

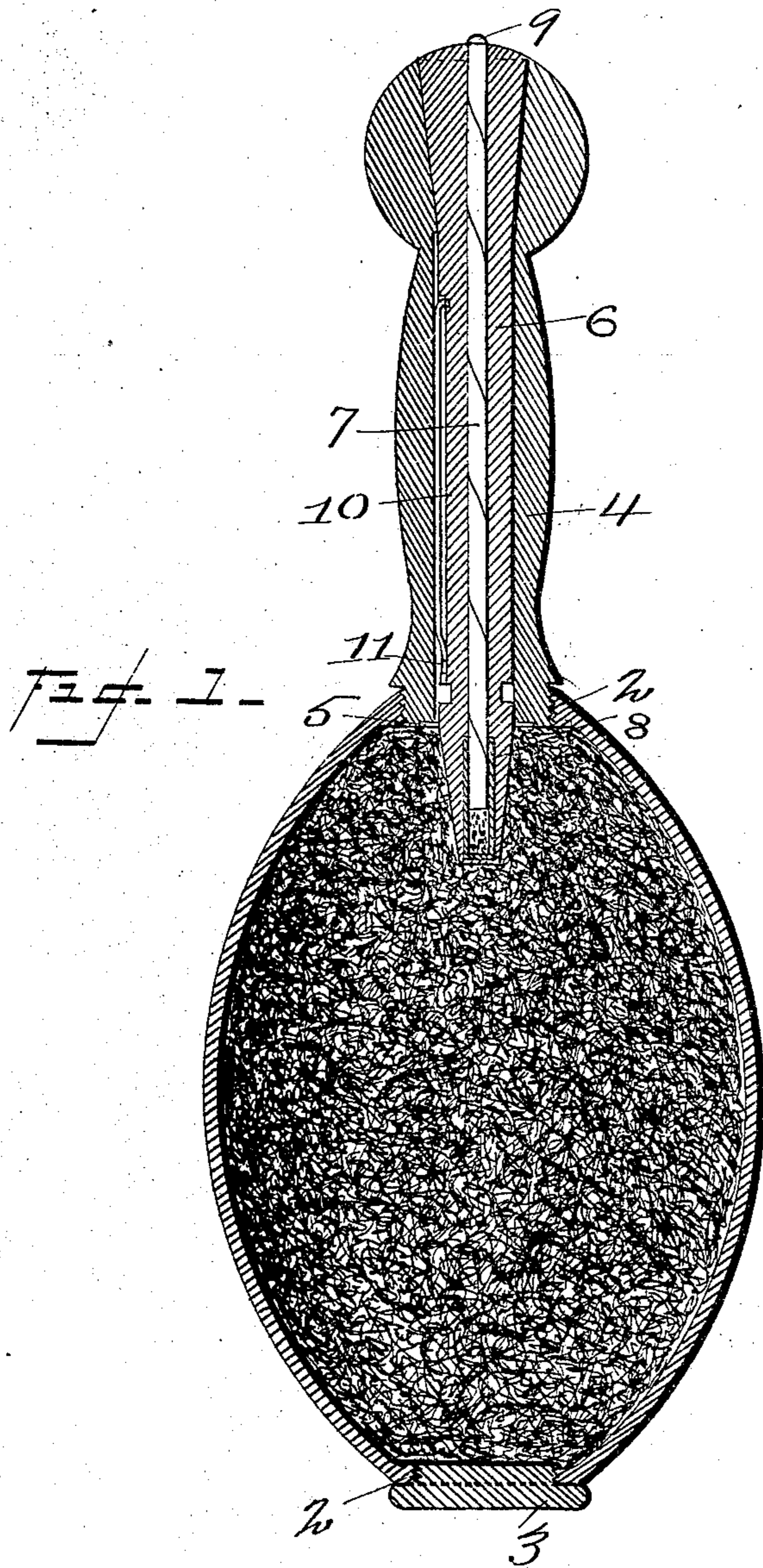
(No Model.)

