(No Model.) 2 Sheets—Sheet 1.

H. D. HARDEN.

HAND GRENADE FOR FIRE EXTINGUISHERS.

No. 306,154. Patented Oct. 7, 1884.

Fig 1

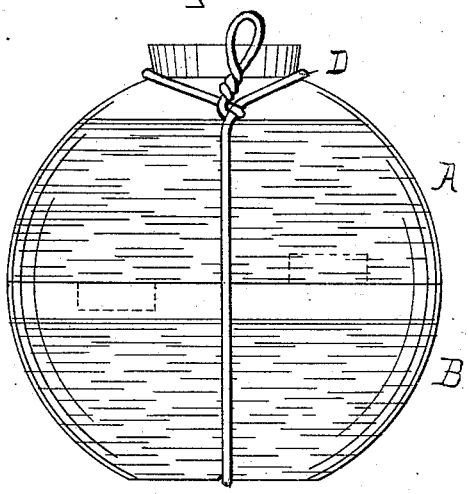
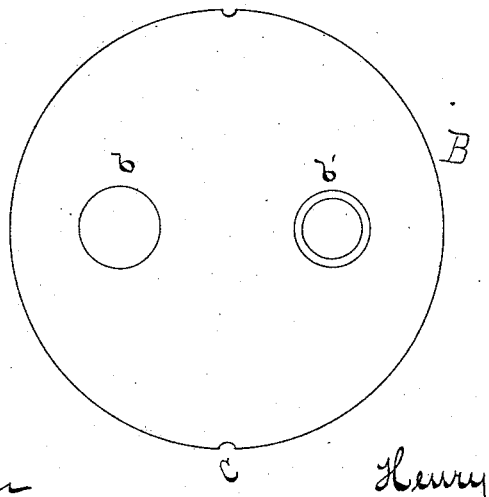


Fig 2



WITNESSES

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Frank L. Douglas:

INVENTOR

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(No Model.) 2 Sheets—Sheet 2.

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HAND GRENADE FOR FIRE EXTINGUISHERS.

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Fig 3

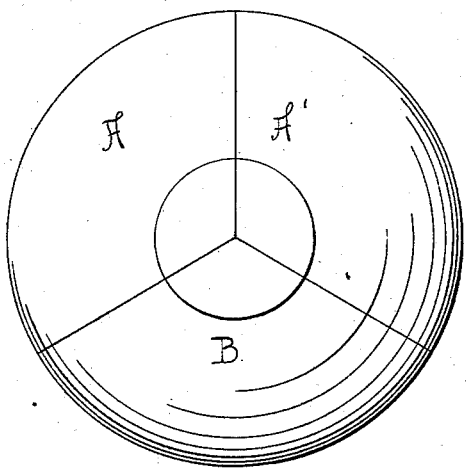
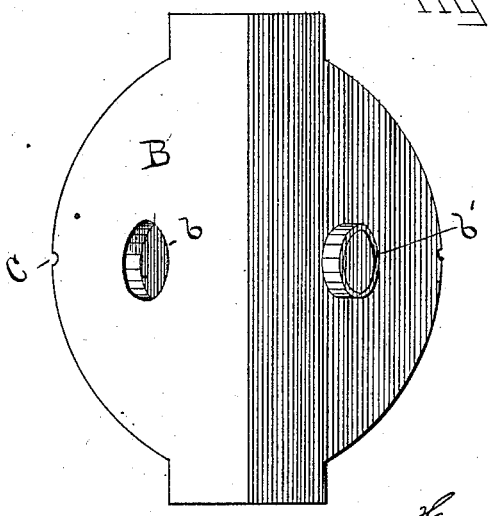


Fig 4



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UNITED STATES PATENT OFFICE.

HENRY D. HARDEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-FOURTH TO LEWIS M. SNYDER, OF SAME PLACE.

HAND-GRENADE FOR FIRE-EXTINGUISHERS.

SPECIFICATION forming part of Letters Patent No. 306,154, dated October 7, 1884.

Application filed January 21, 1884. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. HARDEN, of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hand-Grenades for Fire-Extinguishing Purposes, of which the following is a description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved hand-grenade, and Fig. 2 is a top view of one of the parts composing such grenade. Fig. 3 is a top view of another form of my improved grenade, and Fig. 4 is a representation of one of the bottles composing such grenade.

The most convenient form for a hand-grenade, and the form in which they are generally made, is spherical, because they present a better appearance, are handled easier, and can be thrown more accurately; but this form adds to the difficulty in fracturing them. The shells must necessarily be of considerable thickness to withstand the internal pressure of the confined gas, and the spherical arch shape of the surface gives them the greatest possible strength for any given thickness, and this, together with the internal pressure, renders them extremely difficult to fracture, especially if they should strike against a soft or yielding body when thrown.

The object of my invention is to correct this difficulty, and to produce a grenade which shall be of spherical or any other desired form, but which shall be certain to break when thrown into a fire.

To this end it consists in constructing a single grenade of two or more independent bottles or containing-shells of such shape that when combined, preferably, with irregular surfaces in contact, they shall assume the spherical or any other desired form, and suitable means for retaining said individual bottles in position.

In the drawing, Fig. 1 represents a grenade composed of two individual containing-shells, A and B, which are held together by the wire D.

In Fig. 2, b' represents the neck of the bottle B, which is securely sealed in any appropriate manner.

b is a depression in the surface of the glass. The upper bottle, A, is also provided with a neck similar to the neck b' and a depression or cavity similar to the depression b.

In combining the two bottles into a single grenade, as in Fig. 1, the neck b' of the bottle B enters a corresponding depression in the bottle A, while the neck of the bottle A enters the cavity b, and the two bottles are held together by the wire D, which is kept from slipping by resting in the groove C.

Fig. 3, as before stated, represents another form of my improved grenade, while Fig. 4 shows one of the bottles composing such grenade.

In Fig. 4 b' represents the neck of the bottle, and b a depression or cavity in the surface. The neck b' sets into a cavity in the surface of bottle A' in Fig. 3, while the cavity b receives the neck of the bottle A, the three bottles being held in position by a wire which rests in the groove C, or by any other desired means. The number of independent bottles contained in each grenade may be varied at will without departing from the spirit of my invention.

If a grenade constructed as above described be thrown against any object, the blow will cause the irregular surfaces of the bottles to strike against each other with sufficient force to fracture at least one of the containing-shells, and if one be thus broken the force of the liberated gas will generally result in breaking all the series. It is evident that the same results can be accomplished by varying the number of bottles in a grenade, or by changing their form or the manner of connecting them.

Instead of the bottles being united by the necks and depressions and the wire, as above described, they may be united by any appropriate means and with any suitable conformation of the adjacent parts; but I consider that a nest of two or three bottles connected in the manner shown in the drawings is the preferable form.

The bottles may be charged in any suitable manner and with any suitable fire-extinguishing materials.

A grenade so constructed also affords opportunity for confining explosives between

the bottles in cavities which may be provided therefor, which explosives will make absolutely certain the fracturing of any unbroken grenade within the influence of the fire.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A hand-grenade consisting of two or more bottles united into a single structure by suitable connecting devices, substantially as and for the purposes set forth.

HENRY D. HARDEN.

Witnesses:
JOHN J. HARDEN,
E. L. THURSTON.