

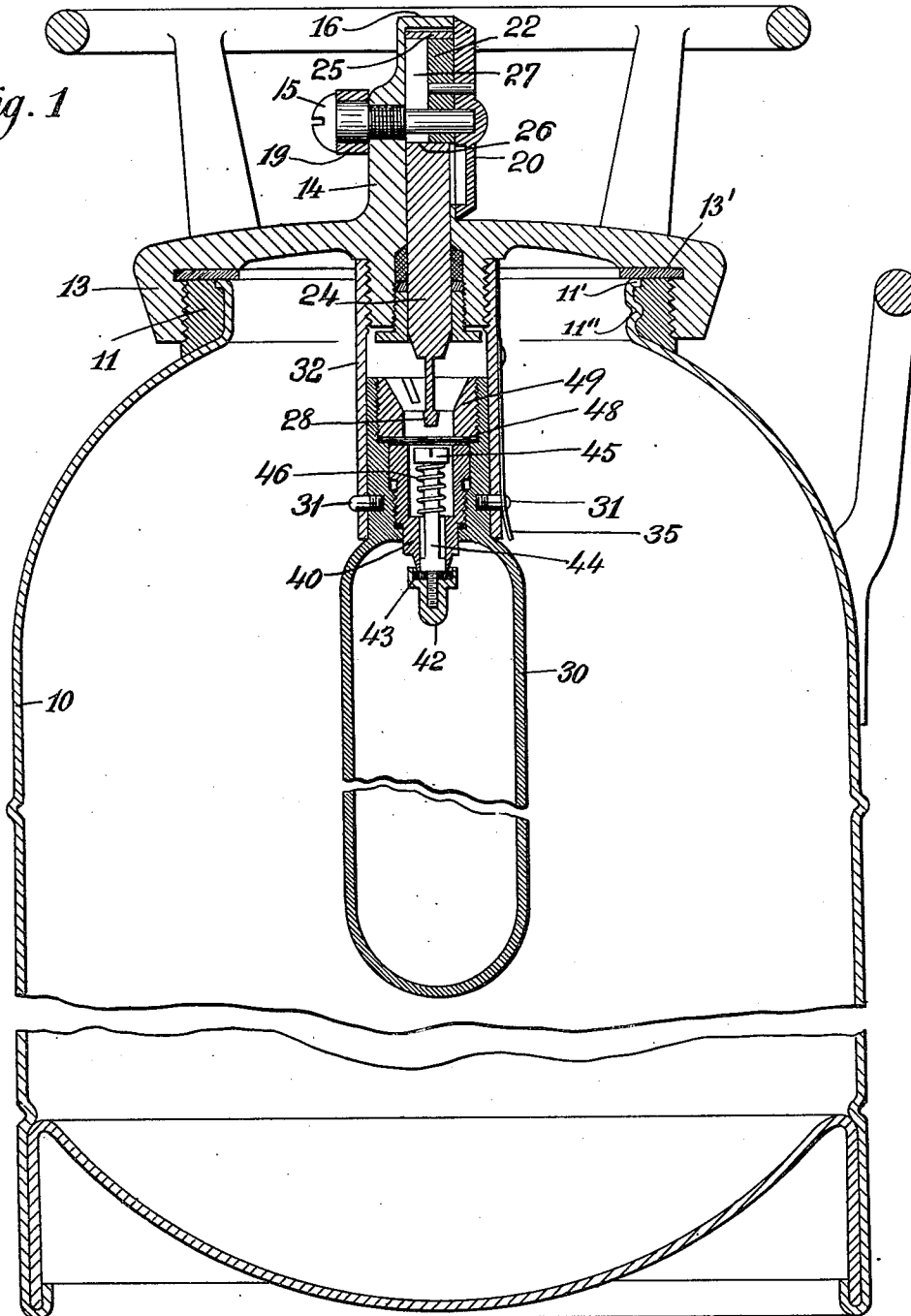
J. BIJUR & J. M. JOY.
FIRE EXTINGUISHER.
APPLICATION FILED NOV. 12, 1910.

1,015,987.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.

