

(No Model.)

2 Sheets—Sheet 1.

I. BRASHEARS.
FIRE EXTINGUISHER.

No 562,568.

Patented June 23, 1896.

Fig. 1.

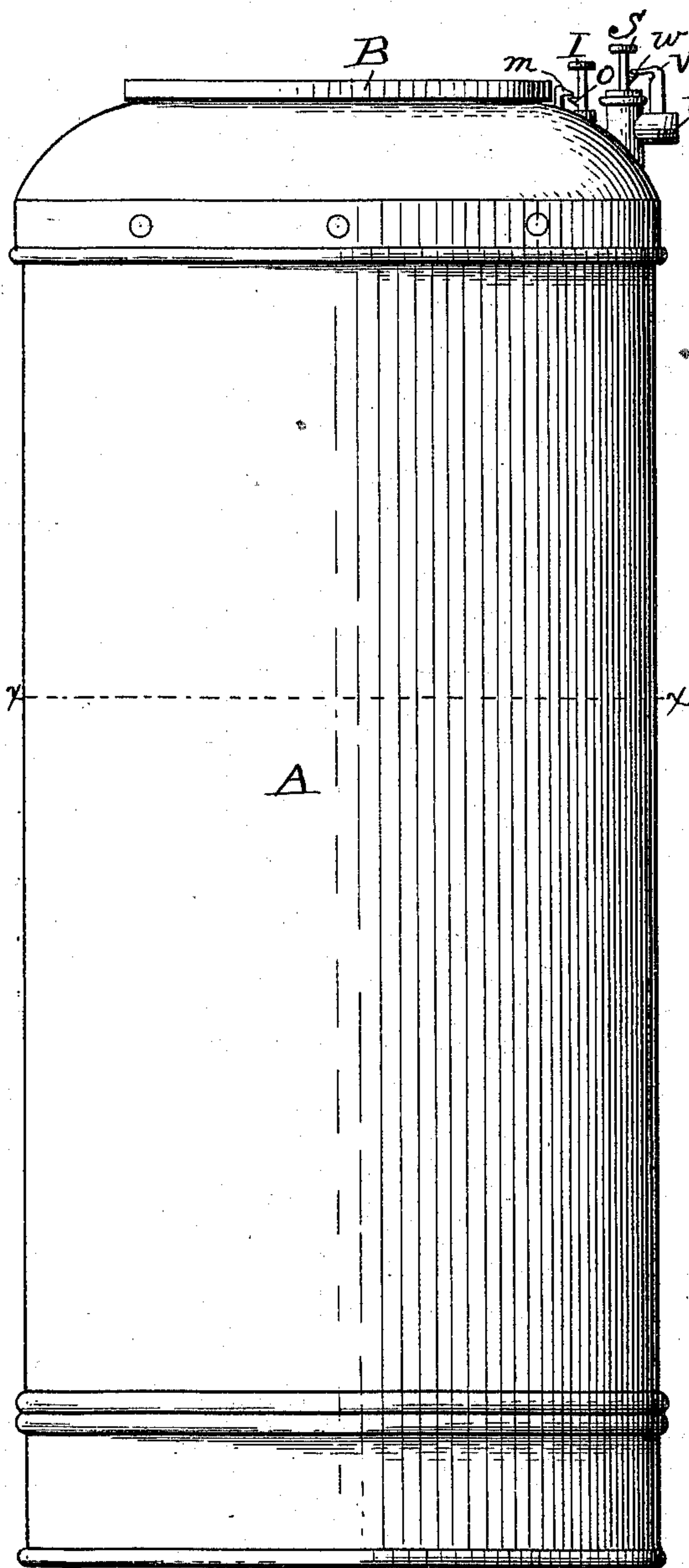
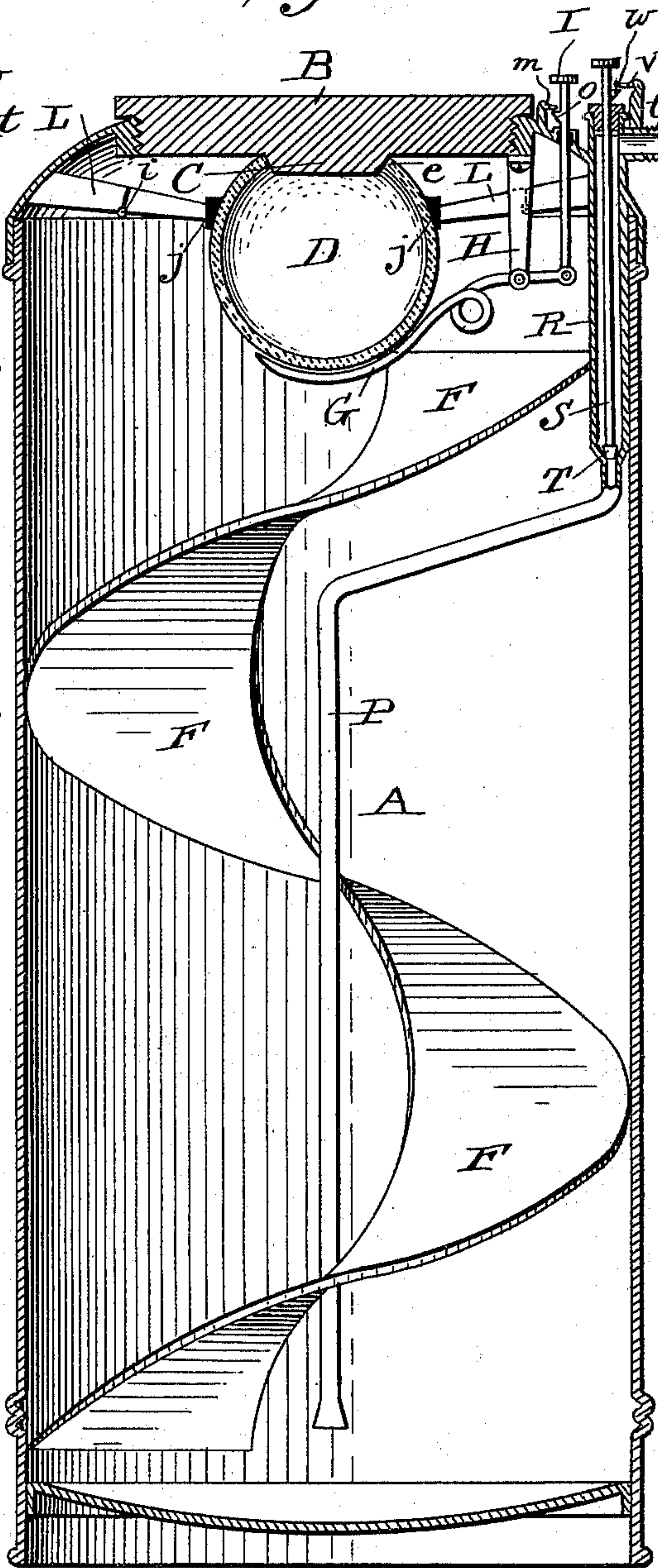


