

No. 871,156.

PATENTED NOV. 19, 1907.

N. W. AASEN.
EXPLOSIVE HAND SHELL.
APPLICATION FILED MAY 27, 1907.

2 SHEETS—SHEET 1.

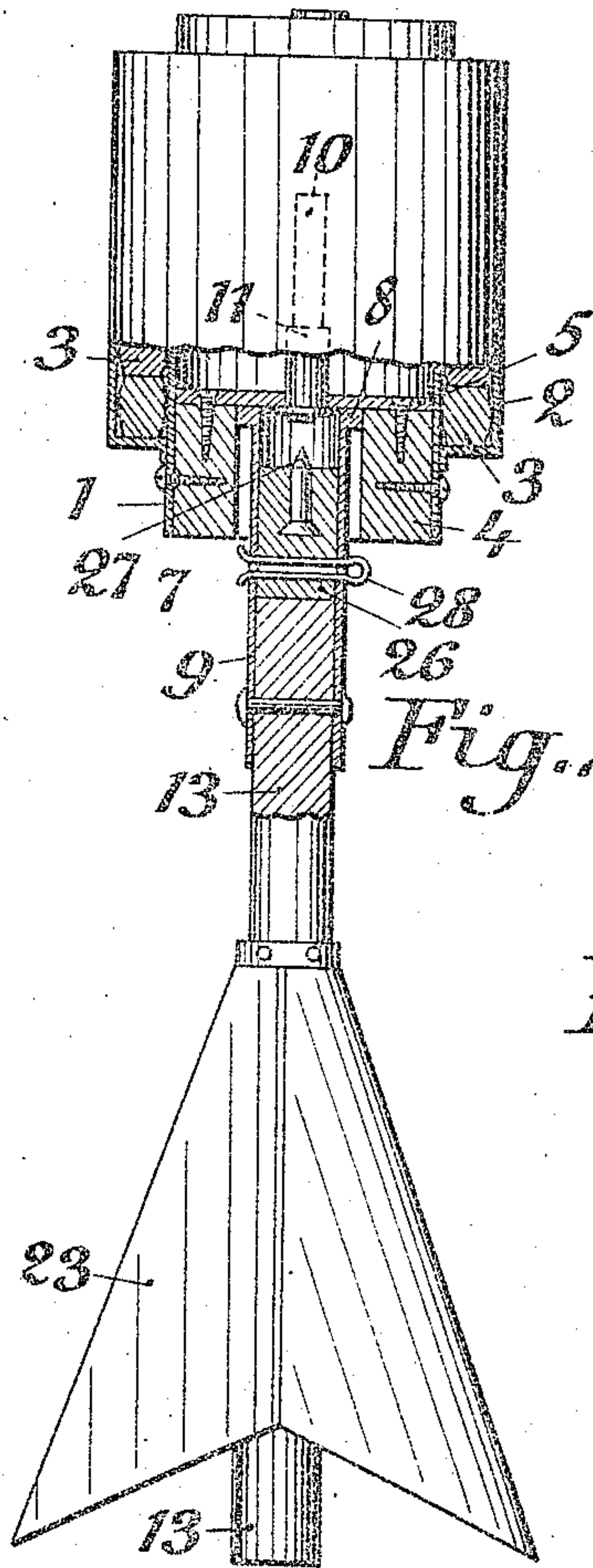


Fig. 2.

