

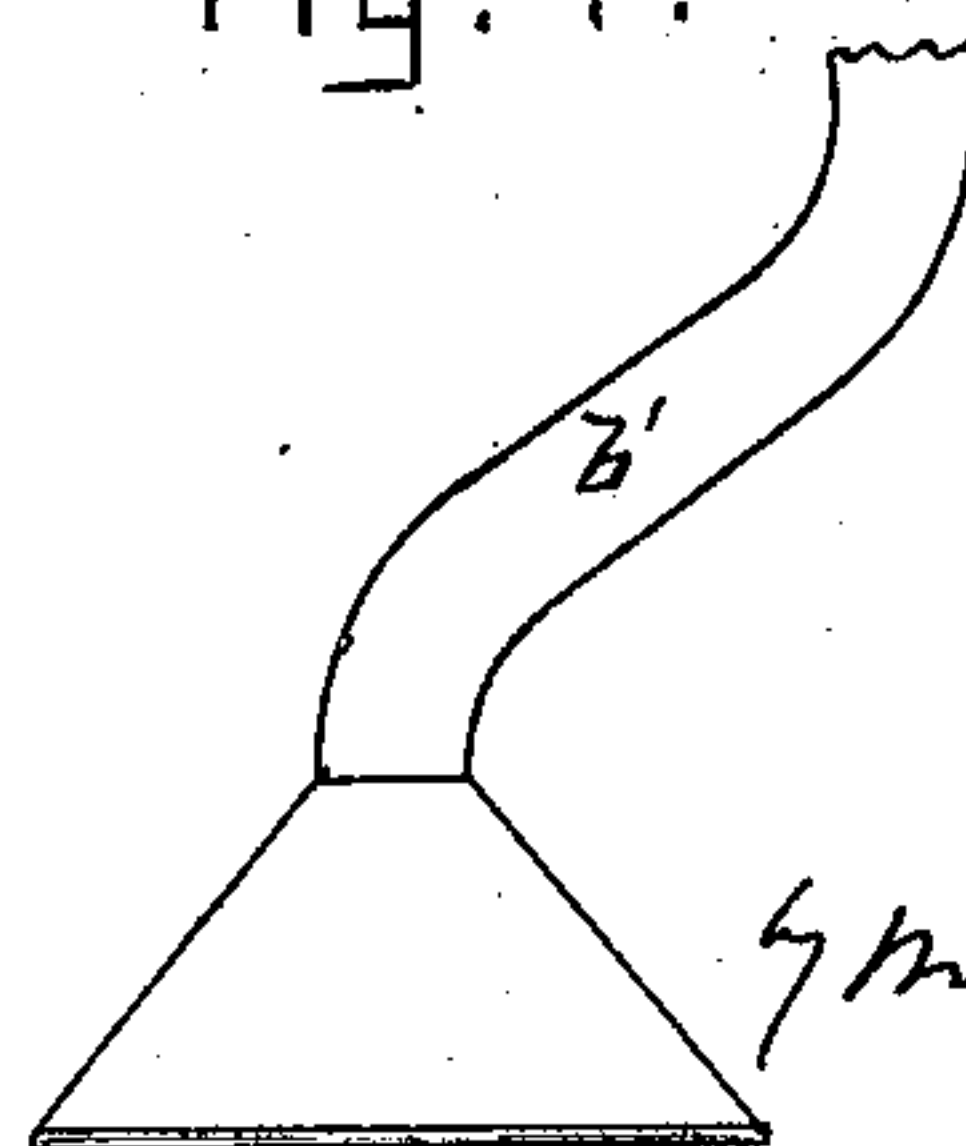
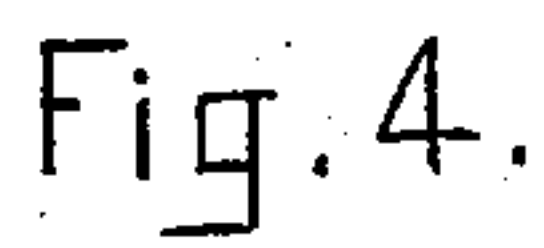