Fig. 2.



Witnesses
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Attorneys

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Fig. 3.

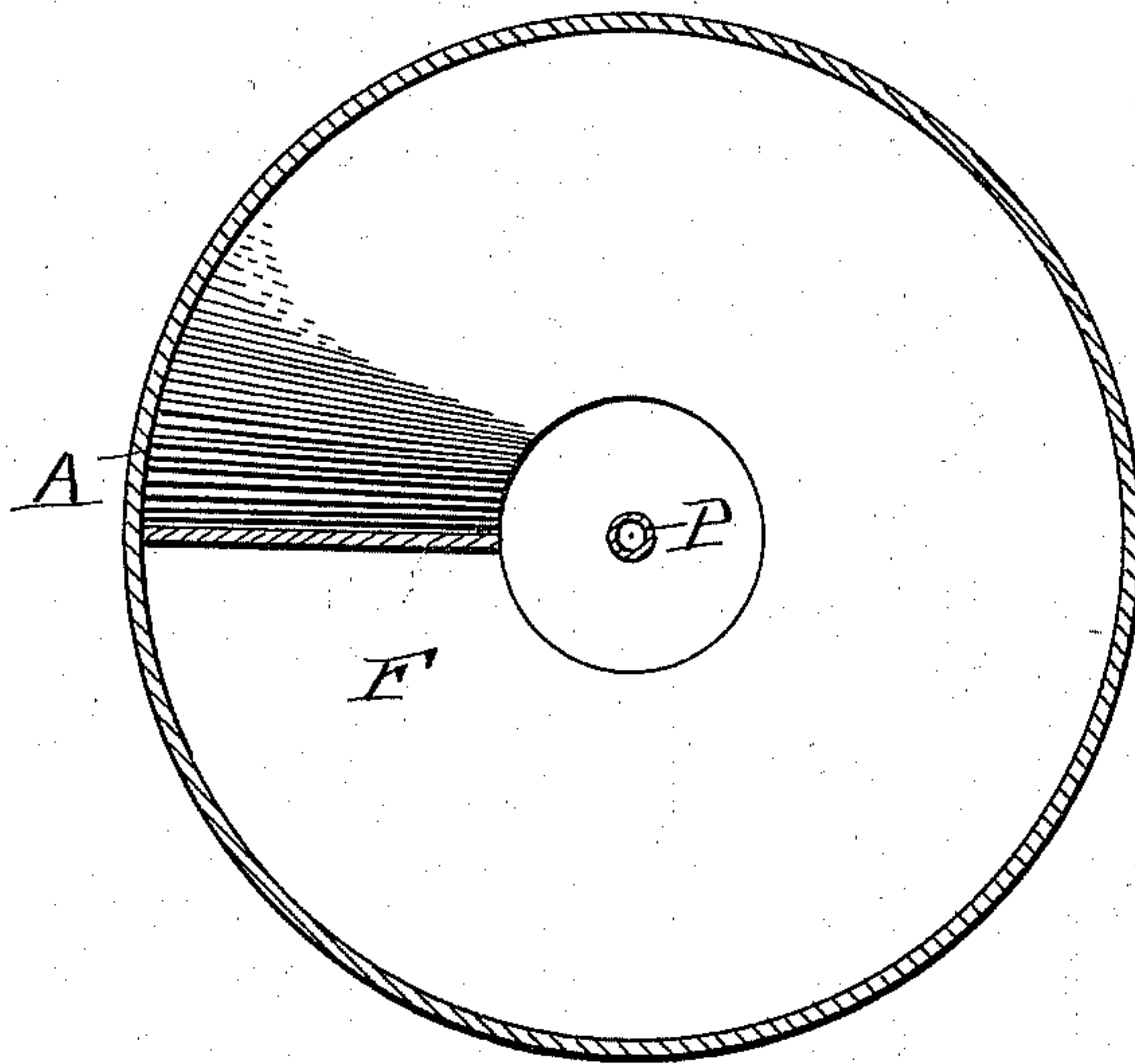


Fig. 4.

