M. C. STEARNS.

INCENDIARY BOMB.

APPLICATION FILED MAY 18, 1918.

1,305,751.

Patented June 3, 1919.

Fig. 1.

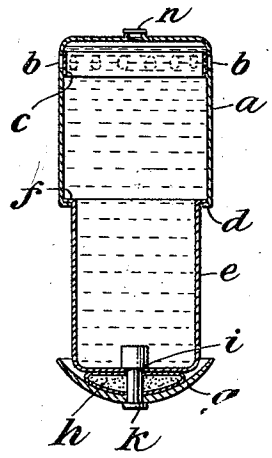


Fig. 4.

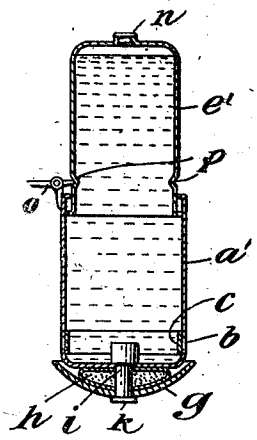


Fig. 2.

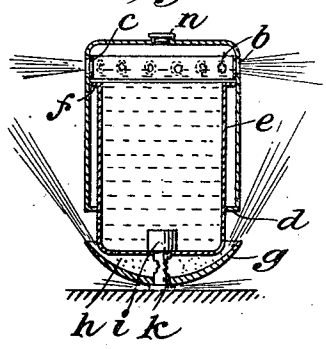


Fig. 5.

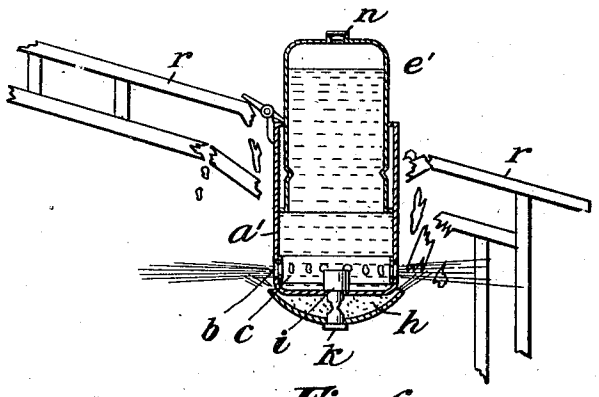


Fig. 6.

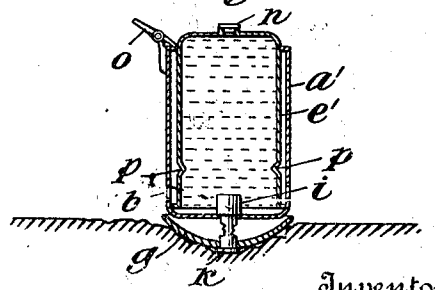
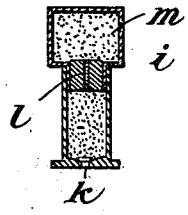


Fig. 3.



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INCENDIARY BOMB.

1,305,751. Specification of Letters Patent. Patented June 3, 1919.

Application filed May 18, 1918. Serial No. 235,381.

To all whom it may concern:

Be it known that I, MARCUS C. STEARNS, a citizen of the United States, residing in the city of Buffalo, county of Erie, in the State of New York, have invented certain new and useful Improvements in Incendiary Bombs, of which the following is a specification, reference being had to the accompanying drawing, forming a part hereof.

The object of this invention is to produce a bomb to be dropped, from an airship or aeroplane, upon combustible buildings and material for the purpose of starting destructive fires. It is particularly the purpose to construct the bomb in such manner that the combustible liquid which is relied upon to start the fire shall be ignited when the bomb strikes and shall be spread in all directions from the point of striking, so that the desired fire shall be started with certainty and at many points. The invention will be more fully explained hereinafter with reference to the accompanying drawing in which it is illustrated, and in which—

Figure 1 is a view in axial section of an incendiary bomb which embodies the invention.

Fig. 2 is a similar view illustrating the operation of the bomb.

Fig. 3 is a detail view of the combined percussion igniter and exploder hereinafter referred to.

Fig. 4 is a view similar to Fig. 1 but showing a bomb equipped with a device for retarding the explosion of the combustible liquid.

Figs. 5 and 6 are similar views of the bomb shown in Fig. 4, illustrating successive stages of operation.