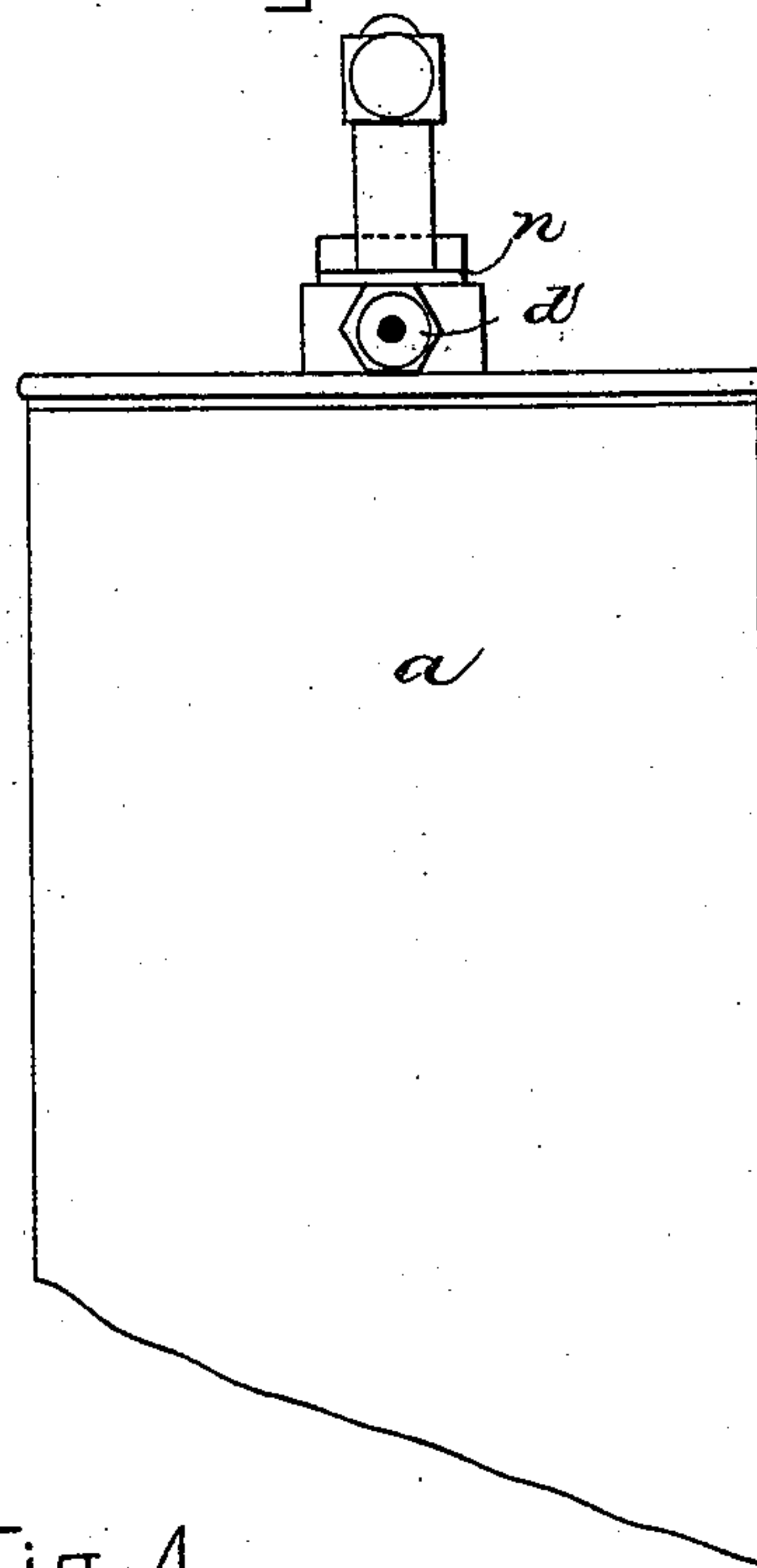
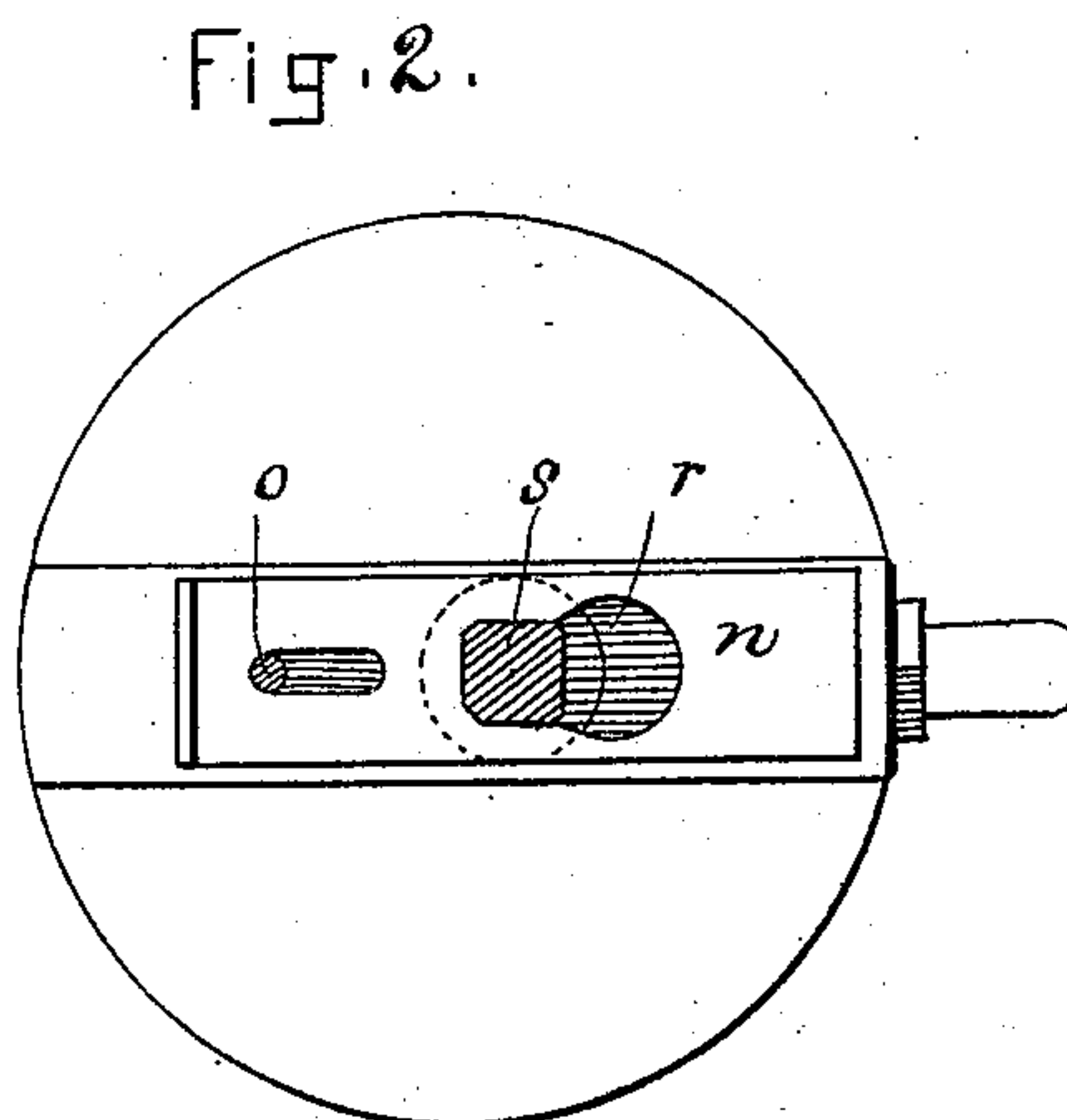
