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R. A. HUNTER

1,961,364

HAND GRENADE

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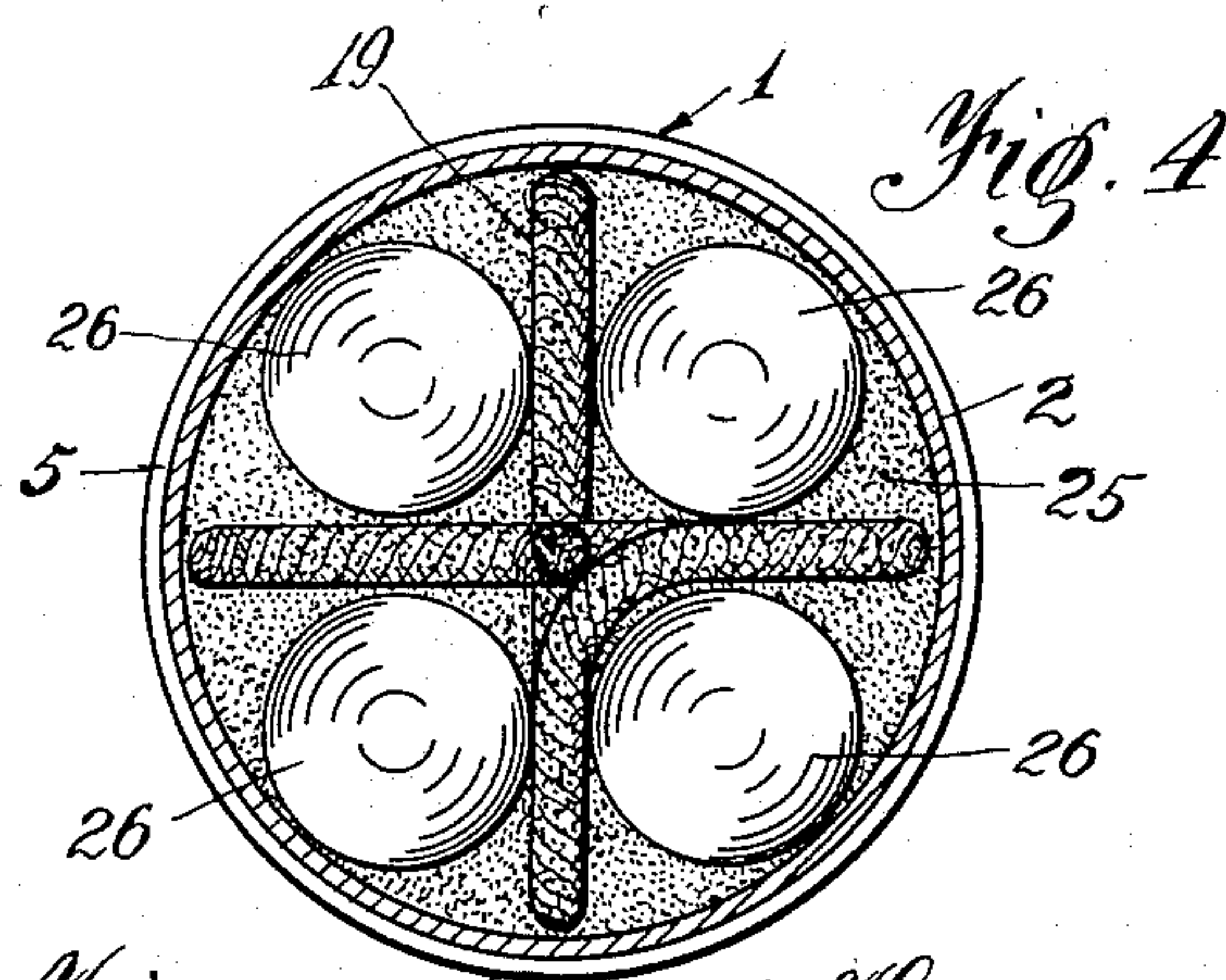
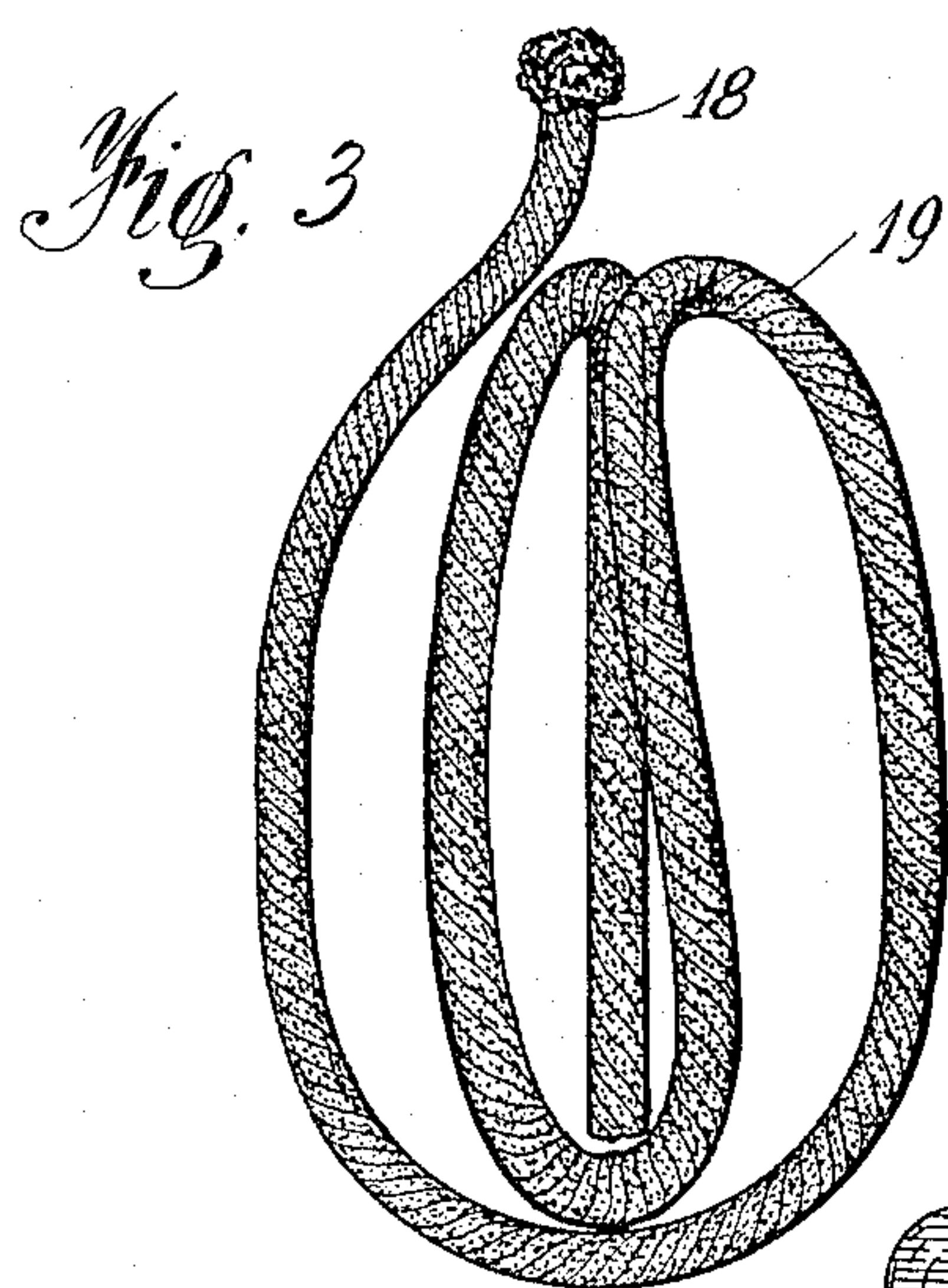
