

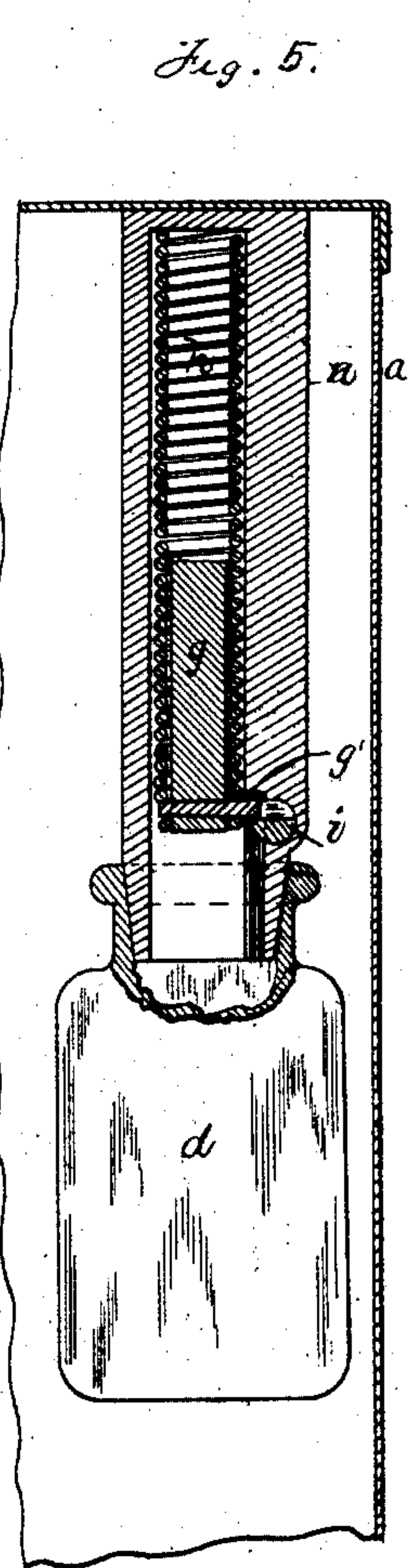
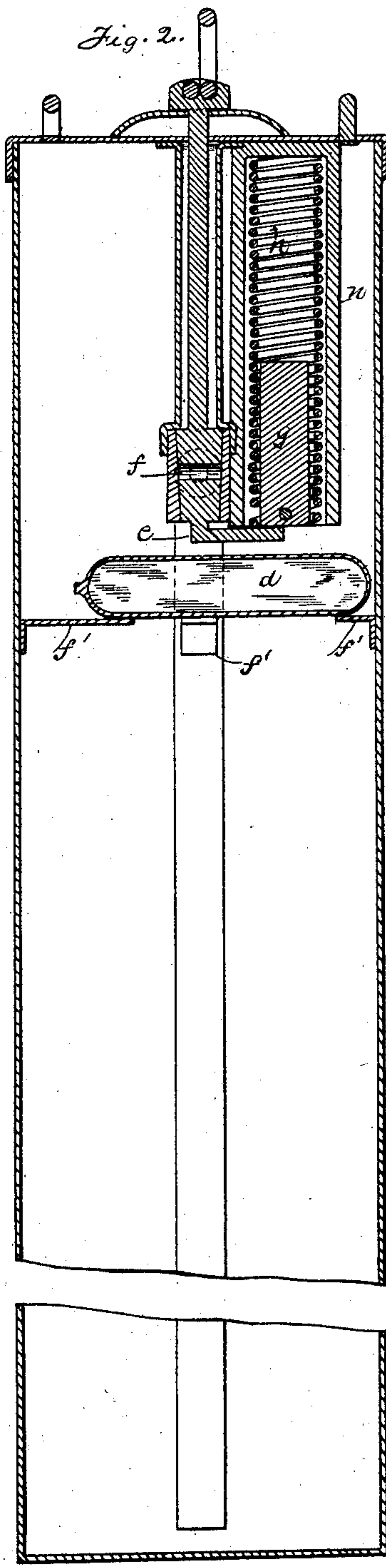