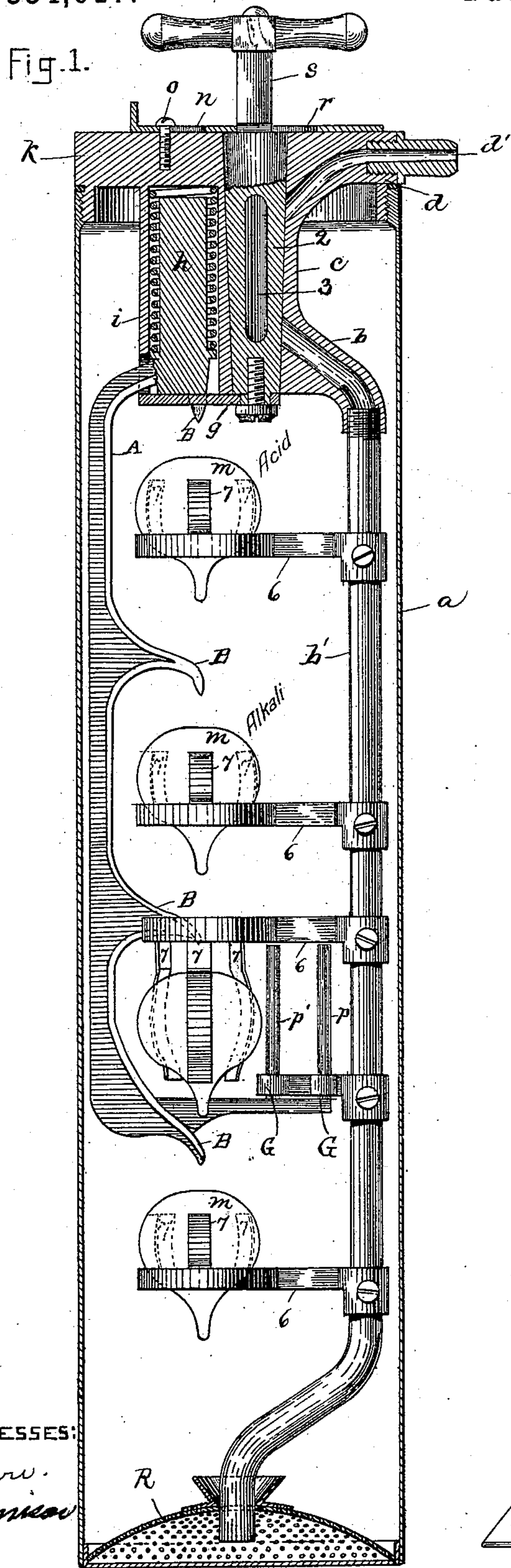
(No Model.)