2 Sheets—Sheet 1.

G. M. HATHAWAY.  
HAND GRENADE.

No. 547,851.

Patented Oct. 15, 1895.



WITNESSES  
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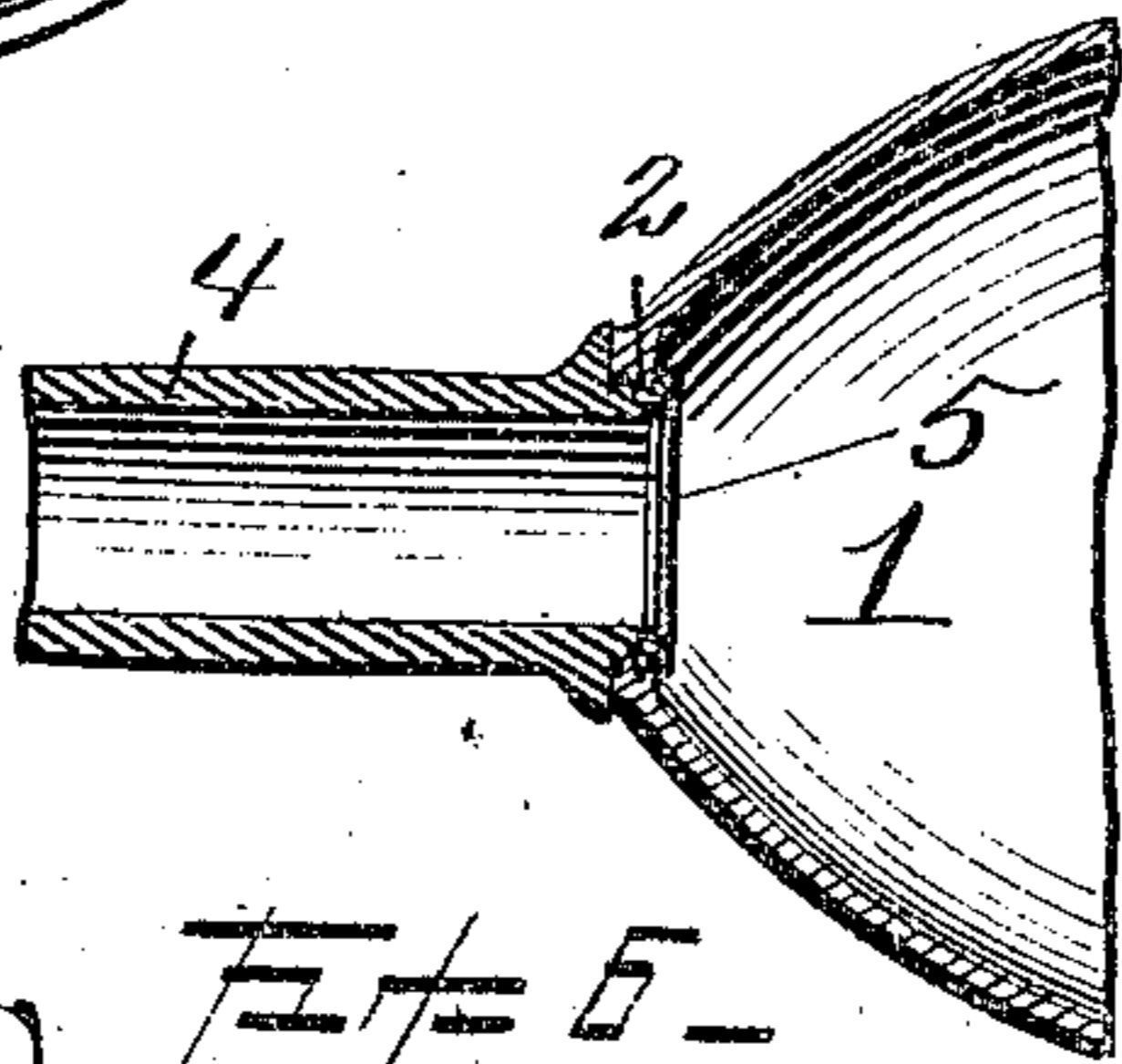
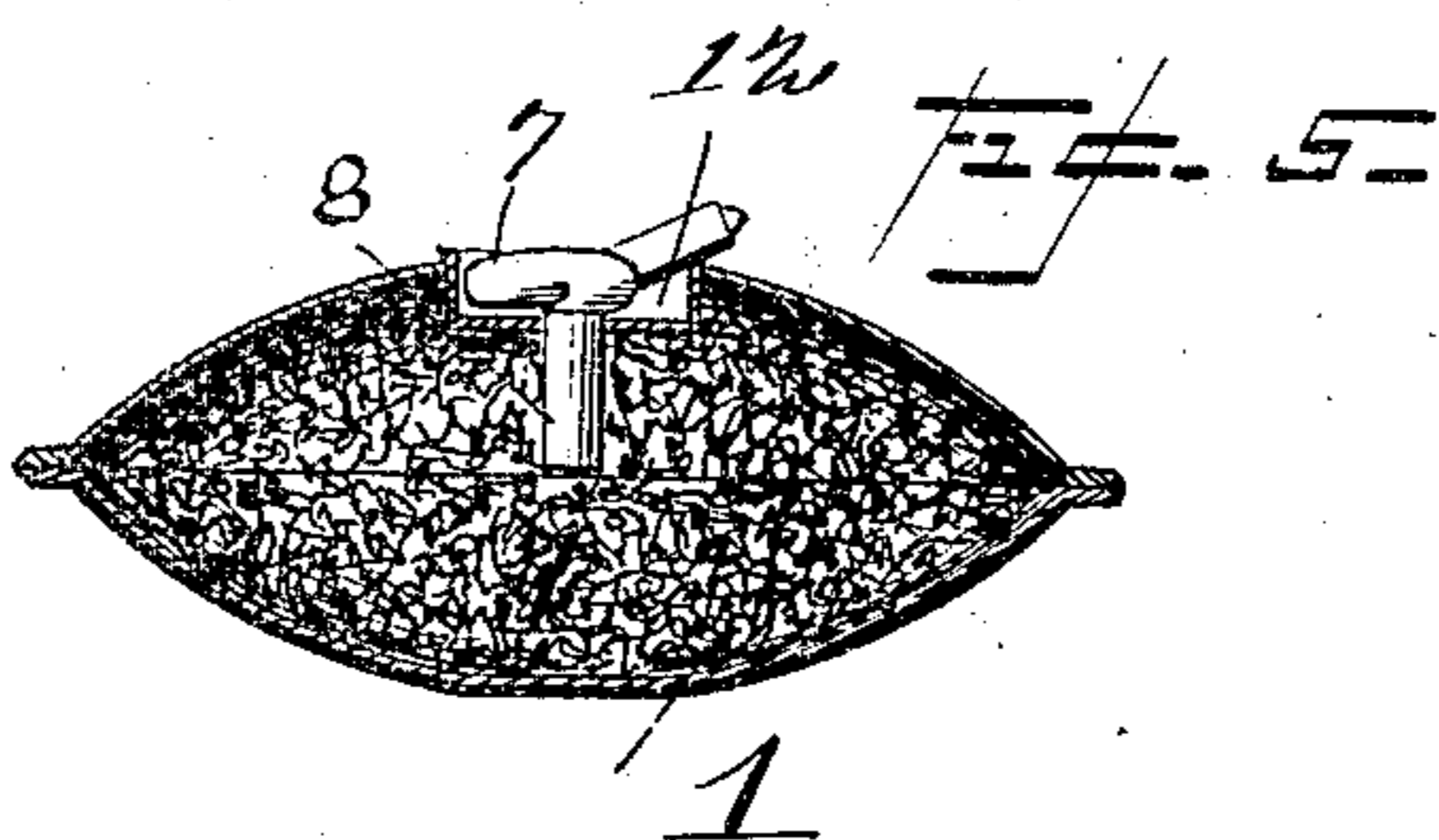