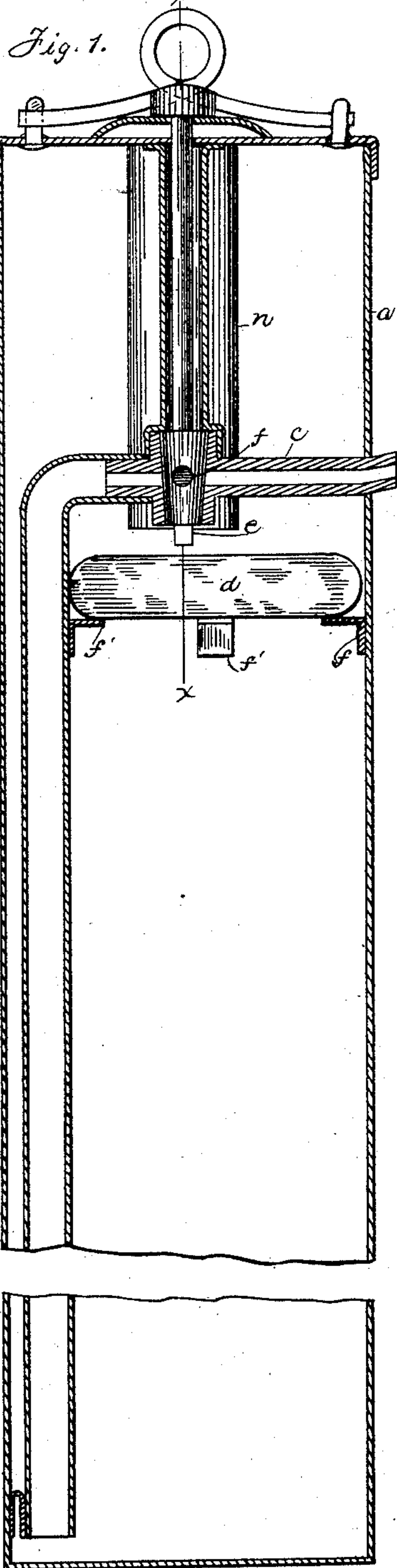
(No Model.)