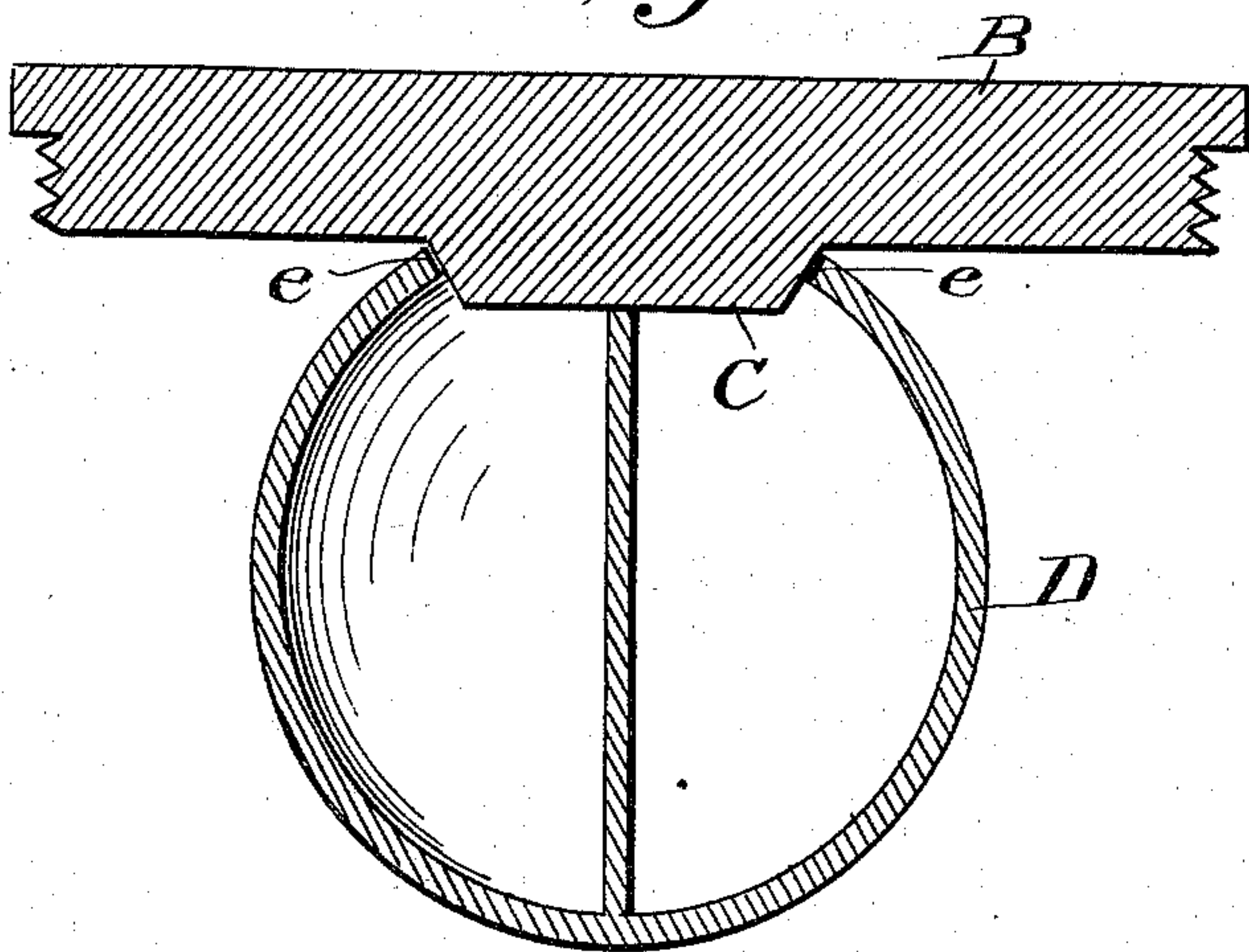
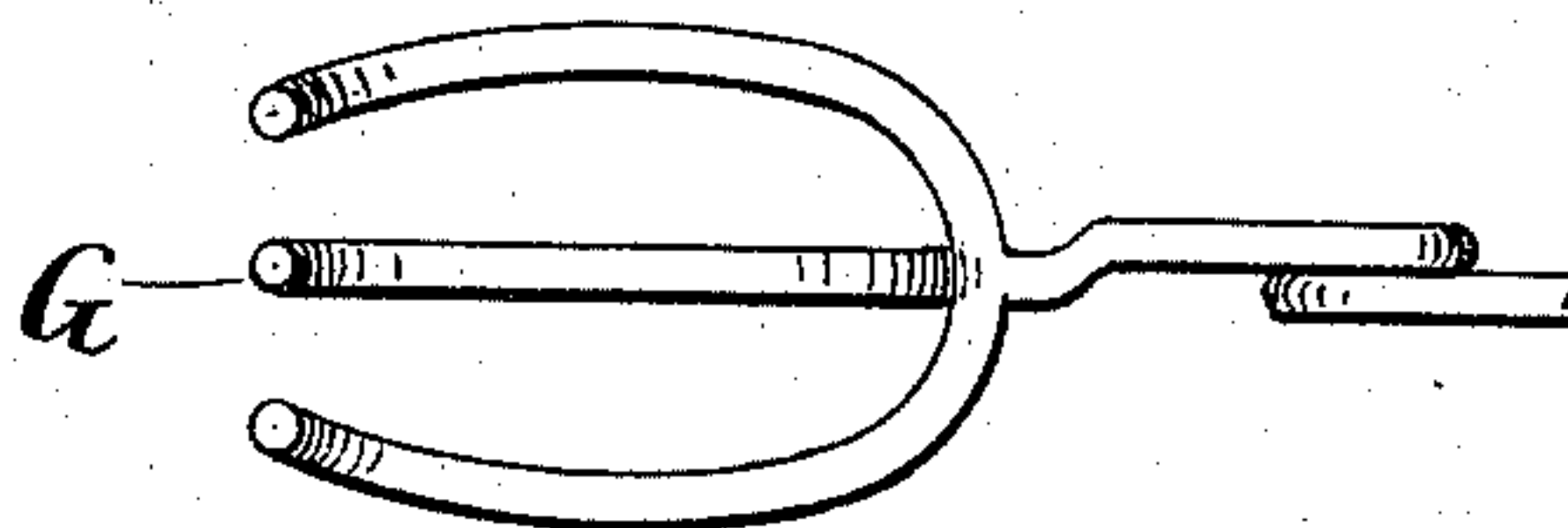