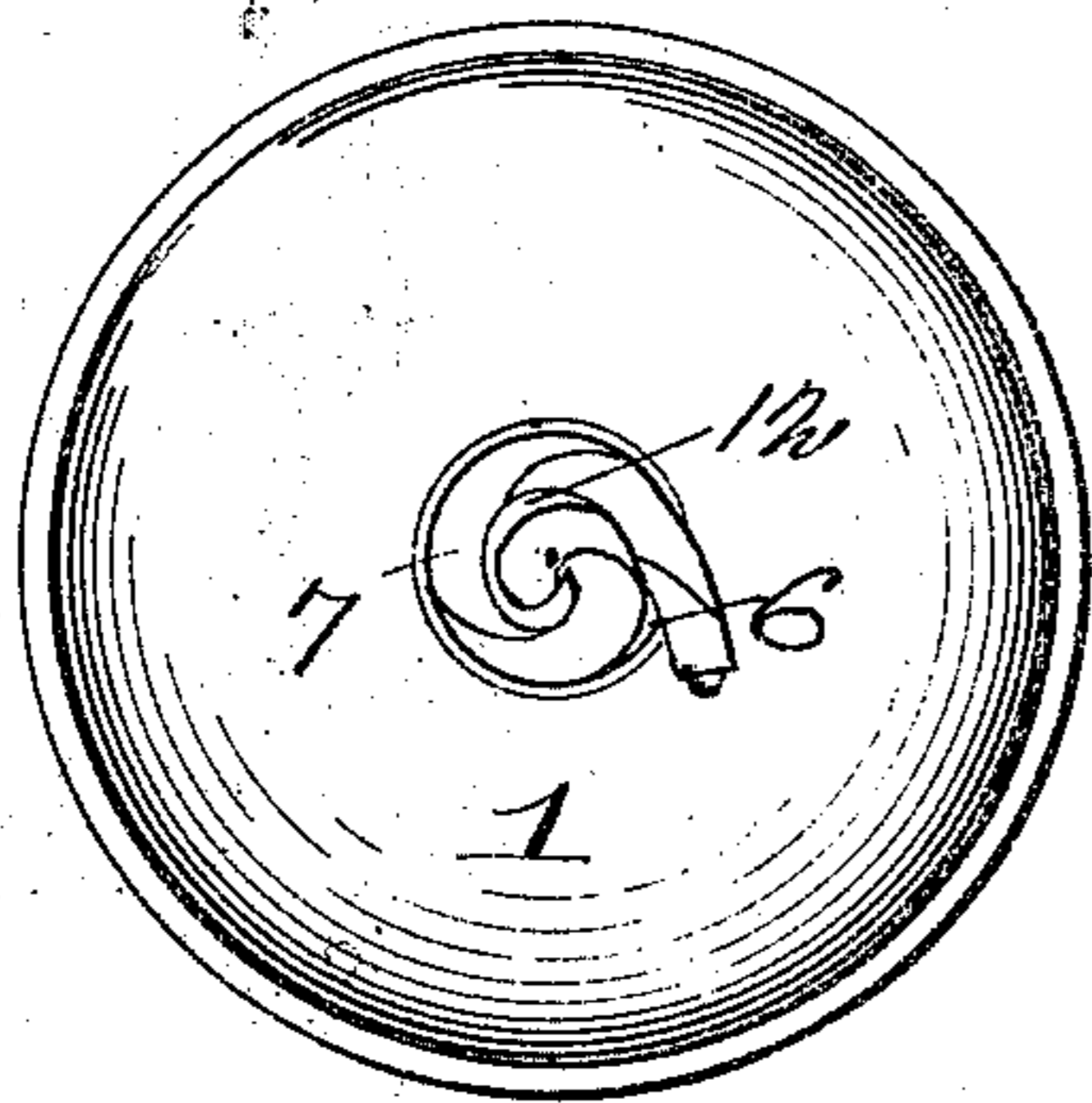
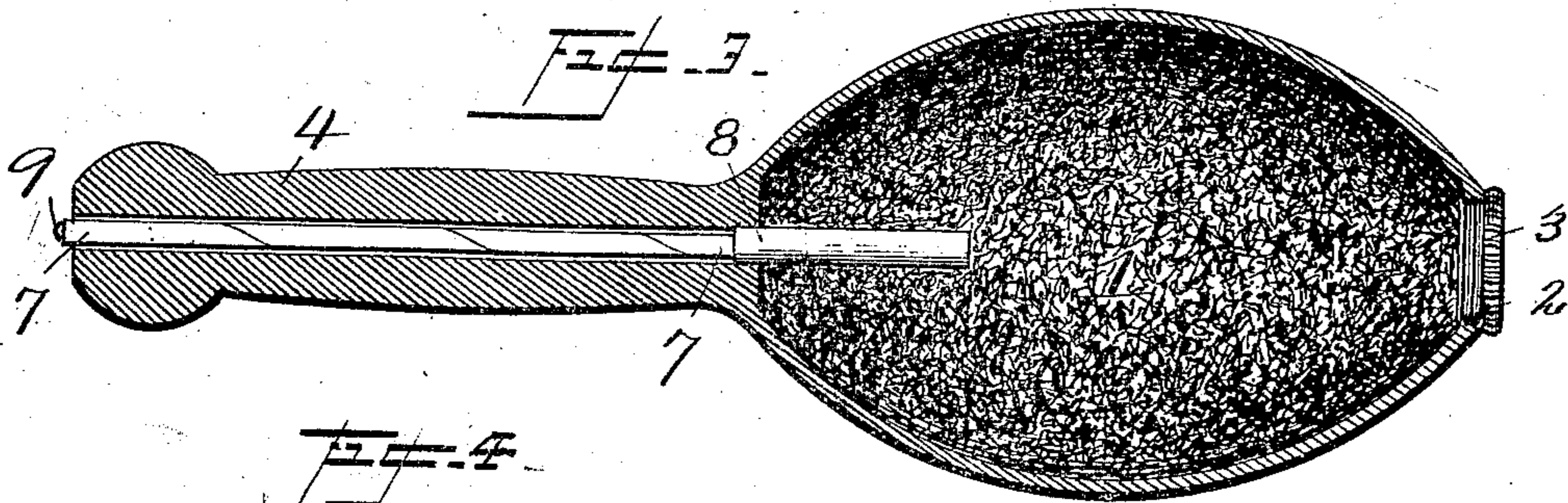