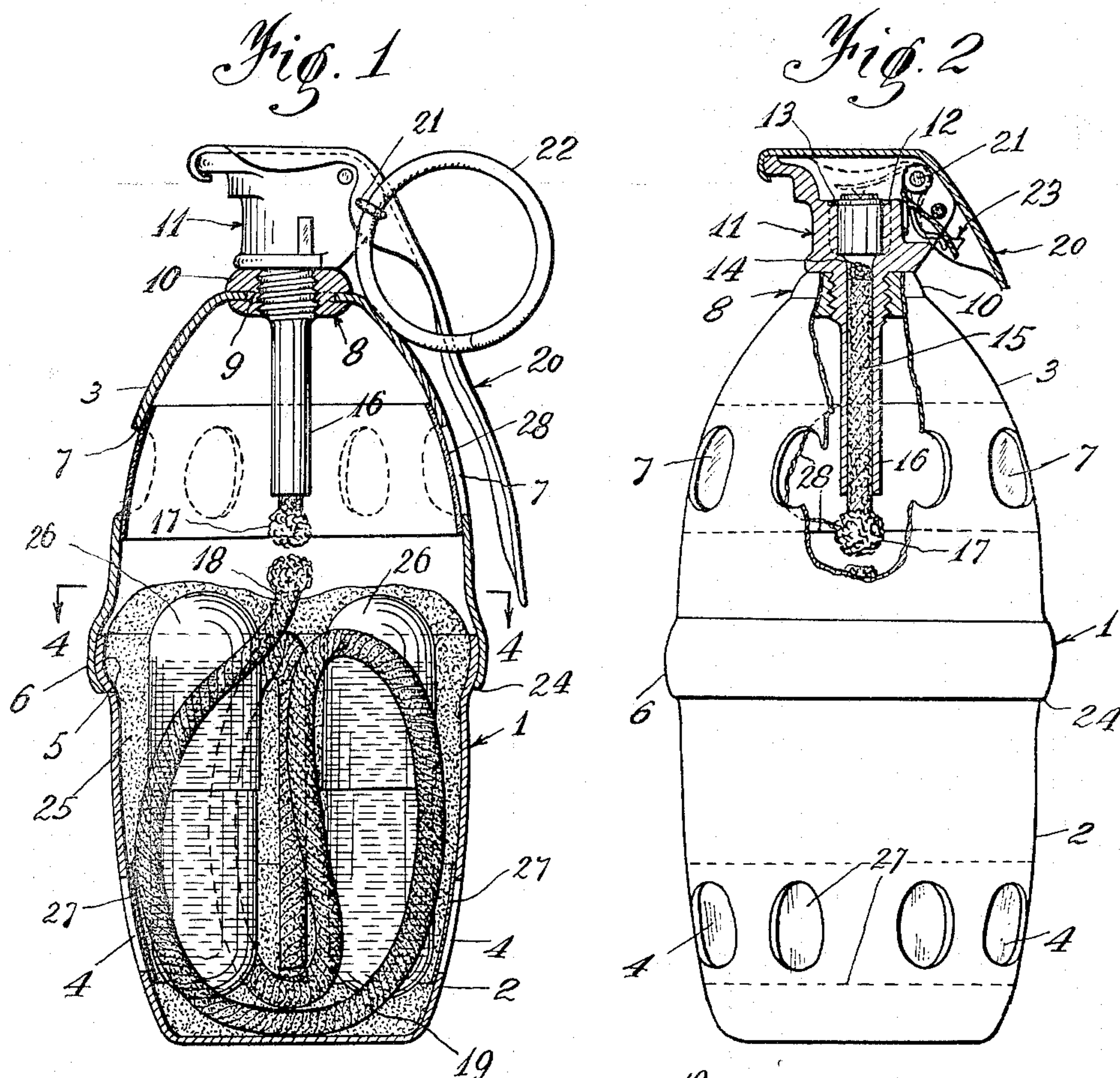
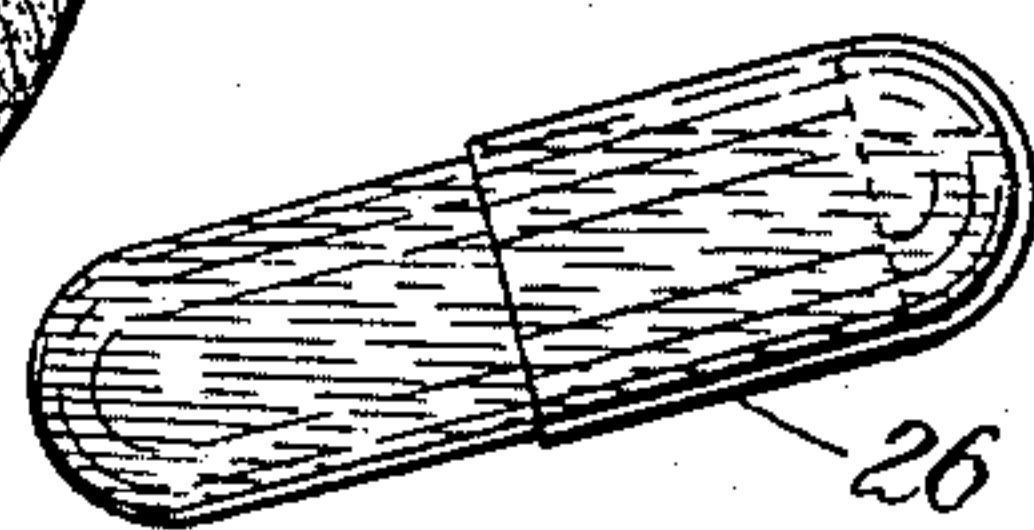


