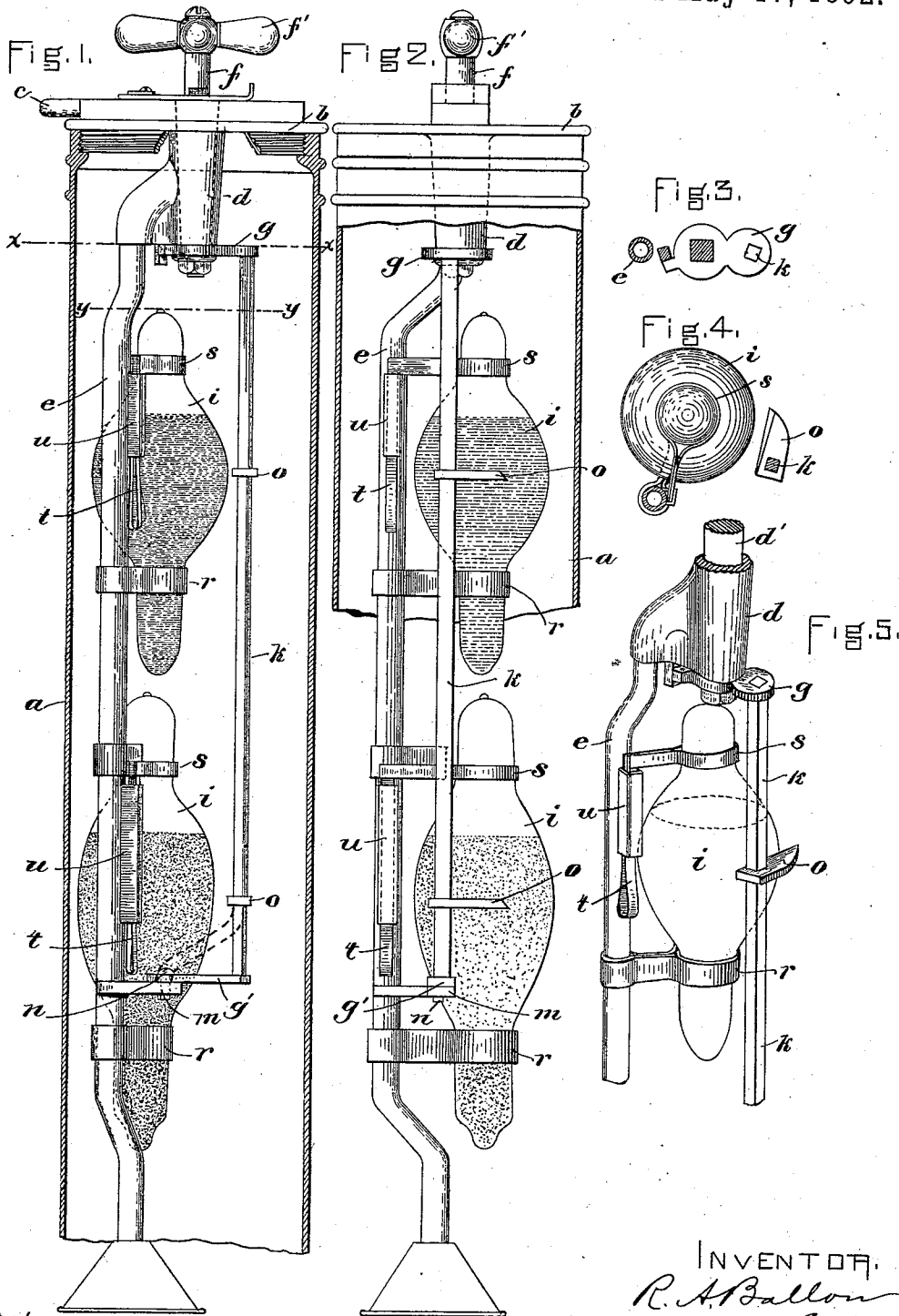


(No Model.)

R. A. BALLOU.
CHEMICAL FIRE EXTINGUISHER.

No. 475,050.

Patented May 17, 1892.



WITNESSES.
A. J. Harrison.
W. B. Ramsay.

INVENTOR.
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Atty.

UNITED STATES PATENT OFFICE.

RUSSELL ARNOLD BALLOU, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
CHEMICAL HAND FIRE EXTINGUISHER COMPANY, OF SAME PLACE.

CHEMICAL FIRE-EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 475,050, dated May 17, 1892.

Application filed December 10, 1888. Renewed October 12, 1891. Serial No. 408,417. (No model.)

