

No. 700,603.

Patented May 20, 1902.

W. H. BANFIL.
FIRE EXTINGUISHER.

(Application filed Oct. 24, 1901.)

(No Model.)

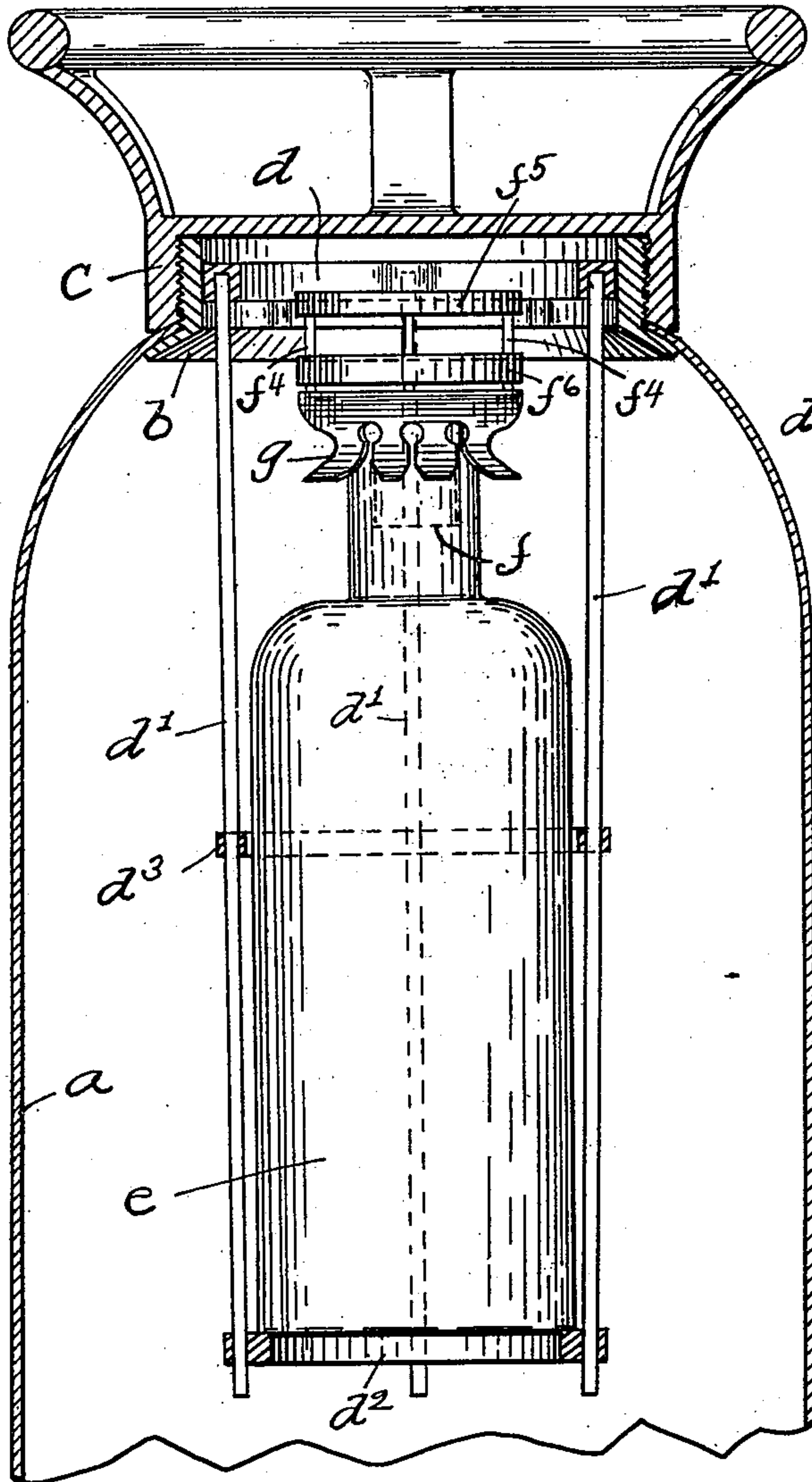


Fig. 1.