Fig 5



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UNITED STATES PATENT OFFICE

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HAND GRENADE

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3 Claims. (Cl. 102—29)

This invention relates to improvements in explosive devices, such as hand grenades, shells, bombs etc. which liberate tear-gas or other disabling gases when discharged.

5 Hand grenades as heretofore used by police, bank officers etc. to disperse mobs, or to prevent the escape of robbers or bandits, lose their efficiency if not used within a certain length of time, due to the fact that most devices of that character maintain their contents under normal-
10 ly high internal pressure at all times; this makes it necessary to hermetically seal all openings in the container with "Woods metal" or other easily fusible material to prevent leakage or deterioration of the gases within the container.

One of the objects of this invention is to provide an explosive device, which may be stored an indefinite length of time.

Another object of this invention is to provide
20 an explosive device which will produce one or more varieties of disabling gases when discharged.

Another object of this invention is to provide an explosive device in which the disabling chemicals contained therein are hermetically sealed
25 by a starting mixture.

Still another object of this invention is to provide an explosive device in which a starter-fuse completely surrounds the containers of the disabling chemicals, thereby providing additional igniting places for the starting mixture,
30 should the latter fail to ignite when discharged.

Yet another object of this invention is to provide an explosive device with an easily destroyable seal placed within the grenade body which
35 closes the discharge openings in said body.

Yet another object of this invention is to provide an explosive device, in which the disabling gases can not escape when removing the time-fuse-head, also known as "Bouchon-head", when
40 prepared for shipping. For obvious reasons it is not permitted to ship hand grenades, bombs or other explosive devices which are provided with a time-fuse-head fully assembled, but it is required to ship these explosive devices with the
45 time-fuse-head removed.

Many other objects and advantages of this invention will be apparent to those skilled in the art.

In the accompanying drawing forming a part
50 of this specification, and in which similar reference symbols indicate corresponding parts in the several views:

Figure 1 is a longitudinal cross-sectional elevation of a hand grenade within the scope of my
55 invention, partly in outline.

Figure 2 is an outline view of the hand grenade, showing the time-fuse-head in section with the grenade body partly removed.

Figure 3 shows the construction of the starter-fuse as used in my invention.

Figure 4 is a horizontal cross sectional view of a hand grenade built in accordance with my invention, taken on line 4—4, in Figure 1.

Figure 5 shows a perspective view of one of the containers of the disabling chemicals as used
65 in my invention.

My invention comprises a body 1 consisting of a lower part 2 and an upper part 3. Said lower part 2 is preferably cup-shaped as shown in Figures 1 and 2 and provided with openings 4 to
70 permit quick liberation of fumes or gases from the container, when discharged. The rim 5 of said lower part 2 is slightly enlarged for the reception of a similarly enlarged rim 6 of the upper part 3 of the body 1.

The upper part 3 is also cup-shaped and provided with holes 7 for the same purpose as heretofore described for the lower part 2 of the body 1. The top 8 of said upper part 3 is provided with a central aperture 9 into which is securely fastened
80 the neck 10 in a manner as shown in Figure 1 or otherwise if so desired. The said neck 10 is provided with internal threads for the reception of the time-fuse-head 11 well known in the trade as "Bouchon head". The top 12 of said time-fuse-head 11 is recessed to receive the primer 13,
85 the lower part of which is in close proximity to the match-head 14 of the time-fuse 15. The bottom part of said time-fuse-head 11 is provided with a depending tube 16 in which said time-fuse
90 15 is placed and frictionally held in position (or otherwise), as best shown in Figure 2 of the drawing. The lowermost end of said time-fuse 15 is provided with a match-head 17 which is positioned directly opposite the exposed end 18 of the
95 starter-fuse 19.

Releasably attached to the time-fuse-head 11 is the handle 20 of well known construction, by means of which the grenade is thrown, after the cotter-pin 21 has been removed by means of the
100 pull-ring 22. The instant the grenade is thrown the handle 20 flies off, thereby releasing the spring-tensioned striker 23 and striking the primer 13 thereby igniting the match-head 14 on the top of the time-fuse 15.