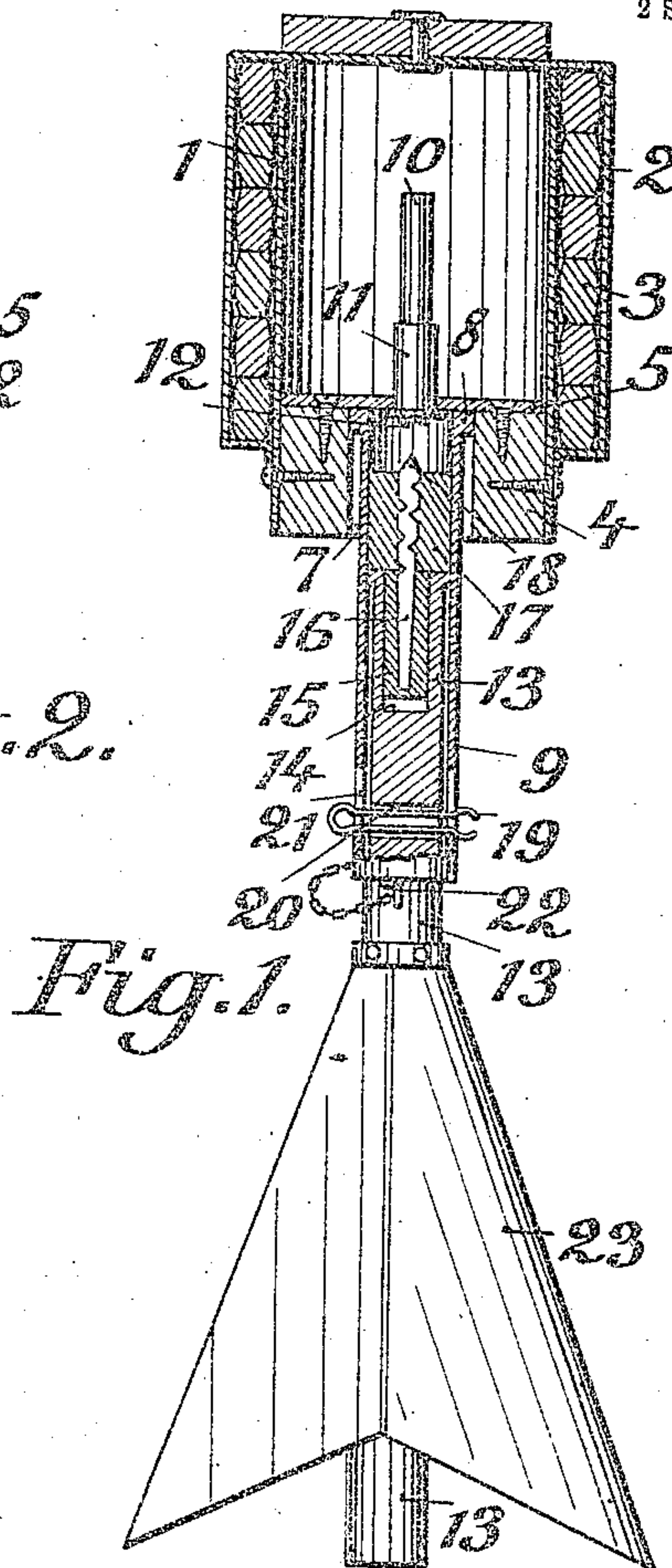


Fig. 1.

Fig. 4.