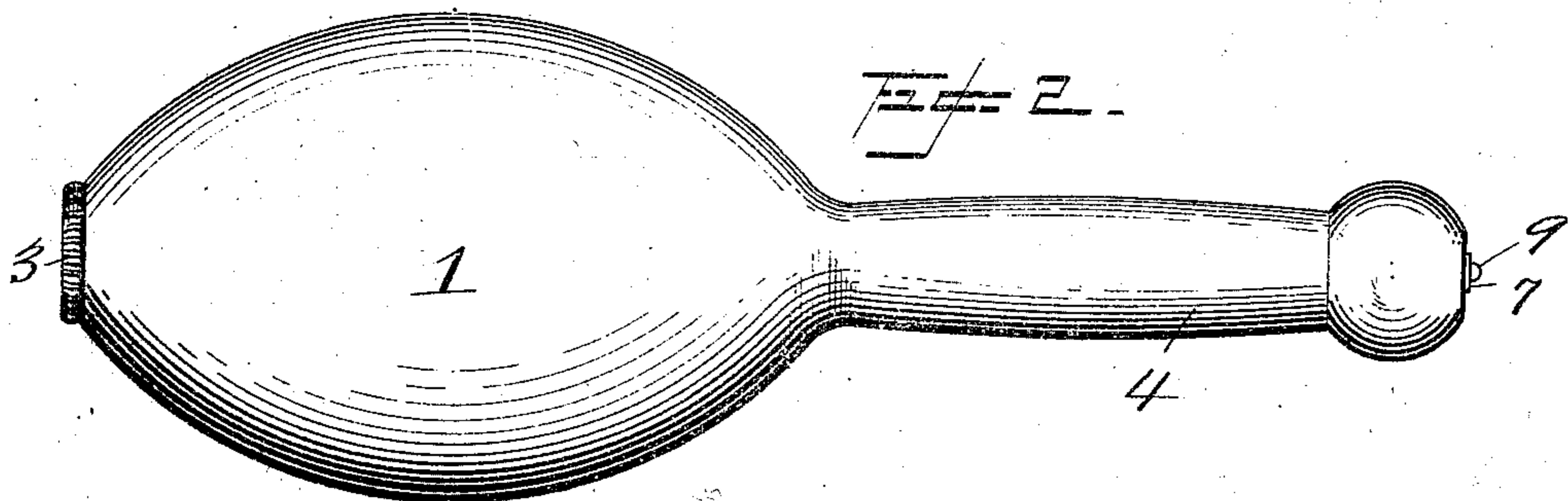
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G. M. HATHAWAY.  
HAND GRENADE.