3 Sheets—Sheet 1.

R. A. BALLOU.
CHEMICAL FIRE EXTINGUISHER.

No. 338,242.

Patented Mar. 23, 1886.



Witnesses:
H. Brown.
J. E. O'Brien.

Inventor:
Russell A. Ballou

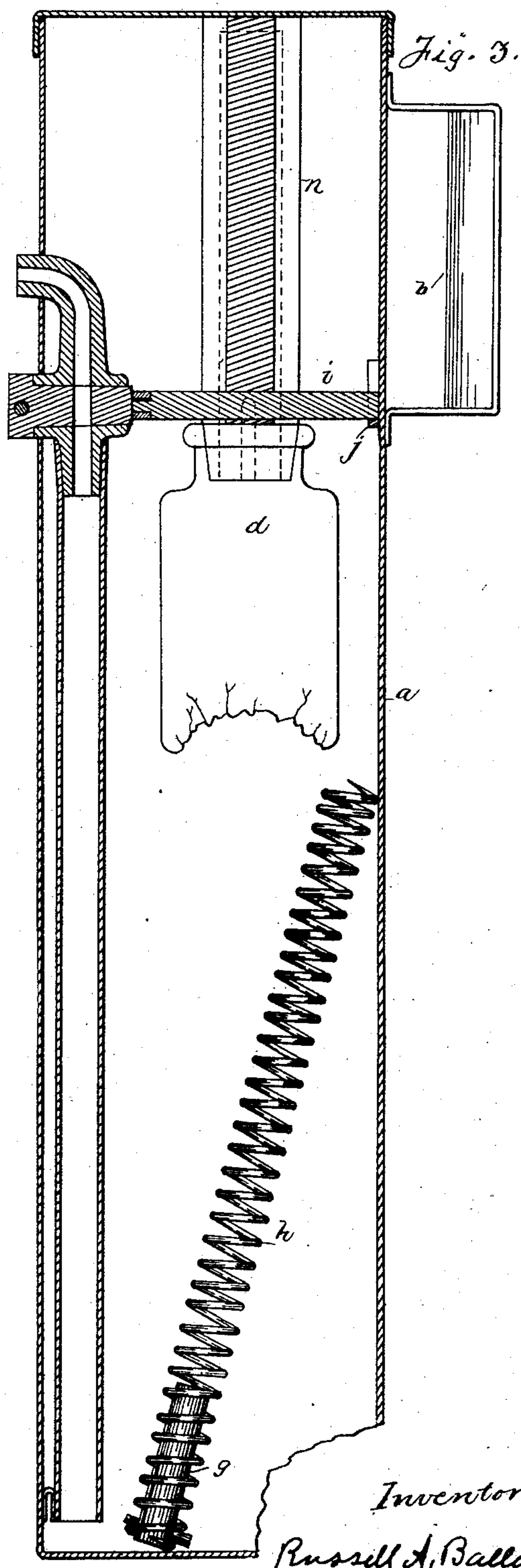
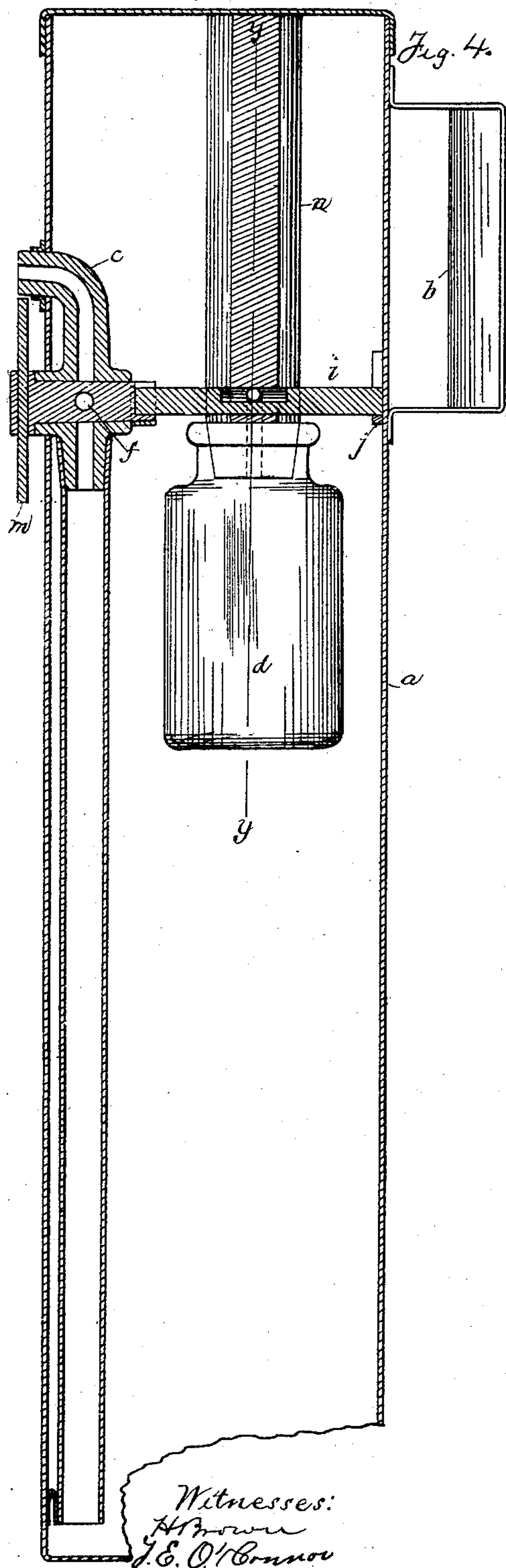
(No Model.)

3 Sheets—Sheet 2.

R. A. BALLOU.
CHEMICAL FIRE EXTINGUISHER.

No. 338,242.

Patented Mar. 23, 1886.



(No Model.)