Fig. 1



Witnesses:
E. P. La Gay
John Herr

Joseph Bijur and John M. Joy Inventors

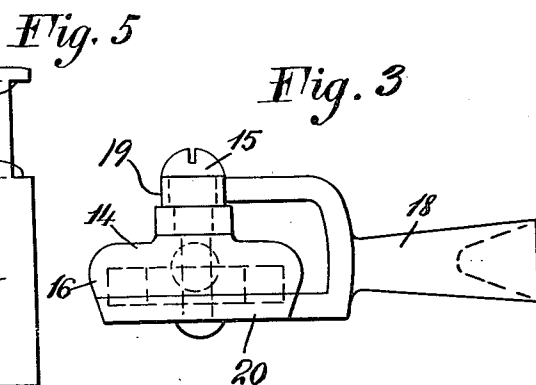
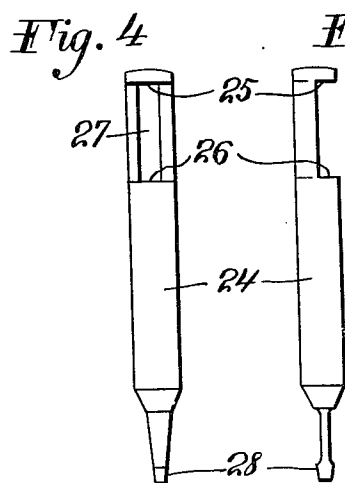
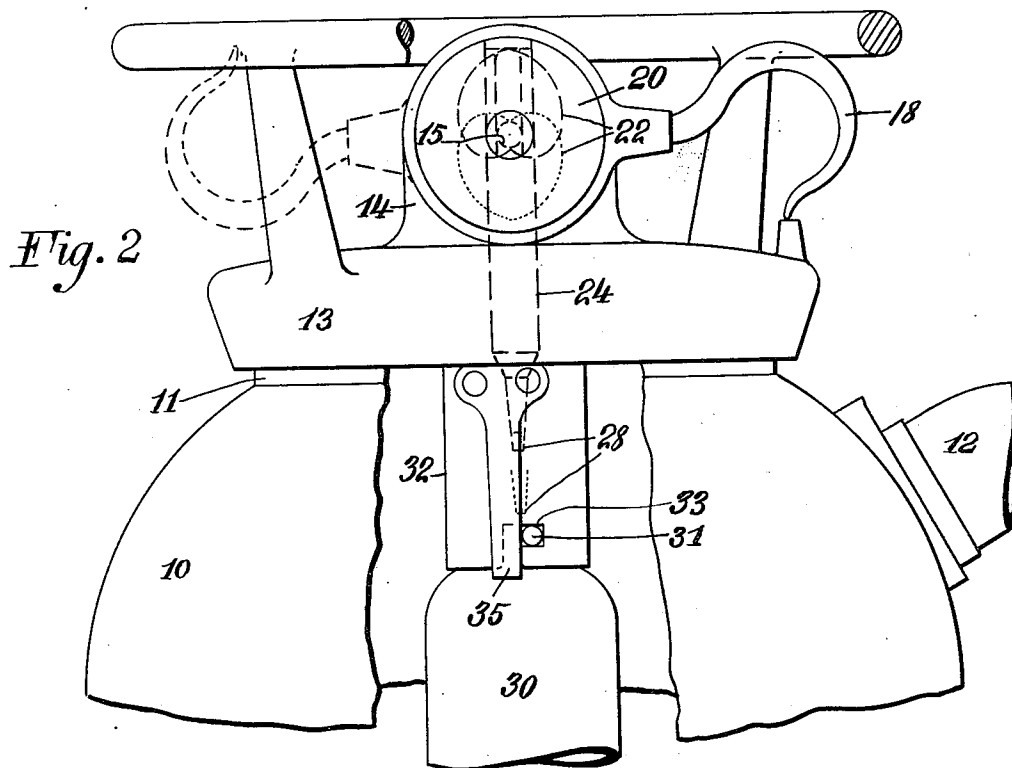
By their Attorneys Binney & Moshell.
by Harri Oliver,

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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH BIJUR, OF NEW YORK, N. Y., AND JOHN M. JOY, OF BOONTON, NEW JERSEY,
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FIRE-EXTINGUISHER.

1,015,987.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed November 12, 1910. Serial No. 592,010.

To all whom it may concern:

Be it known that we, JOSEPH BIJUR, residence and post-office address 163 West Seventy-fourth street, New York city, New York, and JOHN M. JOY, residence and post-office address Boonton, New Jersey, both citizens of the United States, have invented certain new and useful Improvements in Fire-Extinguishers, of which the following is a specification, accompanied by drawings.