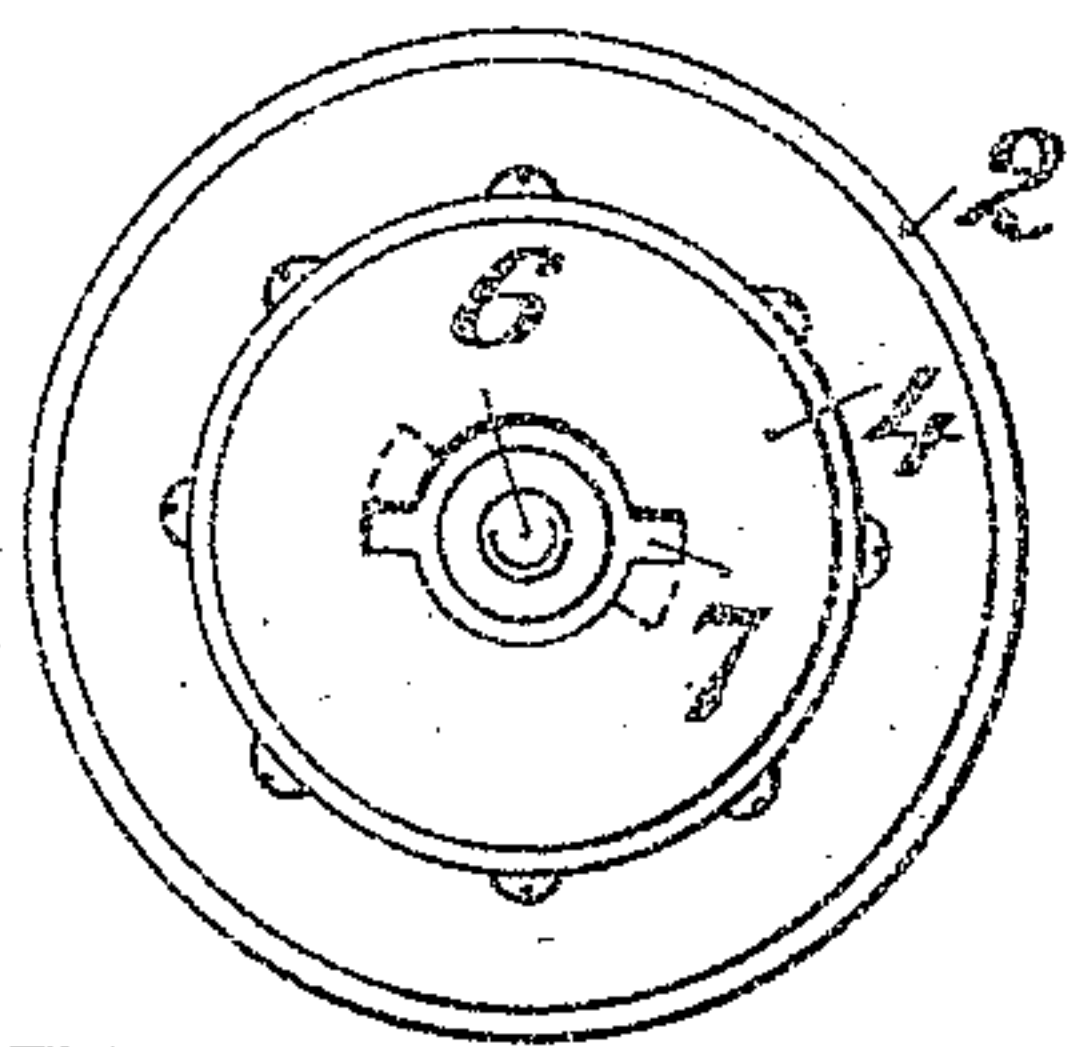
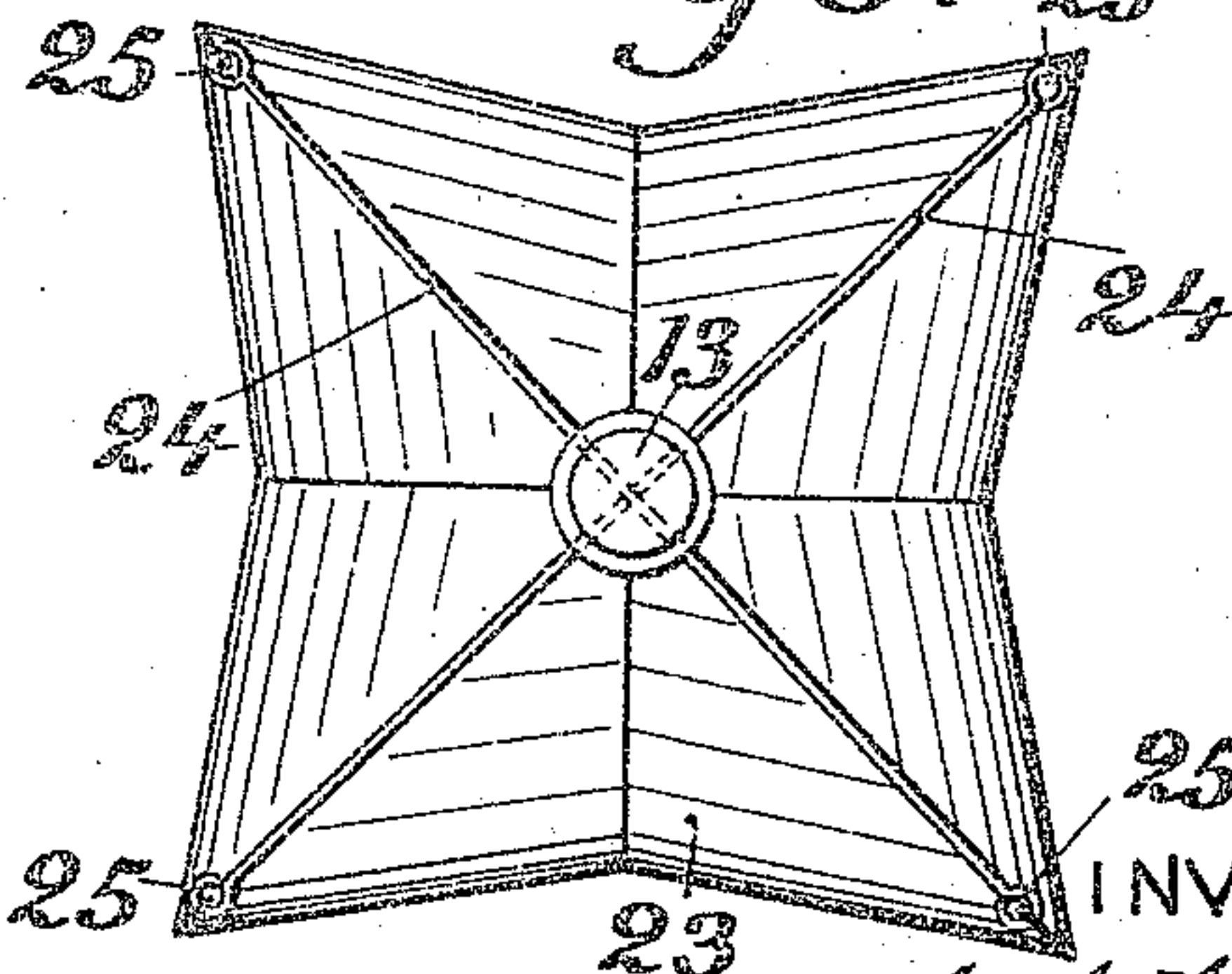


Fig. 3.



