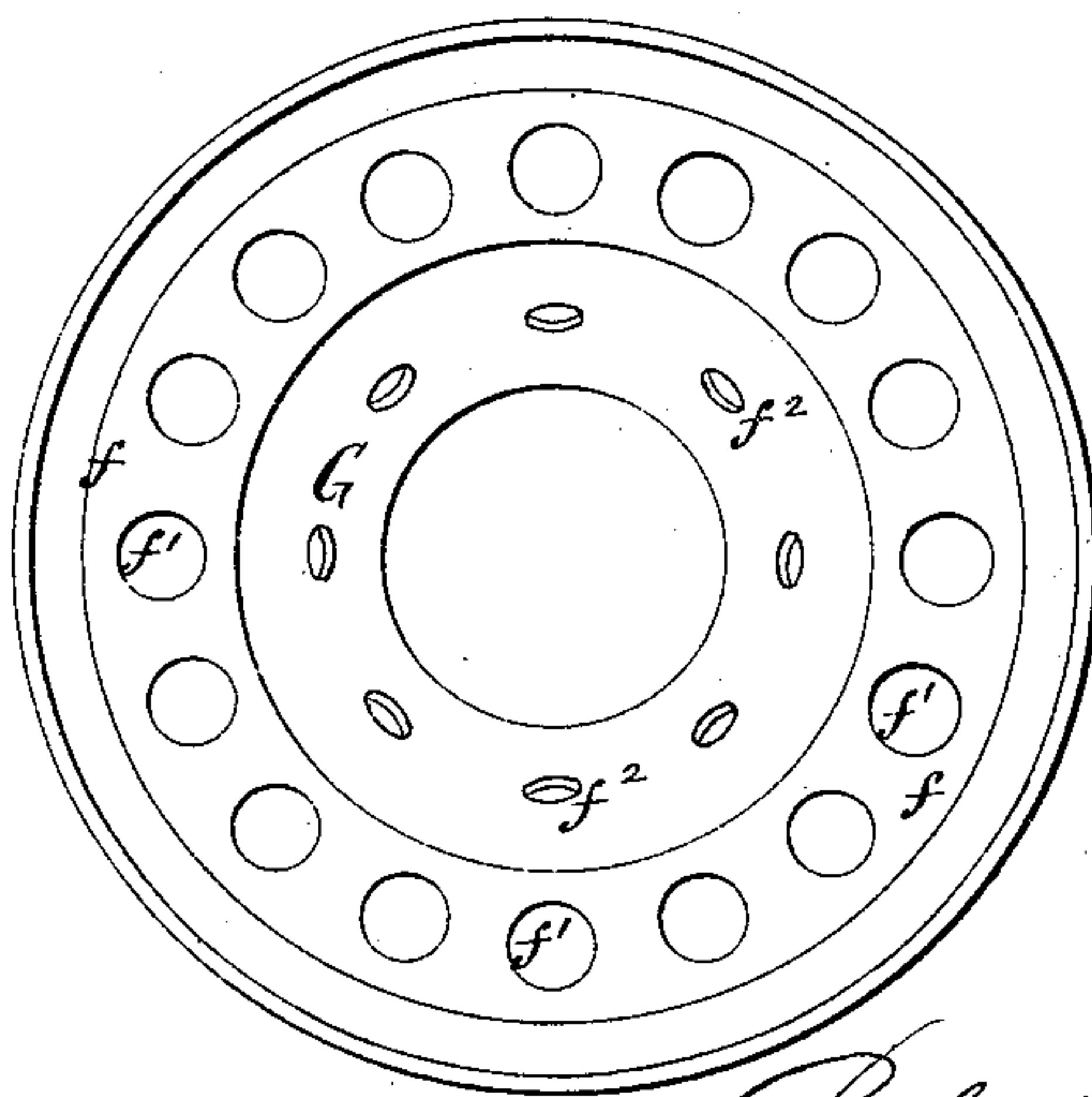


Fig 5.