The invention was designed particularly for fire extinguishers having a case containing water or other extinguishing fluid and a compressed gas container or capsule from which the gas is released, to cause pressure on the liquid, by perforating a seal and opening the valve of the capsule; but it will be seen that the invention is not limited to this particular use.

The object of the invention is to improve the construction and operation of the apparatus.

In the accompanying drawings the most complete and perfect form of the invention known to us is illustrated, but it will be seen that some features of the invention may be used without others and a considerable modification is permissible without departing from the spirit of the invention.

In the drawings, Figure 1 is a cross section of the fire extinguisher embodying the invention. Fig. 2 is a side elevation of the upper portion thereof partly broken away to show some details. Fig. 3 is a plan view of certain details. Figs. 4 and 5 are two views at right angles of the plunger.

At 10 is the main tank, container, or casing of the extinguisher, which is preferably of sheet metal provided with a screw-threaded collar 11. The metal of the tank is rolled and expanded over the inner edge of the collar, as at 11' and also preferably indented at several points, as at 11''. It will be seen that the gas pressure tends to hold this joint tight. The collar is screw-threaded externally to fit the cover 13 and is machine-finished at its upper face to fit tightly against the washer 13' of the screw cover 13 of the apparatus. At 12 is the external hose connection of the extinguisher.

The seal perforating plunger is operated by a cam and cam lever preferably constructed as follows:

Upon the cover rises a housing 14 which is screw-threaded to receive a stud 15 upon which the cam turns and is recessed so as to inclose the cam and plunger and protect them, as at 16. The plunger lever 18 swings through an angle of one hundred and eighty degrees from the position shown in full to that shown in dotted lines in Fig. 2. It is forked and has a double bearing on the stud 15. One part 19 turns upon the neck of the stud; the other part 20 is enlarged to form a disk which supplements the housing 14 in inclosing the cam and plunger and has a bearing on the inner end of the stud 15. The cam 22 is pinned to the inner face of the member 20 of the lever and lies within the recess of the housing 14, as shown. It is preferably heart-shaped and designed to hold the plunger in its highest position and its extreme lowest position at the two positions of the lever indicated in Fig. 2. Consequently the upward pressure on the plunger does not tend to turn the cam and allow the plunger to move upward from its lowest position. The uppermost position of the cam 22 is shown by a line of dashes in Fig. 2 and the lowermost position by a line of fine dots.

The plunger 24 is of the shape best seen in Figs. 4 and 5. It is laterally recessed to receive and cooperate with the cam 22 which acts against the shoulders 25, 26. It is also slotted at 27 to allow the stud 15 to pass through it without interfering with its motions. It extends downward through the housing 14 and is guided thereby and is surrounded and packed gas-tight by the gland and stuffing-box, as shown in Fig. 1. Its extreme lower end is provided with a piercing tip 28 and is reduced somewhat above this in order to allow the gas to escape freely through the perforation after the piercing tip has perforated the seal.

The capsule or cartridge 30 for the compressed carbonic acid gas or other gas has a neck provided with projecting studs or pins 31 by which it is secured with a loose fit to the sleeve 32 which is rigidly secured by screw-threading to the projecting nipple on the under side of the cover 13, as shown. The pins 31 are received in L-shaped or bayonet slots, the shape of one of which is shown in Fig. 2 at 33. The capsule

is put in place by thrusting the pins along the longitudinal portions of the slot and then turning the cartridge to bring the pins into transverse portions of the slot and a
 5 spring 35 springs down behind the projecting pin 31 to hold it in the slot, as will be clear from Figs. 1 and 2. To release the cartridge the spring 35 is raised and then the capsule can be turned and the pin 31 freed
 10 from the slots. To facilitate this release the projecting ends of the pins 31 may be rounded so as to present an incline to the spring 35 sufficient to automatically raise the spring and release the pins when considerable rotary force is applied to the cap-
 15 sule. It will be seen that no accidental force but only a twist or rotary movement will release the pins.