WITNESSES

J. E. Hutchinson
A. Bout.

INVENTOR

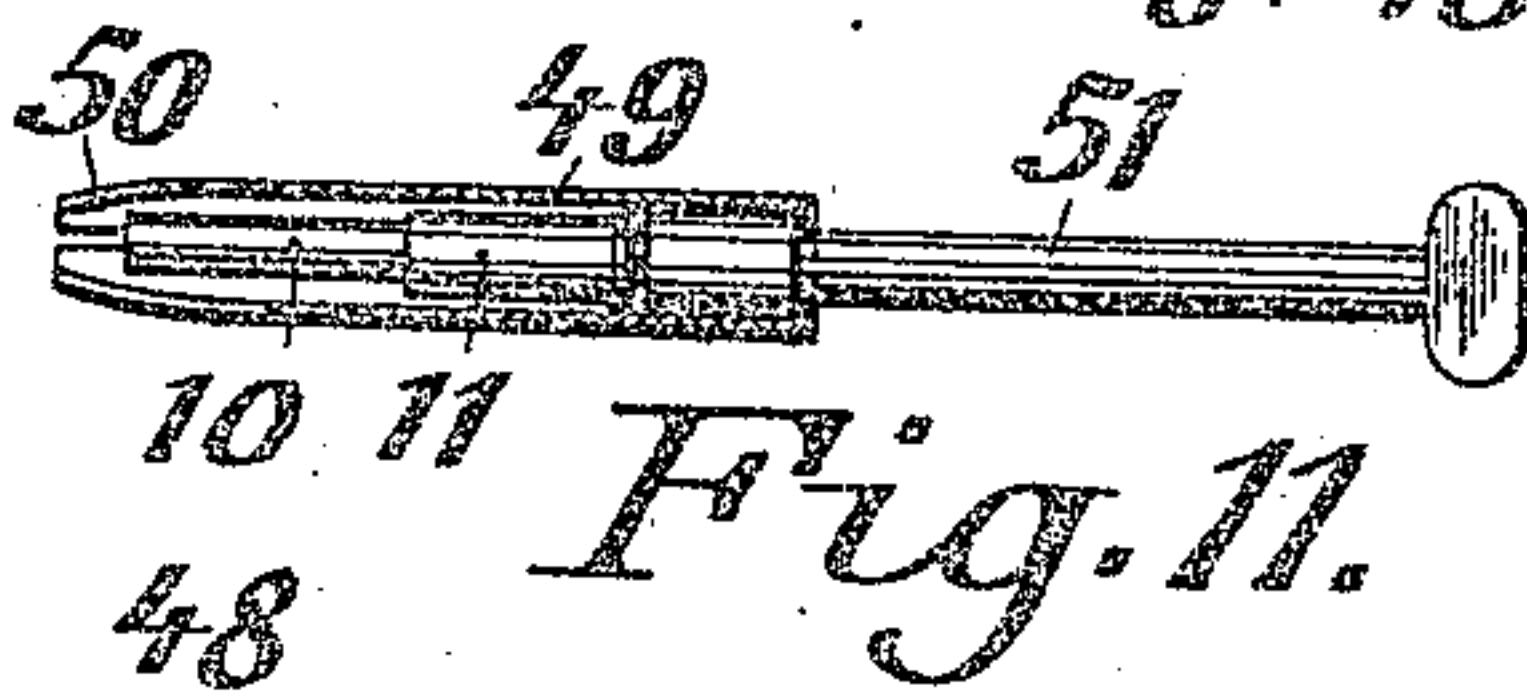
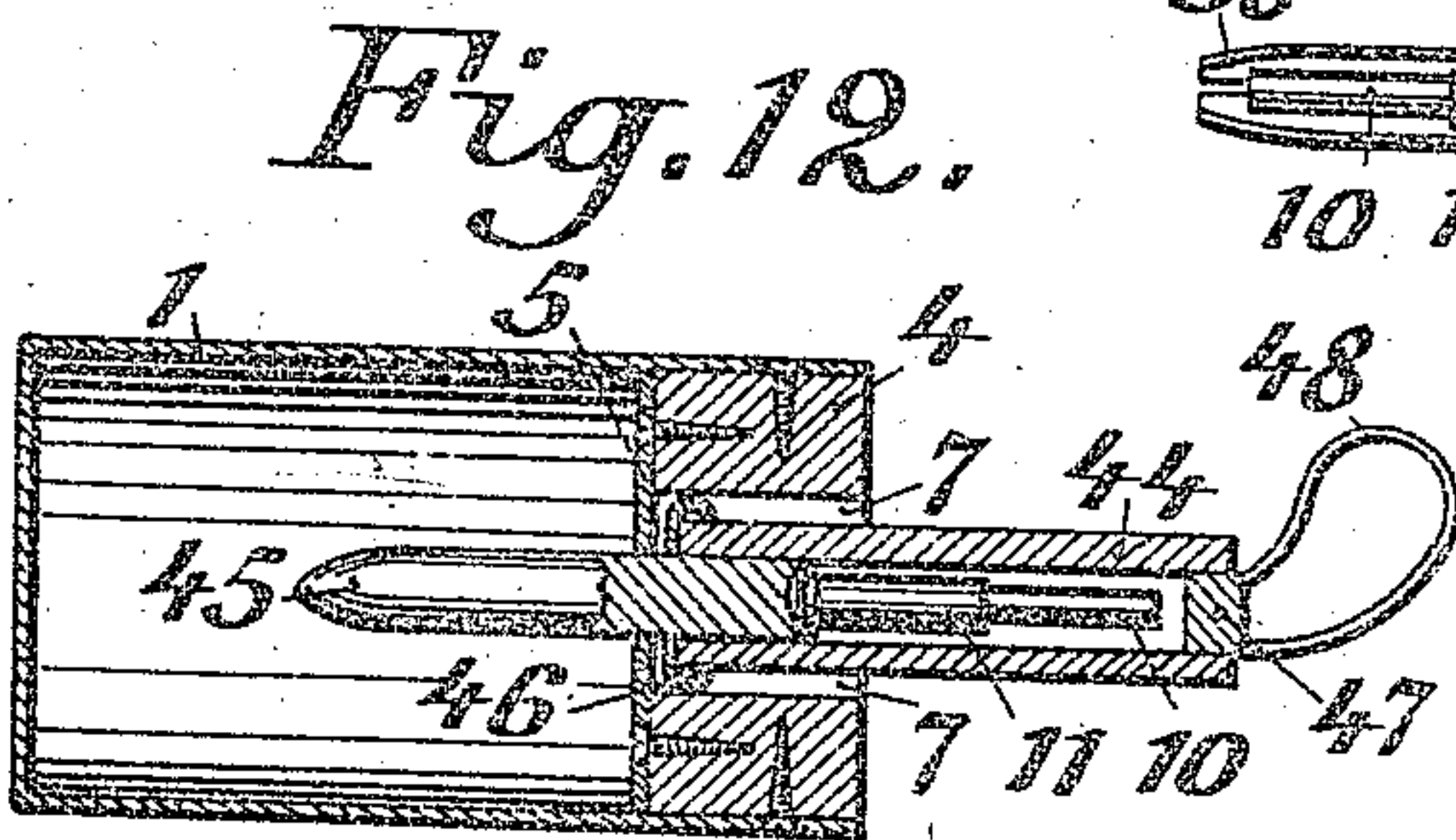