2 Sheets—Sheet 2.

No. 547,851.

Patented Oct. 15, 1895.



WITNESSES-

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# UNITED STATES PATENT OFFICE.

GEORGE M. HATHAWAY, OF NEW YORK, N. Y.

## HAND-GRENADE.

SPECIFICATION forming part of Letters Patent No. 547,851, dated October 15, 1895.

Application filed December 27, 1894. Serial No. 533,122. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. HATHAWAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Hand-Grenades; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in hand-grenades; and it consists of a hollow vessel, of metal or other material, of suitable size and shape charged with a high explosive and provided with a primer or fuse having at one end, which may be conveniently exposed, a waterproof pellet or coating of material capable of being ignited by friction, and at the inner end a percussion-cap, the capped end extending into the vessel and its contents, and being adapted to ignite and explode the same when fire is communicated to it through the fuse, as will be hereinafter more fully explained.

The invention has for its object to furnish a weapon of offense and defense that will be perfectly safe during storage and can be handled without danger to the user, but which will be thoroughly certain and effective and destructive when used against an enemy; and in carrying out this object I propose to provide a hand-grenade of such simple construction that it can be employed without particular instructions to those who use it.

The invention is especially designed as a military or naval weapon that can be used effectively from an elevation against an enemy—as, for instance, from the walls of a fortification or breastwork, from the “crows-nest” or rigging of a vessel, or from any position from which it may be cast or hurled into the midst of a body of men; but it is also designed as a means of defense for the trainmen or employés of a railroad against train-robbers.

The object above mentioned is attained by means of the device illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal sectional view of a preferred form of my improved hand-grenade charged and primed; Fig. 2, a plan view of another form of hand-grenade;

Fig. 3, a longitudinal sectional view of the same, showing it charged and primed; Fig. 4, a top plan view of still another form of my improved hand-grenade; Fig. 5, a vertical sectional view of said modification, showing it primed and ready for use; and Fig. 6, a detail modification of Fig. 1.

Referring to the drawings, the numeral 1 indicates a vessel constructed of metal and of suitable shape. In Figs. 1, 2, and 3 of the drawings it is represented as of ovoid shape, and at each end it is provided with a screw-threaded opening 2, one of which serves as a passage through which the vessel is charged, said opening being closed by a screw-threaded cap 3, and the other as a means by which a tubular handle 4 is attached. This handle may be made detachable, as shown in Figs. 1 and 6, or it may be formed integral with the vessel, as shown in Figs. 2 and 3. When the handle is made detachable, the vessel may be charged through the opening into which said handle is screwed, and the opening at the opposite end dispensed with. The longitudinal passage at the inner end of the handle is counter-bored to receive a closure-disk 5, of fractureable material, preferably of asbestos, the object of said disk being to prevent the explosive compound with which the vessel is charged from being spilled in the ordinary handling of the grenade.