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT BRIGGS, OF BROOKLYN, NEW YORK.

## FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 262,730, dated August 15, 1882.

Application filed March 13, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT BRIGGS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification.

My invention relates to fire-extinguishers which are to be attached at intervals to a system of water-supply pipes in a building, and which are held closed by a solder or alloy which is readily fusible by an increase of temperature which would be produced by a fire breaking out in the building.

The invention consists in the combination, with a nozzle adapted to be applied to a water-supply pipe, and a flaring deflector on said nozzle, of an oppositely-flaring deflector below the nozzle, a spherical valve interposed between the two deflectors, and a support, in which the lower deflector may be secured by fusible metal, so as to hold said valve against the nozzle. When the valve is open it rests upon the lower deflector, which forms a support therefor, and an unobstructed space is afforded above the upper edge of the deflector for the free escape of water, which strikes the valve as it issues from the nozzle, and is thereby deflected outward over the edge of the lower deflector with great force. The said cup-deflector is preferably made adjustable relatively to the nozzle, so that any desired opening may be left between the two deflectors and any desired amount of opening be allowed the valve.

The invention also consists in the combination, with a nozzle adapted to be applied to a water-supply pipe, of a spherical or convex-faced valve applied to the exterior or mouth of the nozzle and adapted to be held closed by fusible metal, and a support, on which the valve is supported immediately below the nozzle and at a little distance from the nozzle when open, so that it will deflect and spread the water issuing against it from the nozzle.

The invention also consists in the combination, with an automatic fire-extinguisher and its valve, held closed by fusible metal, of a body of combustible material suspended in proximity to the fusible metal, and preferably contained in a hood or petticoat, which is suspended from the extinguisher and adapted to be ignited instantly by the contact of flame,

and by its combustion to generate such a heat as will melt the fusible metal and release the valve much sooner than would be done by the fire in the building if left to itself.

In the accompanying drawings, Figure 1 represents a sectional view of a portion of a water-supply pipe with my improved extinguisher applied thereto. Fig. 2 represents an inverted plan of the nozzle. Fig. 3 represents a plan of the cup which forms a deflector below the valve. Fig. 4 represents an inverted plan of the hanger or bearing whereby the parts of the extinguisher are supported, and Fig. 5 represents an inverted plan of the hood or petticoat containing the combustible.

Similar letters of reference designate corresponding parts in all the figures.

In protecting a building by automatic fire-extinguishers of the class to which my invention belongs a system of water-supply pipes is carried throughout a building at the ceilings of the several apartments or rooms; and to these pipes, at any desired distance apart, the fire-extinguishers are attached.

A designates a portion of the water-supply pipe, and A' a T-connection therein.

B designates a nozzle, which, as shown, tapers toward the tip, and is adapted to screw into the connection A'. The nozzle B has at its tip an outwardly-flaring or bell-shaped flange, B', and this flange may be of polygonal formation, as shown in Fig. 2, so that a wrench may be readily applied to it for screwing in or unscrewing the nozzle.

C designates bolts, here shown as four in number, which are fast in the flange B', and which support a bearing or hanger, D, which may be in the shape of a cross, as shown in Fig. 4. The hanger D is secured in any desired position on the bolts or rods C by nuts *a*, and by adjusting these nuts it may be raised or lowered relatively to the nozzle B, and secured in position after adjustment. The bearing or hanger D has a tubular socket, *b*, which receives a vertically-movable stem or tube, *c*, and the said stem or tube carries a cup, E, which is made flaring or bell-shaped. Hence the hanger D forms a support for the cup E. The cup E may be also made in the shape of a cross, and the rods or bolts C may be received in the angles thereof.