R. A. BALLOU.

CHEMICAL FIRE EXTINGUISHER.

No. 354,617.

Patented Dec. 21, 1886.



INVENTOR:

R. A. Ballou
4 night H. B. B. B.
Atty.

WITNESSES:
H. P. Brown.
A. D. Hancock

UNITED STATES PATENT OFFICE.

RUSSELL A. BALLOU, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE
CHEMICAL HAND FIRE EXTINGUISHER COMPANY, OF PORTLAND, ME.

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 354,617, dated December 21, 1886.

Application filed November 30, 1885. Serial No. 184,277. (No model.)

To all whom it may concern:

Be it known that I, RUSSELL A. BALLOU, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain
5 new and useful Improvements in Chemical Fire-Extinguishers, of which the following is a specification.

This invention relates to that class of fire-extinguishing apparatus comprising a metallic
10 holder or receptacle and chemicals contained in said holder and separated when not in use, a part of said chemicals being contained in a glass bottle which is broken by devices provided for that purpose when the apparatus is
15 to be used, the chemicals being thus mixed and caused to generate gases which, with the liquid portion, are forcibly expelled from the holder through a discharge-nozzle.

The invention consists in the combination
20 of a main receptacle, two or more bottles within said receptacle, a multiple hammer constructed to break all of said bottles, and an operating-spring and a retaining and releasing device for said hammer, the hammer
25 being held against the force of said spring when the apparatus is not in use and released, and thus caused to break the bottles when the apparatus is to be used.

The invention also consists in the combination,
30 with the main receptacle, of two or more holders to contain the bottles and a spring-hammer formed to simultaneously break all of the bottles held by said holders, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a
35 part of this specification, Figure 1 represents a vertical central section of my improved apparatus. Fig. 2 represents a top view of the same, the stem of the faucet-plug being shown
40 in section. Fig. 3 represents a side view of the upper portion of the apparatus. Fig. 4 represents a modification.

The same letters of reference indicate the same parts in all the figures.

45 In the drawings, *a* represents the receptacle, *b'* the pipe leading from the lower part of the interior of the receptacle to the faucet *c*, where it is secured to a tubular branch, *b*, formed on the casing of the faucet. Said casing has another branch, *d*, leading to the cover of the
50 receptacle, and there communicating with an escape-passage, *d'*, in the cover, as shown in

Fig. 1. The plug 2 of the faucet has a groove or way, 3, formed to connect the branches *b* & *d* when turned to one position, and to shut off
55 communication between them when turned to another position. To the lower end of the faucet-plug is attached an arm, *g*, which, when the faucet is closed, acts to support a spring-plunger, *h*, in a holder, *i*, formed with or at-
60 tached to the faucet-casing. The faucet-casing is rigidly attached in any suitable manner to a cap, *k*, which is screwed onto the body of the receptacle and constitutes the cover thereof. I prefer to cast the cap *k*, casing *c*, and holder
65 *i* in one part, as shown in Fig. 1.

The socket formed in the casing *c* for the
70 plug 2 is extended through the top of the cover, so that the plug can be inserted and removed through the top of the cover.

n represents a plate, fitted to slide on the top
of the cover *k*, and secured thereto by a screw,
75 *o*, inserted in the cover through a slot, *p*, in said plate. The plate has a key-hole-shaped slot, *r*, through which the stem *s* of the plug
80 passes. Said stem has two parallel sides at the point where it passes through the slot *r*, and the narrower portion of said slot fits closely against said parallel sides, and prevents the stem from turning when the plate *n*
85 is at one end of its movement. When the plate is moved so as to cause the wider end of the slot *r* to inclose the stem *s*, said stem is released and may be freely rotated. When the stem is locked, as above described, the plug 2
90 is in position to close the faucet and hold the plunger *h*.