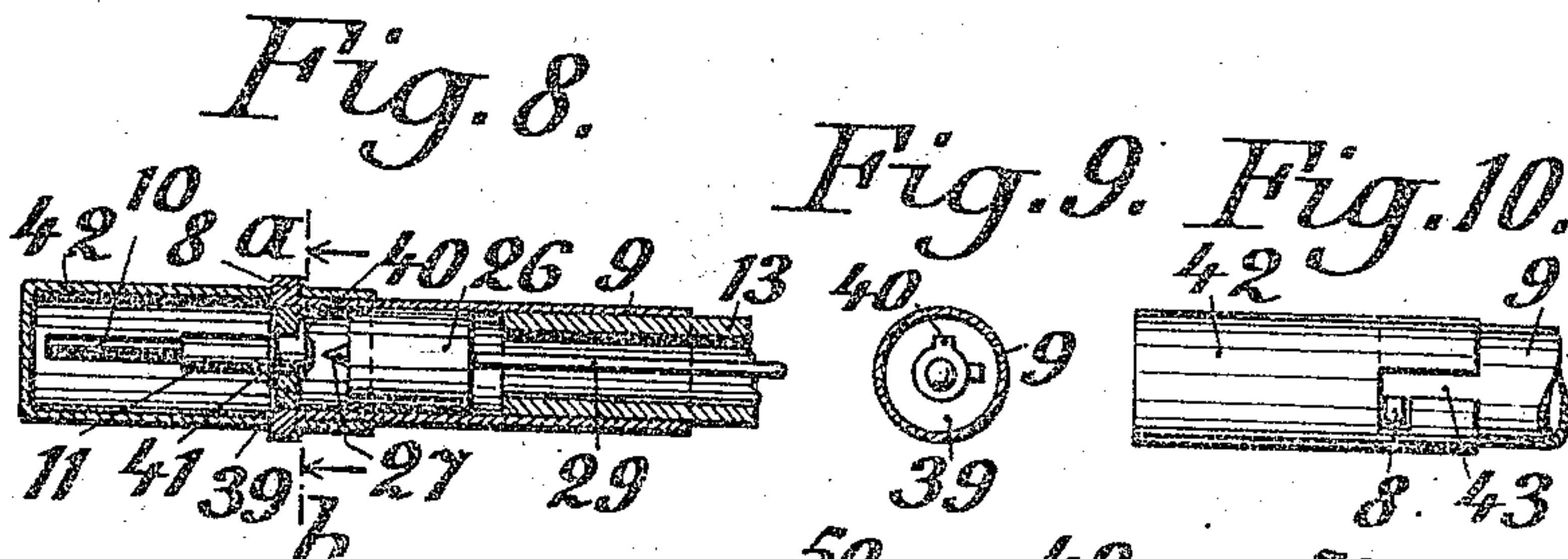
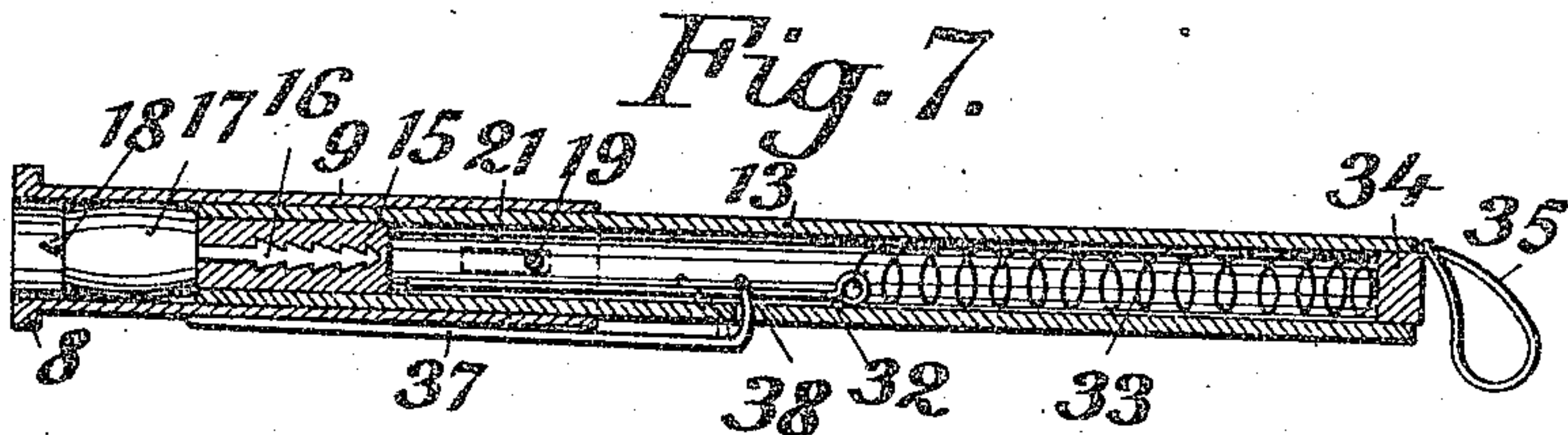