The bomb, in its simplest form, comprises a container for the combustible liquid, a plunger to coöperate with the container and effect the discharge of the combustible liquid, and a percussion igniter by which the ignition of the combustible liquid is effected as the liquid is expelled from the container. The plunger may be hollow in order that it may contain an additional quantity of combustible liquid and may be further provided with an exploder by which such supplemental container may be exploded and the remaining combustible liquid ignited and scattered.

In the embodiment of the invention illustrated in Figs. 1 and 2, the container *a*, formed of any suitable material, but preferably of sheet metal, is provided, preferably near one end and preferably in a circumferential series, with many holes *b* which are sealed with an easily frangible seal *c*, such as a strip of suitably prepared paper. The container *a* may have an inwardly turned flange *d*.

The plunger *e*, adapted to move longitudinally within the container *a*, so as to cause the combustible liquid therein to break the seal *c* and to be expelled from the container, is also preferably formed of sheet metal by stamping and may be provided with an outwardly turned flange *f* for coöperation with the flange *d* of the container *a*, to prevent the separation of the container and the plunger.

At the lower end of the hollow plunger *e* is secured a cap *g*, preferably of somewhat heavier metal than that used for the container and plunger, not only to insure the falling of the bomb in the position represented in the drawing, but to resist fracture on striking. The cap *g* serves as a container for an igniting charge *h* of any suitable powder and also to direct the burning powder gases upward into contact with the combustible fluid as it is expelled from the container, so as to ignite the same. The cap *g* may be held to the plunger by a device *i* which embodies a percussion detonator *k*, by means of which the powder charge *h* is ignited, a quick-acting time fuse *l*, and an exploder *m* by means of which the bomb is exploded and the remaining liquid ignited after the bomb has struck.

A suitable filling cap may be provided at some convenient point, as at *n*, through which the bomb may be filled after the container and the plunger have been assembled, the filler then being closed.

When a bomb, such as that shown in Figs. 1 and 2, is permitted to fall from a considerable height, it acquires a considerable velocity and may perhaps penetrate the roof of a building, but whether it does so penetrate a roof or meet an impenetrable object, the detonator *k* is exploded, the powder charge *h* is ignited and the bomb is collapsed, the plunger entering the container and forcing the combustible liquid therein through the holes *b*, breaking the frangible seal *c*. The combustible fluid is scattered in all directions and at the same time is ignited by the burning gases from the comparatively slow burning powder *h*. In this

way fire is started at many different points over a wide area and the result is likely to be much more effective than would be the case if the source of fire were concentrated. Finally, when the bomb has collapsed, as represented in Fig. 2, the exploder *m* is set off by the action of the fuse *l* and the bomb explodes, the remaining oil, within the hollow plunger, being scattered and ignited.

The bomb shown in Figs. 4, 5 and 6 is constructed and operates substantially as already described, but is shown as provided with a retarding device to retard the collapsing of the bomb in its passage through a roof so as to insure the spreading of the flaming liquid under the roof. In this instance, the relative positions of the container *a'* and the hollow plunger *e'* are reversed and the cap *g* is secured by the device *i* to the container. The latter is shown as having secured pivotally thereto a detent *o* which normally, in a position at right angles to the axis of the bomb, engages a groove *p* in the wall of the plunger so as normally to prevent the collapsing of the bomb. When, however, the bomb strikes a penetrable object, such as a roof *r* as indicated in Fig. 5, the collapsing of the bomb may be prevented until the outer arm of the detent *o* strikes the roof and is turned to the position shown in Fig. 5. The percussion igniter *k* will probably be set off on contact with the roof and will bring about the ignition of the slow burning powder charge *h*. If the collapsing of the bomb commences as soon as the plunger is released, the ignition of the combustible fluid, escaping from the container, will be effected at once, but at all events, as soon as the bomb strikes the floor or the earth, as indicated in Fig. 6, it will be collapsed, the spreading oil ignited, and the bomb finally exploded as already described.

It is assumed that bombs, such as have been described herein, need not be very large and that they will be carried in considerable numbers by aeroplanes or dirigibles assigned to incendiary work. It will be obvious that materials other than suggested herein may be employed in the construction of the bomb and that the construction of the several parts thereof may be varied to suit different conditions of use.

I claim as my invention:

An incendiary bomb comprising a container for combustible liquid, a coöperating plunger, a cap secured to the bomb to provide a receptacle for an igniting charge and to direct the burning gases therefrom, and a percussion igniter to ignite the charge.

This specification signed this 15th day of May, A. D. 1918.

MARCUS C. STEARNS.