The numeral 6 indicates a wooden sheath bored longitudinally to receive and hold a fuse 7, which is constructed of suitable material to burn a predetermined time from the point of ignition to the capped end at the inner end of the sheath within the vessel when the percussion-cap 8 is fired to explode the charge. The outer end of the fuse is provided with a friction-igniting waterproof compound 9, which is ignited by scratching or rubbing it. To the outer surface of the sheath is secured one end of a friction-spring 10, the other or free end of said spring working in a slot 11. This opening serves to hold by frictional contact with the inner surface of the longitudinal bore of the handle the sheath within said handle against accidental displacement in the handling or throwing of the grenades.

In the modification shown in Figs. 4 and 5 the vessel is represented as composed of two concavo-convex disks of suitable material,

united at their edges in any convenient manner. One of the disks is provided with a central recessed opening 12, which forms a seat for the fuse which is in the shape of a convolute, with a straight branch or continuation extending from the center and provided with a percussion-cap, and the outer end of this coiled portion provided with the friction-igniting waterproof compound. In this form of grenade the fuse is applied only when required for use. The convolution of the fuse, it will be observed, fits readily in the central recess, with the straight central extension extending through the central opening in the bottom of the recess well down into the body of the charge within the vessel, in order to insure its explosion at the proper time. When inserted the grenade is ready for use without further manipulation other than to set fire to the friction compound at the outer end of the fuse by scratching or rubbing it. The fuses may be carried about the person of the user either in a belt or other receptacle, and employed as each grenade is required, similarly to the cartridges of a gun. Thus a trainman, soldier, or marine may carry sufficient fuses about his person to apply to a number of grenades, which may be kept in general stock or storage and supplied to him in an emergency. By this means it will be seen that it is impossible to explode the grenades under ordinary circumstances until they are required for use, as the fuses and charged shells are kept separate.

35 In the form of grenade shown in Fig. 1 the sheath carrying the fuse is designed to be kept detached from the grenade and inserted just previous to the moment it is required for use. In the form shown in Figs. 1 and 2 the fuse itself is kept detached from the handle of the grenade; but it is evident that the fuse may be retained in the handle, which serves as a sheath for the same, so as to furnish a complete weapon ready for use. The detach-  
 45 able sheath, with its fixed fuse, is readily inserted by pushing it down into the longitudinal bore of the handle, rupturing the disk 5, and when inserted the grenade is ready for

throwing or hurling as soon as the outer end of the fuse has been ignited. 50

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

1. A hand grenade, comprising a vessel containing an explosive compound, a tubular extension or handle, and a capped and primed fuse extending through said handle, the capped end of said fuse extending into the charge in the vessel, and the primed end extending out of the handle and provided with a waterproof igniting pellet whereby the grenade may be fired by the frictional ignition of the outer end of the fuse and the percussion action of the cap at the inner end of said fuse, substantially as specified. 65

2. The combination, in a hand grenade, with a vessel containing an explosive compound, of a detachable handle, carrying a detachable fuse having one end provided with a percussion cap, adapted to be inserted within the charged vessel, and the other end provided with a waterproof pellet or coating of composition, adapted to be ignited by frictional contact, substantially as specified. 70

3. The combination, in a hand grenade, with a vessel for containing an explosive compound and provided with a detachable handle, of a detachable sheath carrying a fixed fuse having at one end a frictional igniting pellet and at the other end a percussion cap, substantially as specified. 80

4. The combination, in a hand grenade, with a vessel for containing an explosive compound and provided with a detachable handle, closed at one end by a rupturable disk, of a detachable sheath carrying a fixed fuse, having at one end a frictional igniting pellet and at the other end a percussion cap, said sheath being held within the handle by frictional contact, substantially as specified. 90

In testimony whereof I affix my signature in the presence of two witnesses.

GEORGE M. HATHAWAY.

Witnesses:

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J. R. NOTTINGHAM.