

(No Model.)

S. O'DAY.
OIL CARRYING PROJECTILE.

No. 560,747.

Fig 1

Patented May 26, 1896.

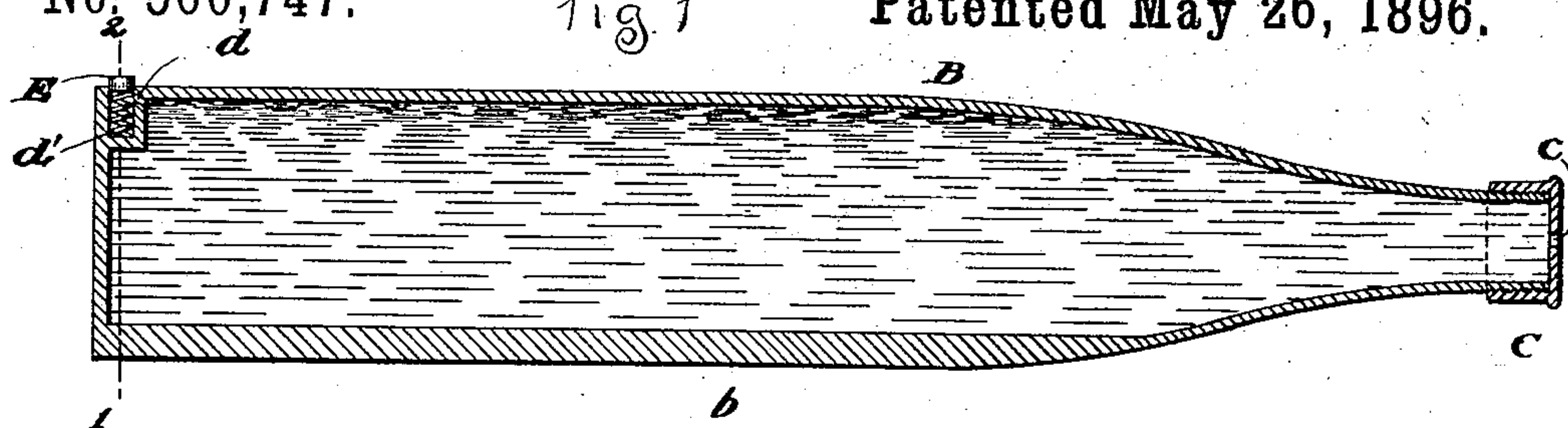


Fig 2.

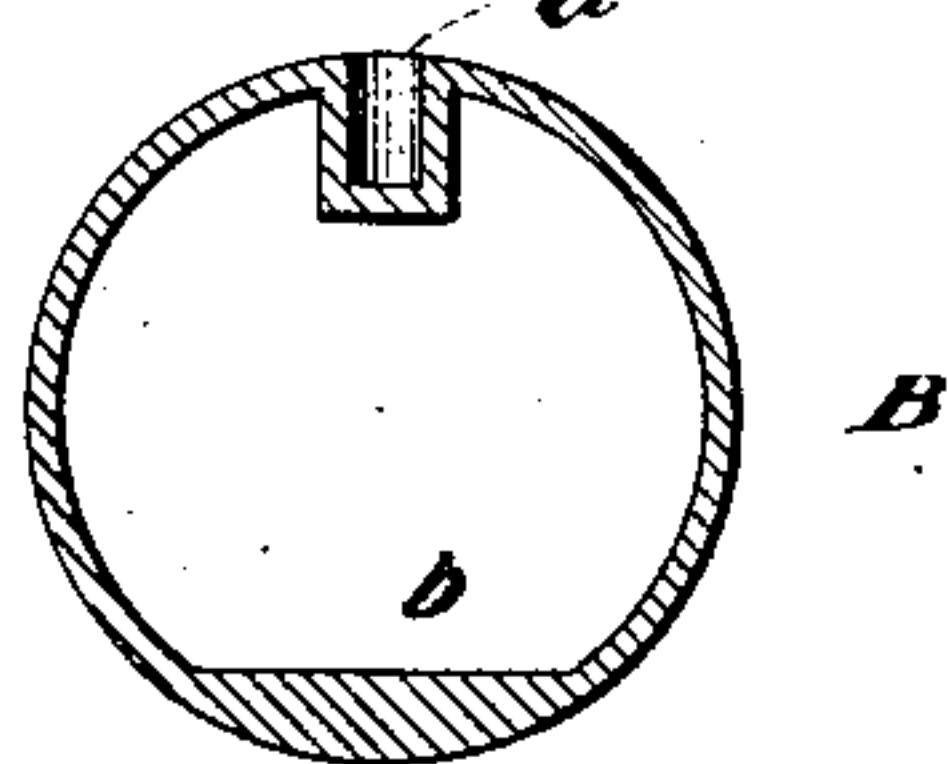


Fig 3.