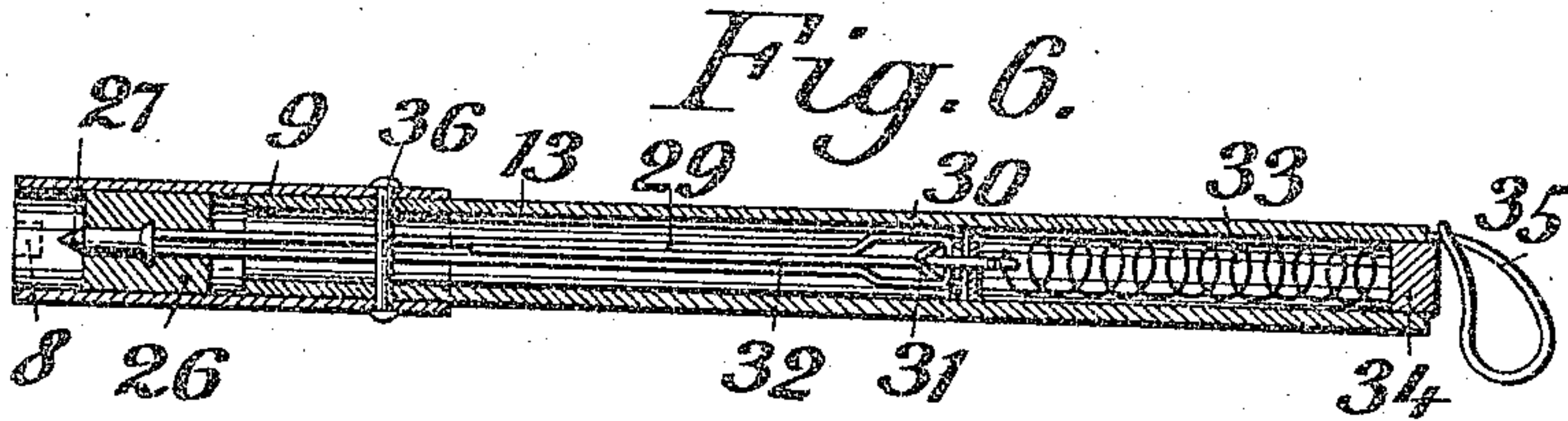
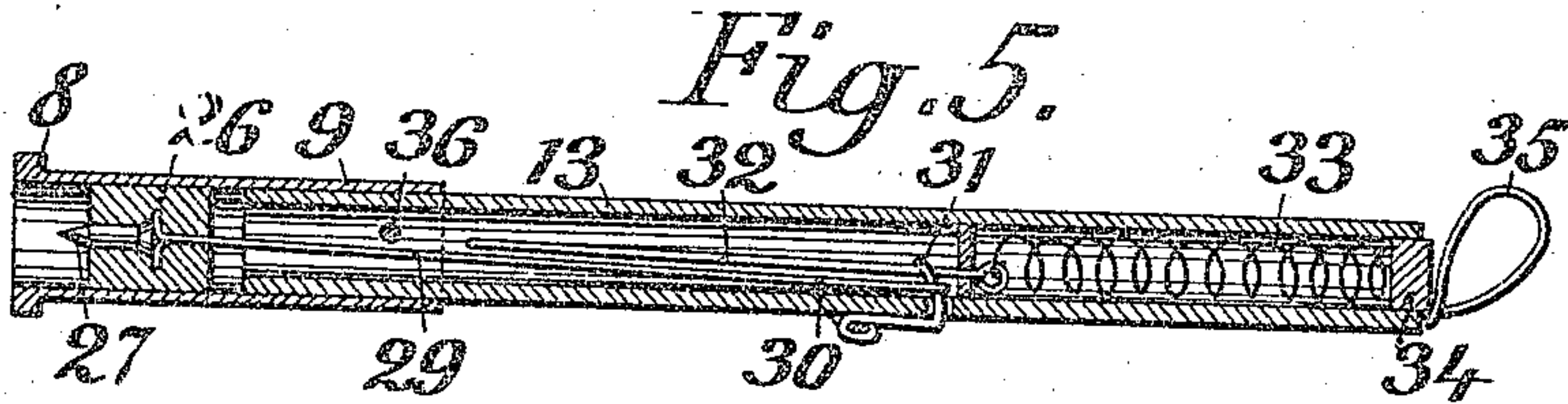
Nels W. Aasen,
by *Henric Goldsborough*
ATTORNEYS