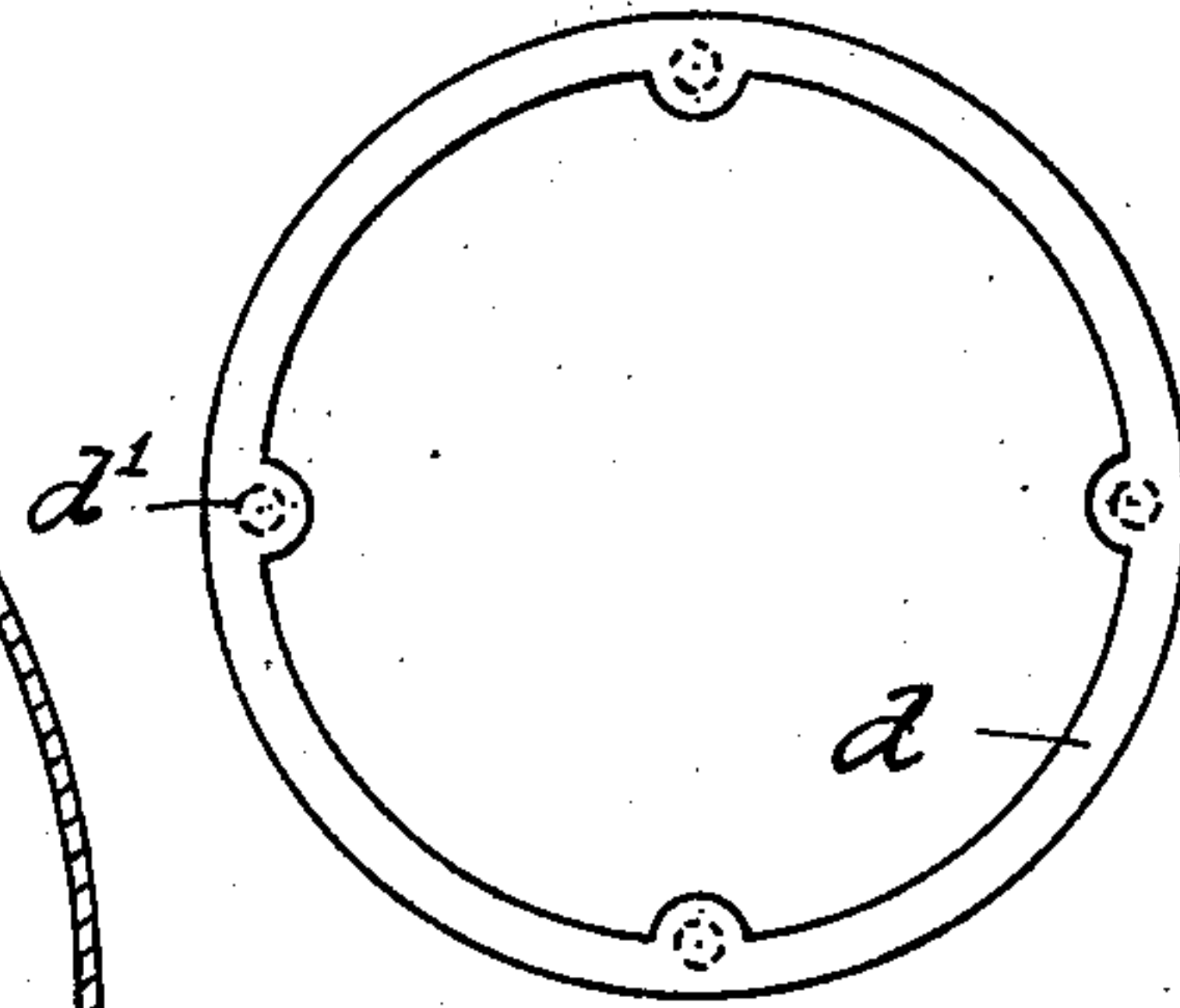


Fig. 2.



Fig. 3.