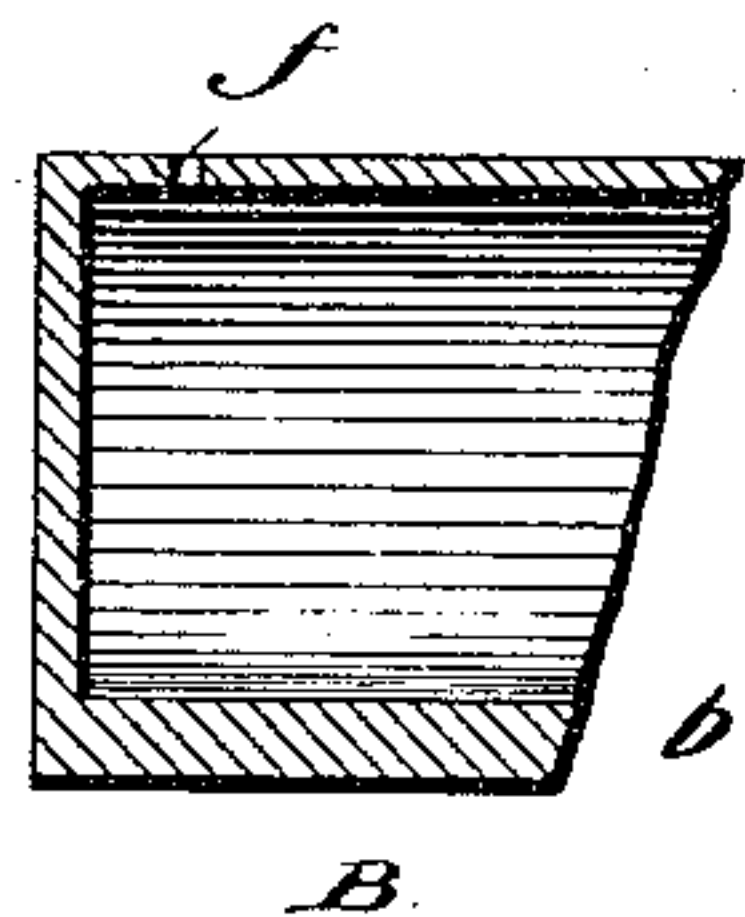
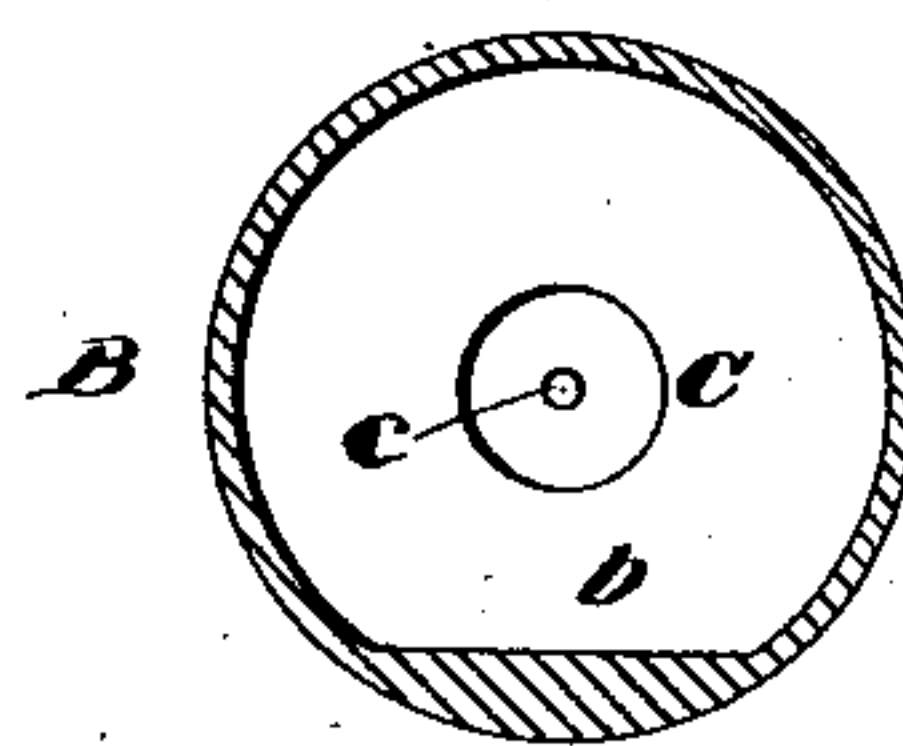