F designates a ball or spherical valve, which



is supported on the cup E, and which is adapted to close the nozzle B on the exterior thereof, as shown clearly in Fig. 1. The valve F is held closed by the cup E, which forms a support therefor, and the cup is held in an elevated position to close the valve by means of a fusible solder or alloy of metal, such as is well known, and which may be applied in the form of a ring, *d*, as shown clearly in Fig. 1.

10 As there shown, the fusible metal *d* secures the tube or stem *c* fast to the end of the socket *b*; and it will be observed that the fusible metal *d* is at the lowest part of the extinguisher, where it will be most exposed to the heat of a fire below it, and is entirely out of contact with water, so that its melting will not be retarded thereby as it is in many fire-extinguishers of this class.

When a fire occurs in the vicinity of the extinguisher the fusible metal *d* will soon melt and the cup E will drop down until a shoulder, *e*, thereon rests upon the hanger or bearing D, where it will remain and support the valve F immediately below the nozzle B, and at a distance therefrom which may be regulated by adjusting the nuts *a*. In this position the valve F also forms a deflector, and the water issuing with great force from the nozzle B strikes the convex surface of the valve, and is thereby deflected outward in all directions over the upper edge of the flaring cup or deflector E.

The flange B' of the nozzle B and the flaring cup E likewise serve an important purpose in the operation of my extinguisher, for the water, on striking them, is deflected both upward and downward and uniformly in all directions. They therefore both serve as deflectors. The provision for regulating the amount of opening of the valve F by adjusting the nuts *a* is very advantageous, for by that means a manufacturer or merchant using the extinguishers may regulate each one to discharge an amount of water adapted to the location or the character of the goods which are to be protected.

In order to insure the early melting of the fusible metal in any extinguisher of this class, I may employ a device represented in Figs. 1 and 5. It consists of a hood or petticoat, G, here shown as of conical form and suspended from the bearing or hanger D or any other convenient part of the extinguisher. The hood or petticoat is provided near the bottom with a flange or ledge, *f*, in which are holes *f'*, and near the top are other holes or openings, *f*<sup>2</sup>.

H designates a body of highly-combustible material, which will readily take fire by contact with the flame. It may be composed of sulphur, niter, charcoal, meal-powder, and gum,

or other suitable ingredients. The substance H will instantly ignite by contact with flame, and burn with great heat and without dropping sparks; and the openings *f*<sup>2</sup> produce an upward draft, which will bring the heated air in direct contact with the fusible metal *d* and melt it more quickly than would the fire which ignites the combustible H.

The valve F, instead of being a sphere, may be of any other form which will offer a convex surface against which water issuing from the nozzle B may strike.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the nozzle B and the flaring deflector B' thereon, of the oppositely flaring deflector E, a support wherein said deflector may be secured by fusible metal, and the spherical valve F interposed between said deflectors, substantially as and for the purpose herein described.

2. The combination, with the nozzle, of the flaring lower deflector, separable from the nozzle and providing for the free escape of water over its upper edge around its circumference, and the spherical or convex-faced valve adapted to be held against the outer side of said nozzle by fusible metal, and supported when open immediately in front of the nozzle by said deflector, substantially as and for the purpose specified.

3. The combination, with the nozzle, of a spherical or convex faced valve adapted to be held closed against the exterior of the nozzle by fusible metal, and an adjustable support for sustaining the valve when open immediately in front of and at any desired distance from the nozzle, substantially as and for the purpose specified.

4. The combination, of a flanged nozzle, B, an adjustable hanger or bearing, D, a cup, E, provided with the tube or stem *c*, fusible metal *d*, and the valve F, substantially as specified.

5. The combination, with an automatic fire-extinguisher and a valve therefor held to its seat by fusible metal, of a body of combustible material adapted to ignite by contact with flame suspended in proximity to the fusible metal, substantially as and for the purpose specified.

6. The combination, with an automatic fire-extinguisher and a valve therefor held to its seat by fusible metal, of the hood or petticoat G and combustible H, substantially as and for the purpose specified.

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Witnesses:

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