No. 871,156.

PATENTED NOV. 19, 1907.

N. W. AASEN.
EXPLOSIVE HAND SHELL.
APPLICATION FILED MAY 27, 1907.

2 SHEETS—SHEET 2.



WITNESSES

J. E. Hutchinson
R. E. Smith

INVENTOR

Niels W. Aasen
by *Hermie & Goldsborough*
ATTORNEYS

UNITED STATES PATENT OFFICE.

NIELS WALTERSEN AASEN, OF DRÖBAK, NORWAY, ASSIGNOR TO RHEINISCHE METALL-
WAREN-UND MASCHINENFABRIK, OF DÜSSELDORF-DERENDORF, GERMANY.

EXPLOSIVE HAND-SHELL.

No. 871,156.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed May 27, 1907. Serial No. 375,969.

To all whom it may concern:

Be it known that I, NIELS WALTERSEN AASEN, sergeant of the artillery, a subject of the King of Norway, residing at Dröbak, Matrikel No. 212, Norway, have invented certain new and useful Improvements in Explosive Hand-Shells; 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.

My invention relates to improvements in explosive hand shells; and the object of the improvements is to provide a simple and reliable means to cause the explosion of the shell.

My invention also relates to certain improved means whereby the fuse of the shell is protected from being accidentally fired.

A further important feature of the device is a support for the fuse of the shell to protect the same when out of use and to insert the same at its proper place within the body of the shell when the latter is to be made ready for use.

My invention further consists in certain details of construction set forth hereinafter and particularly pointed out in the claims.

For the purpose of illustrating my invention I have shown several examples of shells embodying the same, in the accompanying drawings in which:

Figure 1 is a partially sectional side view of a shell embodying the invention, Fig. 2 is a sectional view of a further example, Fig. 3 is a bottom view, showing the construction of the steering tail, Fig. 4 is a bottom view of the body of the shell the shaft being removed, Fig. 5 is a longitudinal section of the shaft showing an example of a locking mechanism for the firing pin, Fig. 6 is a longitudinal section similar to that of Fig. 5, but vertical thereto, Fig. 7 is a longitudinal section of the shaft, showing a further example of the locking mechanism, Fig. 8 is a longitudinal section of the front part of the shaft having the fuse located therein and covered by a protecting sleeve, Fig. 9 is a cross section of Fig. 8 taken on line *a—b* and seen in the direction of the arrow, Fig. 10 is a side view of the left side of Fig. 8, Fig. 11 is a longitudinal section of a sleeve having a fuse located therein, and Fig. 12 is a longitudinal section of the body of the shell with the fuse fixed outside the charge.

Similar reference numerals refer to similar parts throughout the views.

The body 1 of the shell, which is to be filled with the charge, is preferably made of sheet iron. In the example shown it is surrounded by a casing 2 within which an outer body of splinters 3, for example incised pieces of flat iron of a suitable size, are held in their proper position. The body is provided with a wooden cover 4 strengthened at its inner side by an iron plate 5. The cover is made with a central opening 6 (Fig. 4) having longitudinal grooves 7 at opposite sides forming a guide for two noses 8 provided at the front end of a shaft sleeve 9, whereby the latter, after being inserted with its front end through said opening 6 and the grooves 7 and turned at a small angle, as shown in dotted lines in Fig. 4, will be caught with its noses 8 within two lateral sockets of the wooden cover near the iron plate 5. The plate 5 carries the fuse the charge 10 which consists of mercury fulminate and gun powder, and which for example is placed, with varnish, within a revolver cartridge shell 11 provided with a percussion cap 12.

In the example shown in Fig. 1, the whole shaft 13 with its steering tail forms the firing rod. The shaft is preferably made of bamboo. At its front end it is provided with a bore 14 receiving a plug 15 (Fig. 1) connected to the head 17 of the firing rod by means of a pin 16. The latter forms with its front end the firing pin 18. The shaft 13 and the shaft sleeve 9 are locked to each other by means of a key or cotter 19 extending through a bore 20 of the shaft and a slit 21 of the sleeve, the slit 21 being long enough to permit of the necessary longitudinal displacement of the shaft with the firing pin towards the sleeve and the fuse. At the back of the sleeve there is a locking pin 22, whereby the said longitudinal displacement can be made impossible. The steering tail 23 is preferably made of cloth spread out by means of two stiff copper wires 24 (Fig. 3), which, vertically to each other, pass through the shaft near the end thereof, their free ends being formed with eyes to which the four rear ends of the steering tail are sewed. Ordinarily, the said wires 24 are bent backwards, along the shaft, while, when the shell is to be used, they are bent outwards to spread out the tail. The wires 24 are so rigid that they hold the tail in its spread out position without further

means being required. The apparatus is held at its handle by the right hand, the steering tail is spread out and the locking pin 22 is withdrawn. Now the shell is ready to be flung, and on account of its steering tail it will move at a regular trajectory. When falling on the ground or hitting another obstacle, the firing rod, that is the rear part of the apparatus, will, on account of its energy, break the percussion cap of the cartridge by means of the firing pin 18 and thereby cause the explosion of the shell.

In Fig. 2 I have shown a further example of the shell in which the sleeve 9 is rigidly connected with the shaft, and, in front of the end of the shaft, is provided with a short stem 26 carrying the firing pin 27 and a locking pin 28.