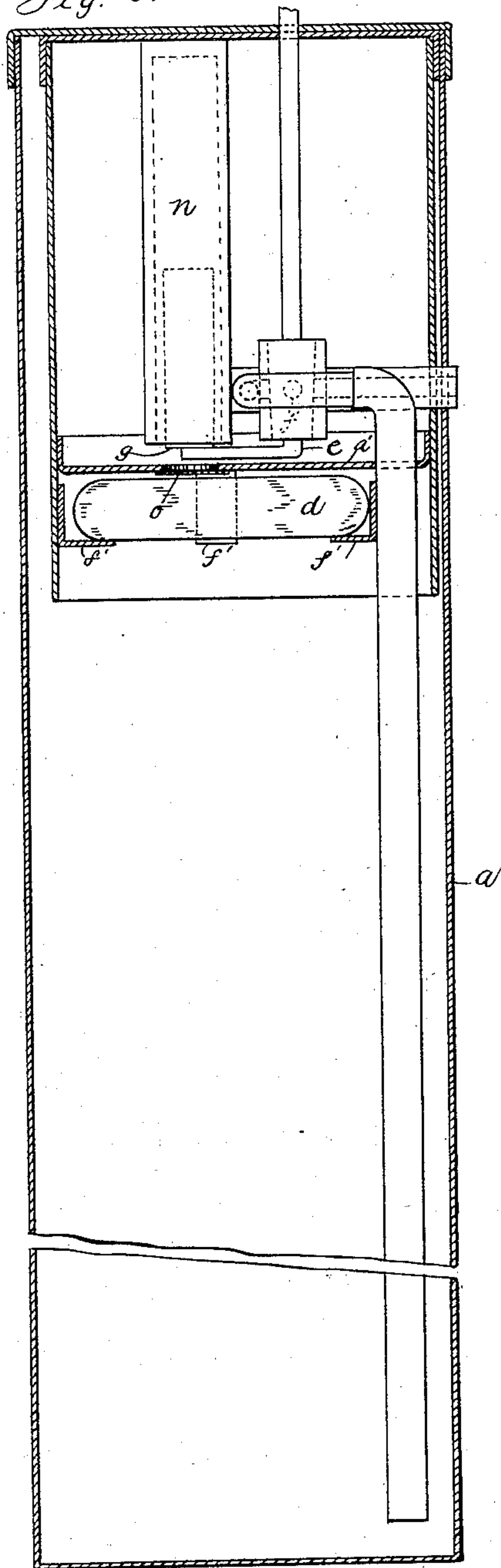
3 Sheets—Sheet 3.

R. A. BALLOU.
CHEMICAL FIRE EXTINGUISHER.

No. 338,242.

Patented Mar. 23, 1886.

Fig. 6.



Witnesses:
H. Brown
Thos. E. O'Connor

Inventor:
Russell A. Ballou

UNITED STATES PATENT OFFICE.

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

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 338,242, dated March 23, 1886.

Application filed August 13, 1885. Serial No. 174,241. (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-extinguishers composed of a receptacle, a fragile
10 vessel contained therein, suitable chemicals, including an acid and an alkali contained, respectively, in the fragile vessel and in the receptacle, and thus kept separate until the extinguisher is required for use, and means
15 for breaking the fragile vessel and thus mixing the chemicals when the extinguisher is to be used, said mixture generating a fire-extinguishing gas which is directed upon the fire through a discharge-pipe with which the re-
20 ceptacle is supplied.

The object of the invention is to cause the automatic breakage of the fragile vessel by the act of opening the discharge-pipe to permit the escape of the gas; and to this end the
25 invention consists in the combination, with the receptacle, its discharge-spout, and the fragile vessel, of a spring-actuated plunger or hammer arranged so that when released it will break the vessel, and a movable detent which
30 holds said hammer against the force of its operating-spring when the apparatus is ready for but not in use, said detent being moved by the valve or faucet controlling the discharge-pipe of the receptacle, so that when said valve
35 or faucet is opened the hammer is released, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents
40 a vertical section of a fire-extinguisher embodying my invention. Fig. 2 represents a section on line *x x*, Fig. 1. Figs. 3, 4, and 6 represent vertical sections of modifications. Fig. 5 represents a section on line *y y*, Fig. 4.

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

In the drawings, *a* represents the receptacle, which may be of any convenient size and shape. I prefer to make it cylindrical and of such
50 size that it can be carried in one hand, a handle, *b*, being provided for the operator to grasp.

c represents the discharge-spout, which passes

through the side of the receptacle near its upper end and extends downwardly inside nearly to the bottom. A valve or faucet controls the passage of gas or liquid through said pipe. 55

d represents the fragile vessel, which is preferably a glass bottle supported within the receptacle *a* at a suitable distance from its bottom.