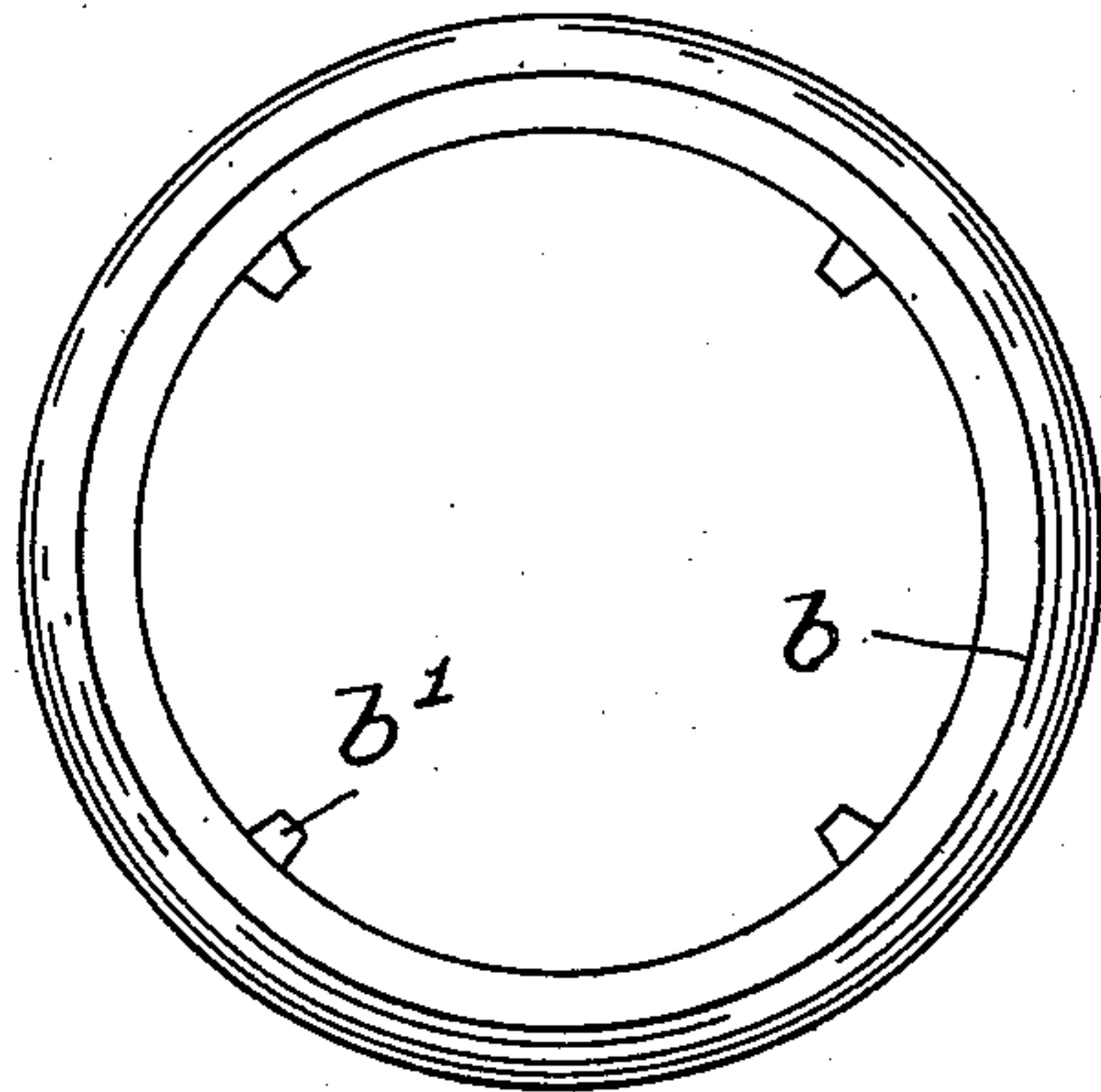


Fig. 4.

