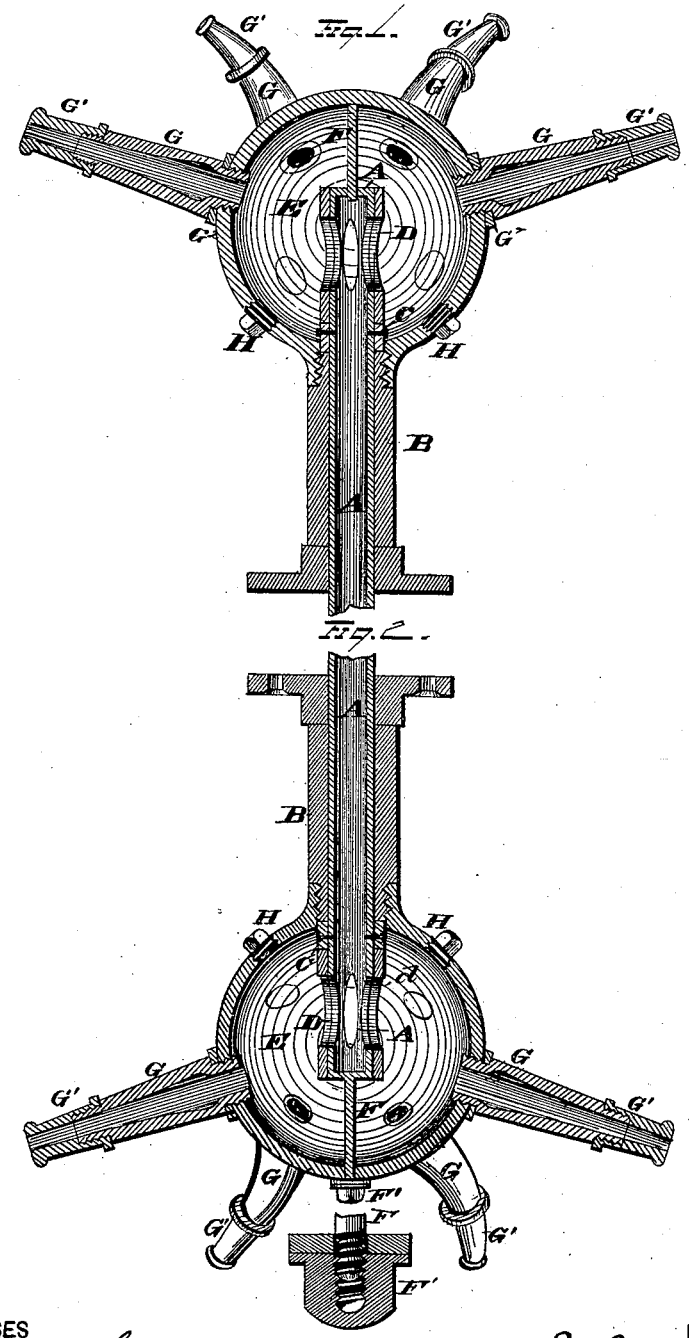
2 Sheets—Sheet 1.

E. L. ABBOTT & J. C. BIRDSELL.

Fire-Extinguishers.

No. 199,171. **Patented Jan. 15, 1878.**



WITNESSES

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2 Sheets—Sheet 2.

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Fig. 3.

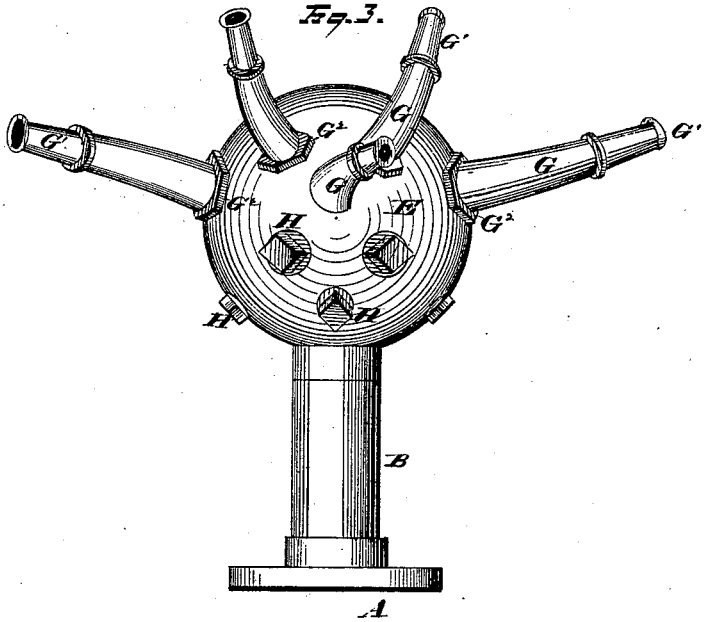


Fig. 4.