This time-fuse 15 fires the match-head 17 located on the bottom of said time-fuse 15 and in turn ignites the exposed end 18 of the starter-fuse 19, which sets the starting mixture 25 on fire, causing an explosion, thereby readily de-
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stroying or melting the capsules 26 and due to the high temperature and pressure caused by the explosion the seals 27 and 28 burst, break or melt and the contents of the capsules 26 are converted
5 into disabling gases, smoke, etc. and the latter are then forcibly and quickly expelled through the openings 4 and 7 of the container body 1 provided for this purpose.

Referring to Figures 3 and 4 of the drawing I
10 have shown the starter-fuse 19 coiled around a series of capsules 26 which are filled with suitable chemicals which produce poisoning, asphyxiating or disabling gases, said chemicals consisting of,
15 for example, mustard gas, diphenylamine chlorarsine (poison gases), or titanium tetra chloride (asphyxiating gas), or such as chloracetophenone (disabling gas) etc.

One or more varieties of chemicals may be used in the capsules 26 to produce one or more
20 varieties of gases, but the chemicals are not commingled or saturated with other chemicals. This fact greatly prevents deterioration of the chemicals thereby preserving the contents of the hand grenades for an indefinite length of time.

25 Before placing the starter-fuse 19 in the lower part 2 of the body 1, the openings 4 in said lower part 2 are sealed by means of an easily destructible strip or ribbon 27 which is placed within the container and cemented to the inner wall
30 of the container 1 in any suitable manner.

The capsules 26 and the starter-fuse 19 are imbedded in the lower cup 2 in a manner as shown in Figures 1 and 4, by packing a jelly-like mixture, consisting of smokeless powder and celluloid
35 (called starting mixture, 25) or any other material suitable for the purpose, around said capsules 26 and said starter-fuse 19, leaving one end of said fuse slightly exposed as indicated by the numeral 18.

40 The upper part 3 of the container is also provided with an easily destroyable band or ribbon 28 which seals the openings 7 in a similar manner as heretofore described for the lower part 2 of the container body 1. The upper and the lower
45 parts 2 and 3 respectively of the container body 1 are swaged over as indicated by the numeral 24.

When using a hand grenade of the old type to disperse mobs etc., it often occurs that the time-fuse fails to immediately ignite the starting mixture;
50 for this reason, I have provided a starter-fuse 19 of considerable length which is imbedded in said starting mixture 25 and which will, when ignited at its exposed end 18, burn and split or squirt fire until the starting mixture 25 also
55 ignites, thereby bringing the contents of the grenade to an explosion. This explosion causes the seals 27 and 28 to break or melt and the disabling gases being expelled in violent streams from the now open holes 4 and 7 of the body 1.
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When using disabling or irritating gases in the grenade, it is not intended to burst or destroy the grenade-body 1, for this reason the said sealed holes are provided for in said body, but should
80 it be desired to use a deadly charge of chemicals in the grenade body, these sealed openings would not be provided for, and the force of the explosion would cause to burst or destroy the grenade-body.

The invention obviously obtains all of its intended objects and purposes with facility. The construction and relationship of the parts may be varied within equivalent limits and produced in different embodiments without departure from the nature and principle of the invention. I do
90 not restrict myself in any unessential particulars, but what I claim and desire to secure by Letters Patent is:—

1. In a device of the character described comprising a grenade body and a charge of gas producing chemicals contained therein, said chemicals being of different characteristics; a container for each of said different chemicals; a time-fuse-head provided with a time-fuse and means
95 to ignite said time-fuse; an additional fuse coiled around said chemical containers for each of said different chemicals and a starting-mixture packed around said additional fuse and said chemical containers.
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2. In a device of the character described comprising a grenade body provided with a plurality of sealed openings and a charge of disabling gas producing chemicals contained in said body, said chemicals being of different characteristics; a container for each of said chemicals of different
105 characteristics; a time-fuse-head provided with a time-fuse and means to ignite said time-fuse; a starter-fuse coiled around said chemical containers; a starting mixture packed around said starter-fuse and said chemical containers, and
110 means to ignite said starter-fuse and said starting mixture.
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3. In a device of the character described comprising a grenade body, said body formed with a plurality of openings, said openings sealed with
120 a thin metallic covering from within said body and a charge of gas producing chemicals contained in said body, said chemicals being of different characteristics; a container for each of said different chemicals; a time-fuse-head provided with a time-fuse and means to ignite said
125 time-fuse; a starter-fuse of considerable length coiled around said chemical containers; a starting mixture packed around said starter-fuse and said chemical containers and means to ignite said
130 starter-fuse and said starting mixture, said chemical containers hermetically sealed by said starting mixture.

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