To all whom it may concern:

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

This invention relates to chemical extinguishers composed of a casing having a discharge-nozzle and one or more fragile vessels in said casing, said holders containing different chemicals, which are mixed by the breakage of the vessels and by their mixture generate gases which escape forcibly through the nozzle and carry with them the liquid with which the casing is supplied.

Extinguishers of this class are provided with means whereby the fragile vessels may be broken whenever desired; and my present invention has for its object to provide improved means for this purpose and improved means for holding the fragile vessels or bottles in place in the casing.

To these ends my invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical section of the casing and a side elevation of the bottle holding and breaking devices. Fig. 2 represents a view of the same parts, taken from a different point. Fig. 3 represents a section on line *x x*, Fig. 1. Fig. 4 represents a section on line *y y*, Fig. 1. Fig. 5 represents a perspective view of a portion of the apparatus.

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

In the drawings, *a* represents the casing or main receptacle, the same being provided with a removable cap or cover *b*, screwed to the body of the receptacle and provided with a discharge-nozzle *c* and with a valve *d*, from the casing of which a tube *e* extends downwardly nearly to the bottom of the casing. The plug portion *d'* of the valve has a stem *f*, projecting above the cover and there provided with a handle *f'*. When the said plug is turned to its open position, it permits the passage of gas and liquid upwardly through the tube *e* and out through the nozzle, and

when said valve is turned to its closed position it shuts off the nozzle from the interior of the casing. To the lower end of the valve-plug is affixed an arm *g* at right angles with the plug *d'*, said arm being moved by the rotation of the plug.

The construction thus far described is the same as that shown in Letters Patent of the United States, No. 354,617, dated December 21, 1886; but in that patent the arm *g* is shown as employed to retain a spring-impelled bolt or bottle-breaker when the valve is closed, said bolt being released by the arm *g* when the valve is opened and forced by a spring against the bottles *i i*, which are supported by the tube *e* below the valve.

In carrying out my present invention I secure to the outer end of the arm *g* a vertical rod *k*, the lower end of which is secured to a similar arm *g'*, connected by a pivot *m* to a lug *n*, affixed to the vertical tube *e*. The rod *k* is thus adapted to be moved laterally by the rotation of the valve-plug *d'*. To said rod are attached arms or blades *o o*, which coincide with the bottles *i i*, and are arranged so that when the rod *k* is moved by the opening movement of the valve-plug they will bear against and break the bottles, thus liberating the contents thereof. This device constitutes a more positive bottle-breaker than the spring-projected bolt above described, there being no possibility of failure to break both bottles at each opening of the valve. The bottles are supported by ring-shaped holders *r r*, rigidly attached to the tube *e* and embracing the contracted lower ends of the bottles, and by vertically-adjustable ring-shaped holders *s s*, which embrace the contracted upper ends of the bottles and are attached to slides *t t*, which are vertically movable in guides or sockets *u u*, attached to the tube *e*. The slides *t t* are preferably flexible strips of metal bent into U form, the ends of the strips being attached to the holders *s s*. This construction enables the sides of the strips to bear with a yielding pressure against the sides of the sockets *u u*, and thereby sustain the holders *s s* by friction at any height to which they may be adjusted, so that if the holders *s s* are raised above the position they occupy when holding the bottles to permit the insertion of

the bottles they will remain in said position while the bottles are being inserted and can afterward be pushed down to hold the bottles, as shown. The rod *k* may break the bottles by direct contact with the same, in which case the blades or projections *o* may be dispensed with.

Instead of attaching the lower end of the rod *k* to an arm *g'*, made as a separate piece, the said lower end may be bent inwardly, as indicated by the oblique dotted lines in Fig. 1.

I claim—

1. The combination, with the casing or receptacle having the valve *d*, discharge-nozzle *c*, discharge-tube *e*, and suitable bottle-holding devices, of the arm *g* on the plug of said valve, the bottle-breaking rod *k*, secured to said arm and having a pivotal connection at its lower end with a fixed support, as set forth.

2. The combination, with the casings, of the holders *r*, rigidly secured within the casing, the sockets *u*, affixed above said holders to a rigid support, and the holders *s*, having the

spring pieces or slides *t*, adapted to enter said sockets and by their frictional contact therewith to hold said holders *s* at any desired position, as set forth.

3. The combination of the casing, the tube or support *e* within the same, provided with sockets *u*, the holders *r*, affixed to said support, the holders *s*, having the spring pieces or slides *t*, adapted to enter said sockets and by their frictional contact therewith to hold said holders *s* at any desired position, and a suitable device operated from the outside of the casing, adapted to break bottles or other fragile vessels supported by said holders *s* and *r*, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 5th day of October, A. D. 1888.

RUSSELL ARNOLD BALLOU.

Witnesses:

C. F. BROWN,

A. D. HARRISON.