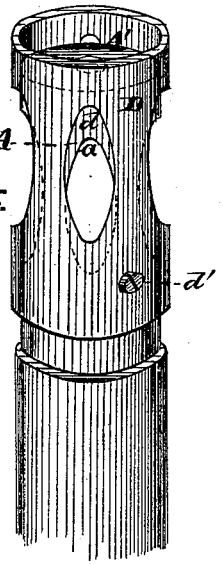
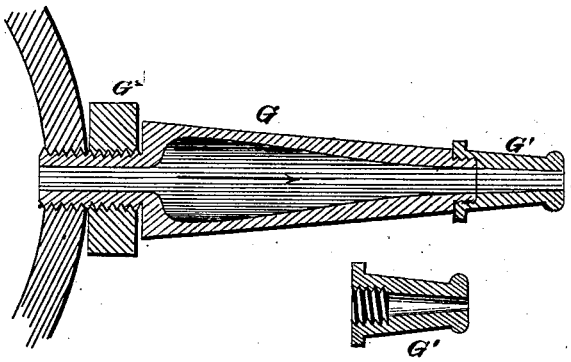


Fig. 5.



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UNITED STATES PATENT OFFICE.

EVERETT L. ABBOTT AND JOHN C. BIRDSELL, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN FIRE-EXTINGUISHERS.

Specification forming part of Letters Patent No. **199,171**, dated January 15, 1878; application filed June 27, 1877.

To all whom it may concern:

Be it known that we, EVERETT L. ABBOTT and JOHN C. BIRDSELL, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Fire-Extinguishers; and we 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 it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to apparatus which we designate a "fire-extinguisher," though equally applicable as a fountain and for other like purposes, and designed as an improvement upon the device patented to the said Everett L. Abbott, August 29, 1876, No. 181,614.

The object of this invention is to form a device which may be erected within an apartment for thoroughly flooding every part of the apartment in case of fire. The apparatus is also designed to be suspended from above or elevated from beneath, as may be deemed most desirable.

The improvements which form the subject of the present invention consist, first, in an extension of the inlet-pipe well into the spherical chamber, and closing the end of the said pipe, providing orifices in its side for the exit of the water, whereby the pressure of the water in the main will be prevented from forcing the spherical ball so firmly against its seat or collar as to stop or impede its revolution, or change its number of revolutions under the various pressures which may be applied, or cause it to wear rapidly upon its bearing; second, in means for adjusting and graduating the sizes of the outlet-orifices into the spherical chamber above or below the center line to any extent desired; third, in an adaptation of the parts whereby the device may be suspended from above; fourth, in the employment of stoppers, whereby the device may be readily adapted either to stand erect or be suspended, and whereby a greater or less number of nozzles may be employed at pleasure; fifth, in the employment of various-sized nozzle-tips, whereby the same device may be adapted for a greater or less pressure of water in the pipe.

In the drawings, Figure 1 is a longitudinal central section of our improved fire-extinguisher adapted for use in a vertical position, which same device may readily be employed in case the apparatus is suspended from above. Fig. 2 is a longitudinal central section of the device, more especially adapted to be suspended from above. Fig. 3 is a side elevation of the apparatus shown in Fig. 1. Fig. 4 is an enlarged view of the end of the feed-pipe with its adjusting-sleeve for regulating the size of the discharge-orifices. Fig. 5 is a separate view of a nozzle-tip, with a second tip with a similar orifice.

A is a feed-pipe, which may lead from the service-pipe or water-main, or from any suitable reservoir or source of supply. B is a sleeve; C, a collar or other suitable means for holding the sleeve in position on the pipe A. The pipe A is closed at its top at A′, as shown in Fig. 4. It is provided with orifices *a*, which open at the sides of the pipe. The feed-pipe extends well up into the spherical chamber E.