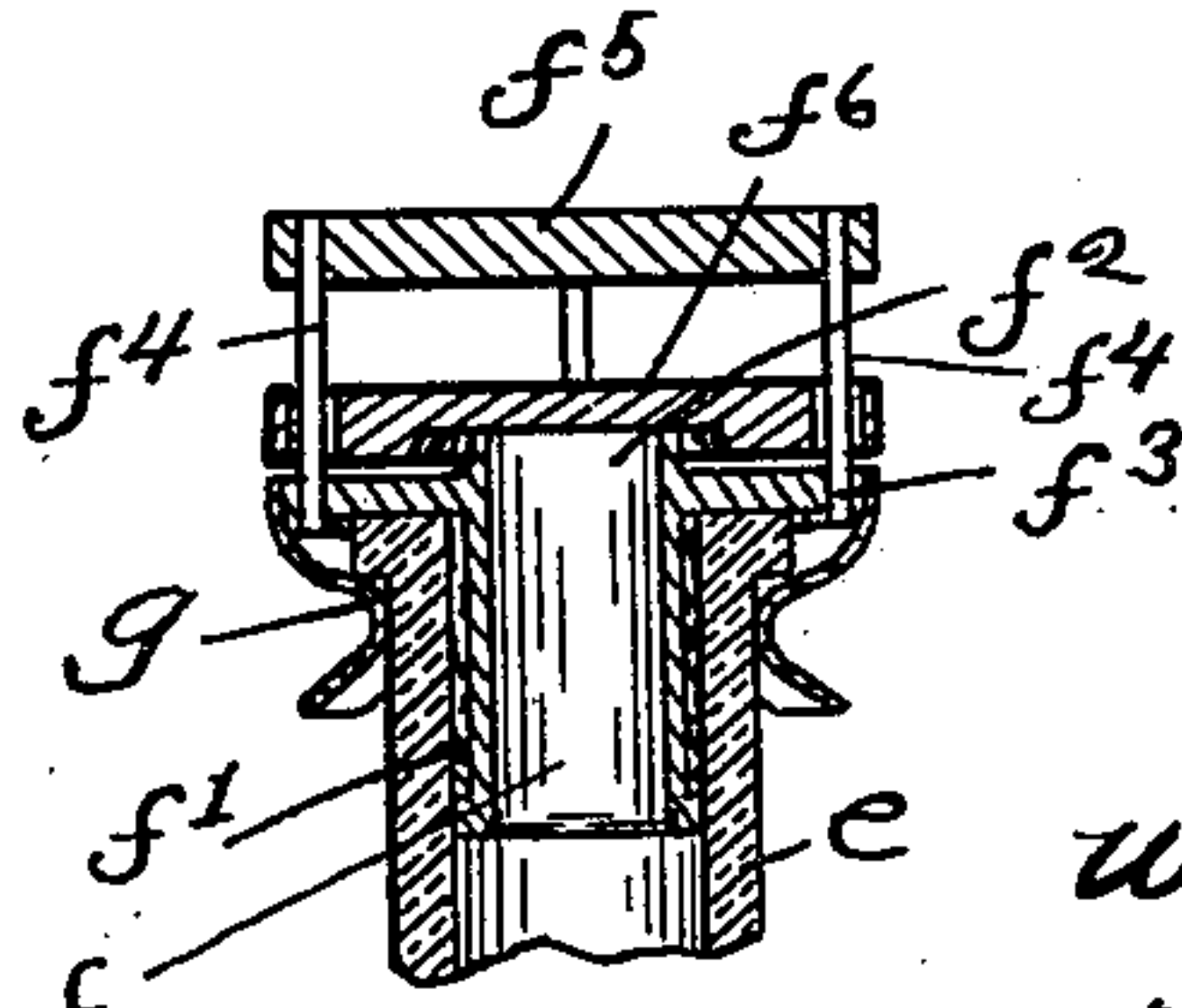


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM H. BANFIL, OF BOSTON, MASSACHUSETTS.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 700,603, dated May 20, 1902.

Application filed October 24, 1901. Serial No. 79,840. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BANFIL, a citizen of the United States, residing in Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Fire-Extinguishers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to fire-extinguishers of that type containing acid and alkaline elements normally separated, but adapted to be brought in contact when the apparatus is turned bottom side up; and the invention has for its object to improve the construction of a fire-extinguisher of this type in several particulars—as, for instance, the cage containing the bottle is removably supported within the shell or case of the device to thereby facilitate the removal of the parts; also, the valve-plate, which closes on a seat at the outlet of the bottle, is held by a support which is attached to the bottle, so as to be removed with the bottle; also, the valve-plate support is constructed to guide the valve-plate in its movements toward and from its seat and also limit the movement of the valve-plate away from its seat; also, the valve-seat is formed at the extremity of a tubular nipple, which is thrust into the outlet of the bottle and held therein by the friction of a suitable packing, said nipple being connected to the valve-plate support.

In accordance with this invention a cage adapted to contain any usual or suitable bottle or equivalent receptacle is removably supported within the shell or case of the apparatus—as, for instance, it may rest upon inwardly-projecting lugs. The bottle has thrust into its outlet a tubular nipple which projects a short distance above the end of the bottle and has formed at its upper extremity a valve-seat. The valve-plate is made as a disk, which is bodily movable toward and from its seat, and a support is provided for said valve-plate which is constructed and arranged to not only support and guide the valve-plate, but also limit its movement away from its seat. Means are provided for attaching the valve-plate support to the end of the bottle.

Figure 1 shows in vertical section a fire-extinguisher embodying this invention, the bottle and valve controlling its outlet being shown in elevation. Fig. 2 is a plan view, and Fig. 3 an edge view, of the supporting-ring for

the cage. Fig. 4 is a detail of a ring or collar having inwardly-projecting lugs on which the cage rests. Fig. 5 is a vertical section of the valve which controls the outlet of the bottle and which is attached to the end of the bottle.