Instead of placing any of those chemicals
which will exert an injurious effect on the
95 faucet or any metallic part of the apparatus directly in the receptacle *a* and the rest in a bottle or bottles, I prefer to place all of said chemicals in bottles *m*, using two or more, as may be required, so that no part of the injurious chemicals will be exposed to the air
100 within the receptacle. Such chemical ingredients as are not injurious in their action and not liable to deterioration by mixture with others may be placed in the receptacle.

Each bottle is hermetically sealed by the
105 glass of which it is made after receiving its contents, so that there can be no possibility of deterioration of the chemicals, nor of destruction of the oil used to insure an air-tight fit of

the plug 2 in its socket by the gases evolved from the chemicals.

I prefer to support the bottles *m* in a series of holders, each composed of a ring or a section of a ring, 6, attached to the pipe *b'* or other suitable support within the receptacle *a*, and a series of spring-fingers, 7, secured to said ring and formed to bear on the body of a bottle, the lower part of said bottle preferably resting on the ring 6, although, if desired, the arms may project downwardly from the ring so that the bottle will not rest on the latter. To simultaneously break said bottles when the apparatus is to be used, I provide the plunger *i* with a series of beaks, B, extending over the bottles *m*, so that when the plunger *h* is released by the turning of the plug 3 said beaks will simultaneously strike and break the bottles. In the present instance one of said beaks is shown as attached directly to the plunger and the other to an arm, A, extending downwardly from the plunger, the whole constituting a multiple hammer. The arm A is preferably bent at its lower end and provided with two guide-pins, *p' p'*, which pass through eyes or sockets G G, attached to the pipe *b'*, the arm being thus guided in its movements and prevented from turning or swinging laterally. The bent lower portion of the arm may be arranged to break one of the bottles, as shown in Fig. 1.

It will be seen that the turning of the plug to open the faucet releases the multiple hammer, and causes the breakage of the bottles and the mixture of the chemicals, the result being a violent ejection of combined gas and liquid through the escape-nozzle *d'*.

It is obvious that two or any greater number of bottles may be employed, as desired.

I do not limit myself to the employment of a multiple hammer formed to break all of the bottles simultaneously, for, if desired, the bottles may be broken by a single hammer or plunger passing through them successively. Nor do I limit myself to the provision of a separate holder for each bottle, as they may be placed one upon the other in a holder common to them all, said holder being, for example, a series of parallel vertical rods, or a tube suitably affixed to the receptacle.

R represents a perforated partition in the receptacle *a*, just above its bottom. This par-

tion has a central orifice, which receives the lower end of the pipe *b'*, as shown in Fig. 1. The partition constitutes a strainer, to prevent the fragments of glass and other foreign matter from entering the pipe *b'*, and also a support which prevents said pipe from moving laterally, and therefore protects the bottles by preventing them from striking against the sides of the receptacle.

If desired, the strainer may be attached to the pipe *b'*, as shown in Fig. 4.

The faucet secured to the cover of the receptacle forms the subject of another application filed by me concurrently with this application.

In my application filed August 11, 1885, Serial No. 174,241, I have shown a spring-impelled hammer held by an arm on the faucet-plug in position to break a bottle in the main receptacle when released. The present invention is, therefore, an improvement on that described in the last-named application.

I do not in this application claim the specific improvements described and claimed in my pending applications, No. 183,690, filed November 23, 1885, and No. 178,347, filed September 28, 1885.

I claim—

1. In a chemical fire-extinguisher, the combination of a main receptacle, two or more bottles therein, a multiple hammer whereby said bottles may be simultaneously broken, and an operating-spring, and a retaining and releasing device for said hammer, as set forth.

2. The combination of the receptacle, a series of bottle-holders therein, and a multiple hammer formed to simultaneously break the bottles in said holders, as set forth.

3. The combination of the receptacle, the perforated partition or strainer, and the bottle-holding pipe or standard, as set forth.

4. The multiple hammer having guide pins or projections, combined with the fixed sockets for said pins, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of November, 1885.

RUSSELL A. BALLOU.

Witnesses:

C. F. BROWN,
H. BROWN.