Fig. 5.



Witnesses

Just A Blackwood

Albert B. Blackwood.

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UNITED STATES PATENT OFFICE.

IRA BRASHEARS, OF WASHINGTON, DISTRICT OF COLUMBIA.

FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 562,568, dated June 23, 1896.

Application filed July 27, 1895. Serial No. 557,368. (No model.)

To all whom it may concern:

Be it known that I, IRA BRASHEARS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Fire-Extinguishers; 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 appertains to make and use the same.

My invention relates to certain improvements in that character of portable fire-extinguishers in which a tank is employed containing an alkaline or other solution, and in which tank is suspended a vessel containing an acid, which on liberation and mixture with the alkaline or other solution in the tank will cause a reaction and generate a gas, the pressure of which will forcibly eject the mixed contents of the tank therefrom through a suitable pipe nozzle and hose upon the fire to be extinguished.

The objects of my improvements are to produce greater simplicity of structure whereby the parts are less liable to get out of order, greater ease and celerity of operation, and greater extinguishing power due to a more complete and immediate intermixture of the ingredients which produce the chemical reaction. These objects are accomplished by the means constituting my invention, which are illustrated in their preferable form in the accompanying drawings.

In the drawings, Figure 1 is a side exterior view in elevation of the apparatus; Fig. 2, a vertical section of the same; Fig. 3, a horizontal section on line *x x* of Fig. 1; Fig. 4, a detail sectional view of one form of the acid-containing bottle or vessel; Fig. 5, a detail plan of the spring device for holding the acid-containing vessel in its proper position when the stopper is applied.

Referring now to the drawings, A denotes the main tank for containing the usual saline solution, and in which such solution and the acid ingredients of the inner vessel are mixed. It is provided with a screw-cap B, having a stopper C, of suitable shape to fit the mouth of the acid-containing vessel.

The acid-containing vessel I have devised is a globe D, formed of glass or metal, or any

suitable material. This globe is illustrated in detail in Fig. 4, and has a mouth *e*, of the form preferably as illustrated in that figure. That is to say, the mouth of the bottle is formed in and below the surface of the vessel, so as not to have any protruding edges or sides extending beyond the periphery of the vessel. The mouth is also preferably formed with inwardly-inclined sides, and the stopper C with corresponding sides. With this form of stopper and mouth the vessel can be more tightly and securely fitted; but these details in form of mouth and stopper may be varied without departing from the spirit of my invention.