The body *a* of the extinguisher, of any usual or suitable shape and size, has at its upper end a ring or collar *b*, which is externally screw-threaded and receives upon it a cover *c*, which is also of any usual or suitable construction. The ring or collar *b* is formed or provided with a number of inwardly-projecting lugs *b'*, (see Fig. 4,) upon which a cage rests, which contains the bottle containing the acid element.

d represents a ring which forms a coöperative part of the cage, and said ring is made of suitable shape and size to rest upon the lugs *b'* of the ring or collar *b*. Upright rods or bars *d'* depend from the ring *d*, which form the sides of the cage, and said rods or bars are connected at their lower ends to a ring *d²*, and midway the length of said rods or bars a ring *d³* is preferably provided. The cage thus described merely rests upon the lugs *b'*, and consequently is removable.

e represents the bottle or other receptacle adapted to contain the acid element, and said bottle is contained in the cage and is supported upon the ring *d²*. The bottle will be made of any required size and shape. At the outlet of the bottle a valve is provided for controlling it, which is adapted to close the outlet by gravity and to open by gravity when the extinguisher is turned bottom side up, and the valve herein shown is attached to the end of the bottle, so as to be removed with the bottle whenever desired.

f represents a tubular nipple which is thrust into the outlet of the bottle and which is held therein by the friction of a suitable packing *f'*, applied to the exterior thereof, and said nipple projects a short distance above the end of the bottle and is formed or provided with a circular projection *f²*, which serves as a valve-seat.

The nipple *f* is formed integral with or attached to a plate *f³*, which when the nipple is thrust into the bottle rests upon or against the end thereof. A number of short rods *f⁴* project upward from the plate *f³*, which support at their upper ends a plate *f⁵* in a plane in parallelism with the plate *f³*. The valve-plate *f⁶* is made as a disk and is provided

with a number of holes which receive the rods f^4 , and said plate normally rests by gravity on the valve-seat f^2 , yet is free to slide on the rods f^4 as guides when the extinguisher is turned bottom side up. The plate f^5 limits the movement of the valve-plate f^6 away from its seat, and being held in a fixed position relative to the valve-seat it will be seen that the valve-plate will always move away from its seat a predetermined distance. This is important, as the outlet of the bottle for the escape of the contents will always be the same. The plate f^3 , rods f^4 , and plate f^5 serve as and constitute a support for the valve-plate f^6 and also guides the movement of said valve-plate and also limits its movement away from its seat.

The valve-plate support is designed to be attached to the bottle, and as a simple way of accomplishing this result a spring-acting engaging device is provided, which, as herein shown, consists of a number of integrally-formed spring-acting fingers g , made as a ring to spring onto the end of the bottle, said ring being attached to the plate f^3 .

It is obvious that other means may be provided in lieu of the spring-acting engaging device herein shown for attaching the valve to the bottle.

The means herein shown for limiting the movement of the valve-plate away from its seat is simple; yet I do not desire to limit my invention to the particular means herein shown for accomplishing this result.

In other fire-extinguishers of this type, so far as I am aware, the means employed for limiting the movement of the valve-plate away from its seat is variable, usually depending upon the height of the bottle; but herein the means employed is of a predetermined or fixed character, and consequently the valve-plate always moves a predetermined distance away from its seat.

I claim—

1. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate freely movable toward and from its seat, and a support for said valve-plate attached to the neck or end of said bottle, substantially as described.

2. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage, a tubular nipple thrust into the outlet of said bottle formed or provided at its extremity with a valve-seat, and supported by a plate f^3 , resting on the bottle, a disk movable toward and from said seat and means attached to said plate for supporting and guiding said disk, and means for attaching said plate to the bottle, substantially as described.

3. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate

therefor, and a valve-plate support attached to said bottle having guides for supporting and guiding said valve-plate, substantially as described.

4. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate therefor, and a valve-plate support attached to said bottle having guides on which said valve-plate slides, substantially as described.

5. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate therefor, and a valve-plate support attached to said bottle having means for limiting the movement of the valve-plate away from its seat, substantially as described.

6. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate movable toward and from said seat, and a valve-plate support having a spring-acting engaging device engaging the end of the bottle, substantially as described.

7. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate freely movable toward and from its seat, and a support for said valve-plate removably attached to the end of the bottle, substantially as described.

8. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage provided at its outlet with a valve-seat, a valve-plate freely movable toward and from its seat, and a support for said valve-plate having a plurality of spring-acting fingers which slip over a lip on the end of the bottle, substantially as described.

9. In a fire-extinguisher, a shell or case having a cover and containing a cage, combined with a bottle supported by said cage, a tubular nipple thrust into the outlet of said bottle formed or provided at its extremity with a valve-seat, and formed integral with a plate f^3 which rests on the end of the bottle, a disk movable toward and from said seat, guide-rods projecting from said plate which guide said disk and a stop supported by said rods for limiting the movement of said disk away from its seat, and a plurality of spring-acting fingers on said plate which slip over the lip on the end of the bottle, substantially as described.

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

WILLIAM H. BANFIL.

Witnesses:

B. J. NOYES,
H. B. DAVIS.