The object of closing pipe A at A′ is to break the direct course of the water, and prevent it from acting to bind the spherical chamber E or the sleeve B upon its bearing.

D is a sleeve, provided with orifices *d*, similar to the orifices *a*. *d′* is a set-screw or other suitable means for securing the sleeve in any desired position. The object of this sleeve is to graduate the size of the openings *a*. This may be effected either by sliding the sleeve longitudinally on the pipe A, so as partly to occlude the orifices *a*, or it may be effected by revolving the sleeve part way around its axis. When in the desired position it is fixed in any suitable way, the means shown in the drawing for this purpose being the set-screw *d′*. The spherical chamber E is screwed or otherwise secured to the sleeve B, so as to revolve therewith.

In order that the force of the water may not serve, by operating unequally upon the spherical chamber D, to cause the sleeve B to wear unequally, we extend a pin or stud, F, from the spherical chamber down through the end A′ of the pipe A. This pin serves to

center the device, causes the sleeve B to wear uniformly, and prevents the parts from binding.

G are nozzles, provided with nozzle-tips G^1. These tips G^1 are made of different sizes, as shown in Fig. 5, so that the size of the discharge-tips may be suited to the pressure of water within the mains and the size of the apartment within which the apparatus is located.

H are the stoppers, represented in the drawings as screw-stoppers with wrench-heads.

The object of these stoppers is twofold: First, if it is desired to drench only the lower portions of the room, the stoppers may be placed in the upper opening and the nozzles be placed in the lower openings, and vice versa in case it is desired to drench the upper part of the room as well; second, in order that the same apparatus may be adapted either to stand erect or be suspended.

The apparatus hereinbefore described may be adapted either for suspending or to stand erect. In case, however, the apparatus is designed to be suspended from above, we modify the construction as follows, as shown in Fig. 2, wherein the pin F is in the nature of a bolt projecting downward from, but attached to, the end of the pipe A, thence passing through the spherical case E, and provided with a suitable washer and nut, F′, the connection being so made, substantially as shown, as to permit a free revolution of the spherical chamber without leakage about F′, though great care is not required in making a perfect joint, for leakage will do no hurt.

The operation of the device is substantially as follows: The apparatus being in position, and a fire occurring in any apartment, the water is admitted through pipe A. It is stopped in its progress by the end A′ of the pipe, and deflected laterally through the orifices *a*, which have been previously adjusted to the proper size by the sleeve D. The water passing in this manner into the spherical chamber E practically balances the same on its bearing, and causes it to revolve as the water is discharged from the nozzles G. The water passes from all of the nozzles with equal pressure. The nozzle throws, preferably, regular streams of water, and the direction taken by each stream is dependent entirely upon the proper adjustment of the nozzle by turning. When any nozzle is adjusted to its proper direction the jam-nut G^2 is run down, and fixes it firmly in place.

The jam-nuts may or may not be employed.

If it is desired that the device shall revolve with rapidity, the nozzles may all be given a direction to facilitate this motion. If, however, the motion is desired to be slow or retarded, one or more nozzles may be reversed in direction.

It is apparent that the revolving chamber may be of any desired contour other than spherical. So, also, the pipe A need not necessarily lead to the reservoir or the service-pipes; but in localities where such is not practicable, a hose may be attached to the pipe and water pumped directly through it from the engine.

What we claim is—

1. The combination, with the feed-pipe, of mechanism for adjusting the size of the lateral opening *a*, substantially as and for the purposes described.

2. The combination, with the feed-pipe provided with openings *a*, of the sleeve D, with corresponding openings *d* and set-screw *d′*, or its equivalent, substantially as and for the purposes described.

3. The combination, with the revolving chamber, of nozzles G, adapted to receive interchangeable tips of different sizes, whereby the device may be regulated for various degrees of pressure within the feed-pipe A, substantially as and for the purposes described.

4. The combination, with the chamber, of nozzles G and stoppers H, adapted to be interchanged with each other, substantially as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EVERETT L. ABBOTT.
JOHN C. BIRDSELL.

Witnesses:
DAVID B. CREVISTON,
EDGAR H. SHAW.