The walls of the capsule 30 are preferably
 20 a single piece of pressed or drawn steel or two pieces electrically welded to form one. The neck of the capsule is screw-threaded internally at two points, as shown, to receive respectively the valve sleeve and the
 25 seal-holding sleeve. The valve sleeve 40 is screwed into the neck, as shown. At its lower end it forms the valve seat on which the valve 42 seats in an upward direction. This valve consists of a screw cap holding
 30 a rubber valve disk or face 43 on the lower end of the valve stem 44. Valve stem 44 is guided in the sleeve 40. It is preferably laterally cut away or reduced, as shown in Fig. 1, to allow space for the passage of
 35 gas. At its upper end it has an angular head 45 beneath which is confined the compression spring 46 which acts to hold up the valve disk 43 against its seat. Above the valve stem and resting on shoulders in the
 40 neck of the capsule is a sealing disk 48 which is screwed down and tightly sealed by means of the screw cam 49.

When the extinguisher has been charged and the parts put in place, as shown in the
 45 figures, the plunger will be normally in the position shown in Fig. 1 just above the seal 48. To use the extinguisher the lever 18 is turned to the dotted position shown in Fig. 2. This turns the cam to its lowest position,
 50 driving down the plunger and causing its lower end 28 to first perforate the seal 48 and then to push down the valve stem 44, opening the valve and allowing the compressed carbonic acid or other gas to escape to the
 55 main tank 10. In this position the compression spring 46 and the plunger pressing upward cannot tend to turn the cam but will be locked by the cam until the lever is moved. By turning back the lever to its
 60 normal position the spring 46 will be allowed to act and close the capsule valve stopping the release of gas.

In recharging the screw-cover 13 is removed; capsule 30 withdrawn from the
 65 sleeve 32 and a fresh capsule put in place;

liquid filled into the tank and the screw-cover 13 screwed on, the lever being in the normal position shown in full lines, Fig. 2.

We claim the following:

1. The combination of the tank, cover, 70 and capsule, a perforable seal and a valve for the said capsule, a plunger for piercing said seal and operating the valve, a lever and a cam for operating the plunger, said cam being of shape to lock the plunger 75 against endwise motion when holding the valve open.

2. The combination of the tank, cover, and capsule, a perforable seal and a valve for the said capsule, a plunger for piercing said 80 seal and operating the valve, a lever and a cam for operating the plunger, said cam acting within a recess in the said plunger.

3. The combination of the tank, cover therefor, means for securing a capsule to 85 the cover, a plunger guided in the said cover, a cam set within a recess in the said plunger, a lever for operating the cam and a housing on which the lever is pivoted and which protects the said cam. 90

4. The combination of the tank, cover therefor, a sleeve screw-threaded to said cover, a plunger extending through the said cover and within the sleeve, a stuffing- 95 box within the sleeve around said plunger, a capsule having laterally projecting pins, and cooperating slots in said sleeve, and a spring-retaining device therefor for locking the pins in said slots and securing the capsule to the sleeve. 100

5. An extinguisher having a tank, a cover, a capsule provided with one or more pins with rounded or inclined ends, a sleeve to which the capsule is detachably secured, said sleeve having one or more slots for 105 said pins, and a spring-retaining device for locking the pins in said slots which engages the said inclined end of one of the pins and is thereby adapted to be actuated by said pin under force. 110

6. An extinguisher having a tank, a cover, a capsule provided with one or more pins with rounded or inclined ends, a sleeve to which the capsule is detachably secured, said sleeve having one or more slots for 115 said pins, a spring-retaining device for locking the pins in said slots which engages the said inclined end of one of the pins and is thereby adapted to be actuated by said pin under force, and the said slots extend- 120 ing circumferentially at the portion wherein the pins are retained, whereby rotary motion is necessary to release the pins.

7. An extinguisher having a tank provided with a seal-perforating plunger, a 125 capsule therefor having a neck integral with its walls, a detachable valve sleeve screw-threaded into said neck and having a valve and valve stem in position to be actuated by the plunger, and a seal seated 130

in and secured to the said neck above the said sleeve and completely inclosing it within the neck.

8. An extinguisher having a tank provided with a seal-perforating plunger, a capsule therefor having a neck integral with its walls, a detachable valve sleeve secured in said neck, a seal extending across the valve sleeve within said neck and secured
10 therein and sealing the joint between the

valve sleeve and the neck as well as the valve passage.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses, Nov. 1, 1910.

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JOHN M. JOY.

Witnesses:

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FRANCIS A. STANTON.