In Figs. 5 and 6, I have illustrated a modification of the locking means, in which the firing rod is not released before being flung. The stem 26 is held at safe by a lever 29 extending rearwardly within the hollow shaft 13 and formed at its end with a loop 30, which is caught by a hook 31 secured to the outer side of the shaft and extending through a hole thereof. The hook is held in its place by a locking pin 32 having its rear end connected to a string 33 located within the rear part of the shaft. The string 33 is attached to a plug 34 which, by an outer loop 35, can be pulled out. The shaft illustrated is secured to the body of the shell by means of noses 8 the construction being the same in this respect, as in the example explained above. The shaft 13 and the steering sleeve are rigidly secured to each other by means of a nail 36. After having secured the shaft to the body of the shell and having spread out the steering tail, the soldier winds the loop 35 about his thumb and pulls out the plug 34. Now the shell is flung. The string 33 now unwinds itself its end being held back, and as soon as it is run out the locking pin is withdrawn from the shaft. The shell, which up to this moment was locked, is therefore now unlocked, the firing stem being released by disconnecting the bows 30 and 31. According to the length of the string 33 the shell is unlocked at a distance of 5, 10, 15 or more meters from the soldier flinging the same. It can therefore not prematurely explode, which might happen for example when it falls involuntarily on the ground, or when it hits against the parapet of other objects within a certain distance from the soldier.

In Fig. 7 I have shown the same unlocking means of a shell in combination with a firing stem secured to a movable shaft, as in the example illustrated in Fig. 1. In this case the steering sleeve is provided with a rearwardly extending lever 37, the rearward hook 38 of which extends into the hollow shaft 13 through a hole thereof, where it is

held by a locking pin 32. As soon as the string 33, after the shell being flung, withdraws the locking pin from the hook 38, the latter is withdrawn from the hole by the spring action of the lever 37. The hook 38 may also be bent forwards, as shown in dotted lines in Fig. 7.

In Figs. 8-12 I have shown several examples, how the fuse may be mounted outside the charge. In the examples shown in Figs. 8 to 10 the guide sleeve 9 is provided, at its front, with a bottom 39 carrying the fuse 11. The cartridge is mounted on the bottom by means of a shoulder 41 and a nose 40, as shown in Figs. 8 and 9. It is preferably surrounded by a protecting casing 42 which is connected to the sleeve 9 by means of a bayonet catch 43 and its noses 8. Before flinging the shell, the casing 42 is removed, and the shaft is mounted on the shell in the same way as described before. In the example shown in Fig. 11, the cartridge 10, 11 is located within a special metallic casing 49, where it is locked by means of spring tongues 50. At the opposite end, there is a slide rod 51, extending from the sleeve. In this example, the mechanism is secured to the shaft, and preferably within the steering tail, by means of a wire, or the like. In order to make the shell ready for use, the sleeve 49 is put into the opening of the body of the shell, whereafter the cartridge is pushed into its proper position by means of the slide rod 51. In Fig. 12, the cartridge 11 is shown as placed within a wooden sleeve 44, from which a stem 45 extends into the opening of the body of the shell provided for the cartridge, when the wooden sleeve is secured to the body of the shell by means of the noses 46. The sleeve is closed, at its outer end, by a plug 47 having an outer releasing bow 48. When it is desired to fling the shell, the sleeve 44 and its stem 45 are first removed and the plug 47 is withdrawn. Now the sleeve is inserted into the body of the shell with its open end and the cartridge is pushed into its proper position by means of the stem 45. The wooden sleeve 44 is removed and the shaft is inserted.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, and a steering shaft, connected with said body, of a firing pin slidably supported within said shaft and a fuse located with its percussion cap in the path of said firing pin.

2. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, of a sleeve detachably mounted on said body, a steering shaft mounted in said sleeve, a firing pin slidably

supported within said sleeve, and a fuse located with its percussion cap in the path of said firing pin.

3. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, and a steering shaft, connected with said body, of a firing pin slidably supported within said shaft means to lock said firing pin in its retracted position and a fuse located with its percussion cap in the path of said firing pin.

4. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, of a sleeve having a bayonet connection with said body, a steering shaft mounted in said sleeve, a firing pin slidably supported within said sleeve, and a fuse located with its percussion cap in the path of said firing pin.

5. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, and a steering shaft connected with said body, of a firing pin slidably supported within said shaft, a hook and loop connection engaging said firing pin and normally locking the same, a string adapted to be held by the operator and to bring said loop and hook connection out of engagement, and a fuse located with its percussion cap in the path of said firing pin.

6. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, and a steering shaft connected with said body, of a firing pin slidably supported within said shaft, a loop connected with said firing pin, an automatically retracted hook normally engaging said loop, a pin adapted to lock said hook and loop relatively to each other, a string connected to said pin and adapted to be held by the operator and to withdraw said locking pin from its locking engagement with said hook and loop, and a fuse located with its percussion cap in the path of said firing pin.

7. In a hand explosive shell, the combination, with the body of the shell receiving the explosive charge, and a steering shaft removably connected with said body, of a firing pin slidably supported within said shaft, a fuse located with its percussion cap in the path of said firing pin, and releasable means for holding said firing pin in retracted position.

In testimony whereof I have affixed my signature, in presence of two witnesses.

NIELS WALTERSEN AASEN.

Witnesses:

RICHARD STOKKE,
MOGEUS BUGGE.