The vessel D is made of globular form in order that it shall when unstoppered and released from its support roll easily and quickly down a spiral case or track F to the bottom of the main tank, distributing its contents continually during its descent on all sides and through the body of the surrounding solution.

The vessel D may be divided into chambers, as illustrated in Fig. 4, for the purpose of receiving different chemical ingredients, either of solid or liquid form, and having different powers or proportions. This vessel is held in place when stoppered by a spring-supporting arm G. This spring-support is fulcrumed on the lower end of a vertical bar H, depending from the casing near one side of the screw-cap, and the outer end of the spring is pivoted to a vertical lever I. The lever I extends up through the casing and is provided at its upper end with a finger-piece. The spring-support G is lowered and freed from the vessel D, so that the latter will fall when thus released, by raising the lever I.

To hold the lever down and thus keep the spring-support in place until released, a spring-catch *m* is employed, secured to the casing and adapted to engage with a lug *o* in the lever I.

To aid in holding the globe in place when stoppered and prevent its turning around, I employ jointed brace-arms L, which are secured to the inner wall of the casing, are jointed at their center at *i*, and provided at their inner ends with a rubber pad *j*, which bears against the globe.

When the globe is released and falls, the hinged part of the arm L also falls, and when the globe is put in place such part of the arm is raised and braced against the globe. The
5 employment of the rubber pad is for the purpose of preventing the smooth-surfaced globe from slipping.

The spiral track F is shown as supported against and extending around and down the
10 inner sides of the main tank. It might be confined, if desired, to the central portion of the tank. The spirals may be set at a greater or less incline to increase or decrease the speed of the descent of the rolling acid-vessel,
15 as experience and judgment may dictate.

P is a discharge-pipe, located for the greater part of its length in the center of the main tank, but at its upper end extending to one side and out of the top of the tank. It is
20 provided at its upper end with a valve-chamber R. This chamber is provided with a proper valve-seat and a valve-rod S, carrying at its lower end a valve T. Proper packing is placed at the top of the chamber, through
25 which the valve-rod is extended, and at its upper end the rod is provided with a finger-piece. To hold the valve to its seat until released by raising, a spring-catch *v* is employed, which engages with a lug *w* on the valve-rod.

The operation of the apparatus will be readily understood, and it need only be said that on lifting the lever I the spring-support of the acid-containing globe is thrown down, the
30 globe falls onto the spiral track and in rolling down the contents of the globe are thoroughly mixed with the surrounding solution throughout the entire extent of the tank. When the globe-releasing lever I is raised, the valve-rod S is at the same time also raised
35 to permit the liquid in the main tank to flow out, under the pressure produced by the chemical reaction of the mixed ingredients, through the pipe P and its discharge-spout *t*.

To the discharge-spout *t* a suitable hose may be attached.

My apparatus as thus described is adapted
45 to be used with those portable as well as large chemical fire-engine frames in which the main tanks are carried horizontally, as it may be placed without any material change in nearly
50 a horizontal position and operated in that position as effectually as when placed vertically.

Having thus described my invention, what I claim is—

1. In a chemical fire-extinguishing appa-
55 ratus, the combination with the main tank, of a spiral track or way formed within said tank and extending nearly from end to end of the same, and a globe-shaped acid-containing vessel provided with an open mouth and
60 adapted by its shape to roll down said spiral way, substantially as described.

2. In a chemical fire-extinguishing apparatus in combination with the main tank,
65 screw-cap and stopper, of the globe-shaped acid-containing vessel, a spring-arm for supporting said globe, and a handle to which said spring-arm is pivoted, said handle extending through the main tank to be operated on the outside to lower said support and
70 permit the globe to drop, substantially as described.

3. In a fire-extinguisher in combination with a main tank of a spiral way formed on the interior of said tank, and extending from
75 end to end of the same, and an acid-containing vessel provided with an open mouth and adapted to descend said spiral way and empty its contents during such descent, substantially as and for the purpose described. 80

In testimony whereof I affix my signature in presence of two witnesses.

IRA BRASHEARS.

Witnesses:

JAS. H. BLACKWOOD,
H. P. DOOLITTLE.