In the construction shown in Figs. 1 and 2, 60 which I will first describe, the bottle, which has the same general shape as a watch-case, rests on brackets *f'*, attached to the receptacle.

g represents the bottle-breaking-plunger or hammer, and *h* its operating-spring. Said 65 spring and hammer are contained when the hammer is set for action in a casing, *n*, attached to the top of the receptacle, the hammer being over the bottle *d*.

e represents an arm attached to the plug *f* 70 of the faucet, and arranged to project under and hold the bolt in a raised position when the faucet is closed, as shown in Figs. 1 and 2. When the plug *f* is turned to open the faucet, the arm *e* is removed from under the hammer 75 and the latter is projected by its spring against the bottle with such force as to break the latter and liberate the chemical contained therein. Said chemical unites with the chemicals in the receptacle *a*, and the union generates a 80 gas which escapes through the opened faucet.

In the construction shown in Figs. 3, 4, and 5, the lower end of the casing *n*, containing the hammer and its spring, enters the mouth of the bottle, so that when the hammer is re- 85 leased it enters the bottle and breaks it by striking its bottom. The hammer is supported in this instance by a rod, *i*, having one end supported by a bearing, *j*, on the receptacle *a*, and its other end inserted in a slot in the fau- 90 cet-plug *f*, so that the rod will rotate with the plug. An offset, *g'*, Fig. 5, on the hammer bears on the flat side of a semicircular portion of the rod *i*. When the plug *f* is turned to open the faucet, the rod *i* releases the hammer, 9 which enters and breaks the bottle with the result already described.

Various other modifications may be made in the mechanism, whereby the hammer is held and released, without departing from the spirit 1 of my invention.

It will be seen that the apparatus is capable

of being put in operation very quickly, a turn of the faucet-plug being all that is required both to generate and release the gas.

The stem of the plug *e* is provided with a suitable external handle, *m*, by which it may be operated.

In Figs. 1 and 2 I have shown the operating-handle *m* constructed as shown in my pending application No. 168,704, filed June 15, 1885, said handle having a central loop by which the apparatus may be suspended from a nail or hook, and arms engaging with lugs on the receptacle.

To prevent the chemicals in the receptacle *a* from injuriously affecting the hammer or plunger, its operating-spring, and the other devices contained in the upper part of the receptacle, I prefer to inclose said devices in a tight casing, *a*, the bottom of which is interposed between the bottle *d* and the hammer and faucet, the bottle being below the bottom of said casing and the hammer and faucet above. (See Fig. 6.)

In the bottom of the casing *a* is an orifice, *o*, under the hammer. Said orifice, which is intended to permit the hammer to pass freely through the bottom of the casing and break the bottle, is provided with a covering capable of being easily removed or broken by the hammer.

Instead of making a casing, *a*, entirely surrounding the parts to be protected, only a partition or diaphragm corresponding to the bottom of said casing may be provided, said diaphragm being secured at its margin to the receptacle.

I claim—

1. In a chemical fire-extinguisher, the com-

bination of a receptacle having a discharge-spout and a valve or faucet therefor and containing a suitable chemical or chemicals, a fragile vessel within the receptacle containing another chemical, a spring-actuated hammer arranged within the receptacle, and a movable detent connected with the plug of the faucet and arranged to hold the hammer in a retracted position when the faucet is closed and to release the hammer when the faucet is opened, as set forth.

2. The combination of the receptacle, the bottle supported therein, the spring-hammer over the bottle, the discharge-pipe having a faucet, and an arm on the plug of the faucet acting as a detent for the spring-hammer when the faucet is closed, as set forth.

3. The receptacle *a*, having the inclosed bottle, the spring-hammer and its operating devices, and a casing or partition separating the hammer and its operating devices from the lower portion of the receptacle, as set forth.

4. The receptacle having the fragile vessel or bottle, the partition or casing bottom over said bottle, having an aperture protected by a yielding cover, and the spring-hammer and its operating devices over said partition, the hammer coinciding with the aperture in the partition, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of August, 1885.

RUSSELL A. BALLOU.

Witnesses:

H. BROWN,

C. F. BROWN.