Fig 4

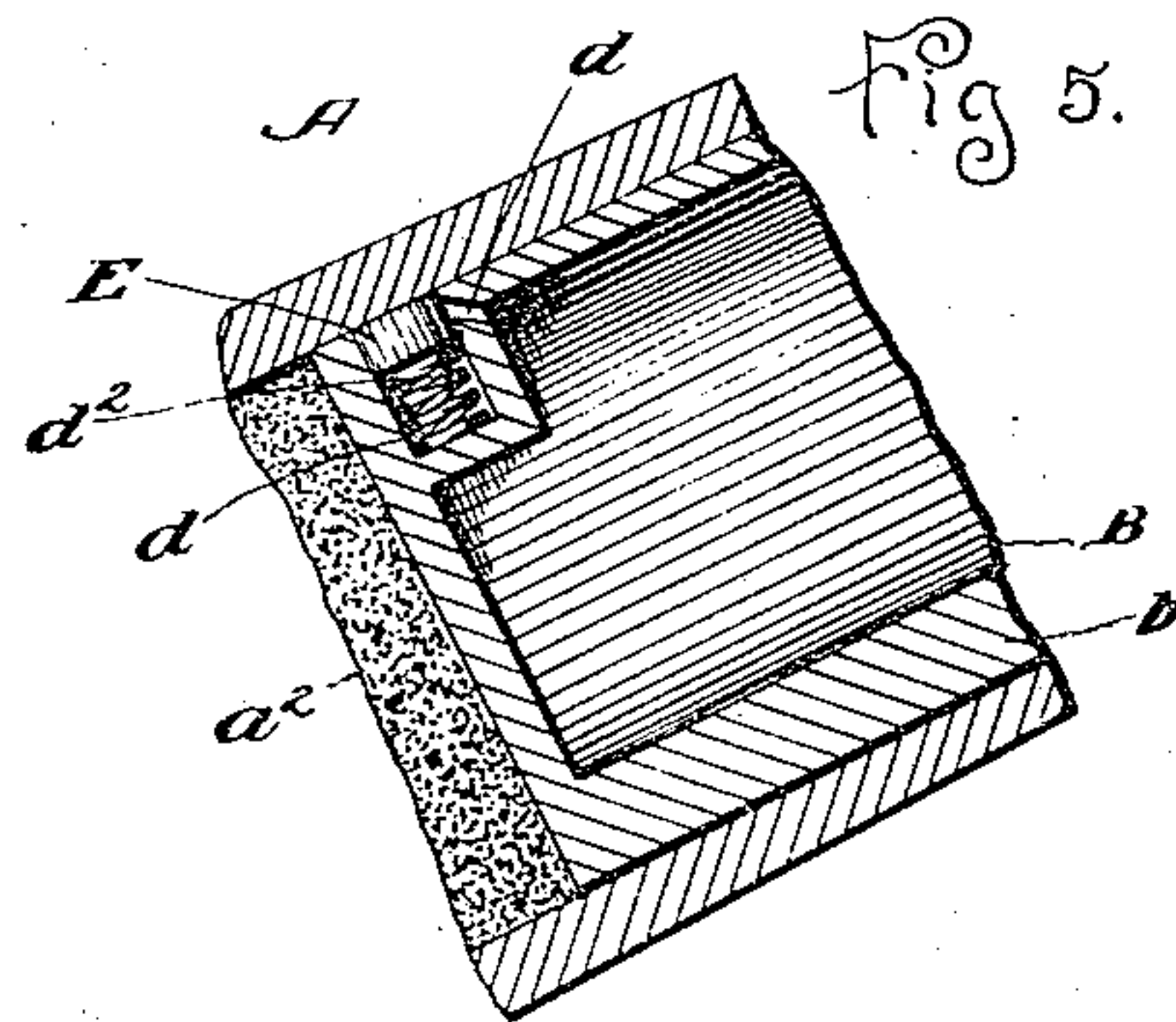


Fig 5.

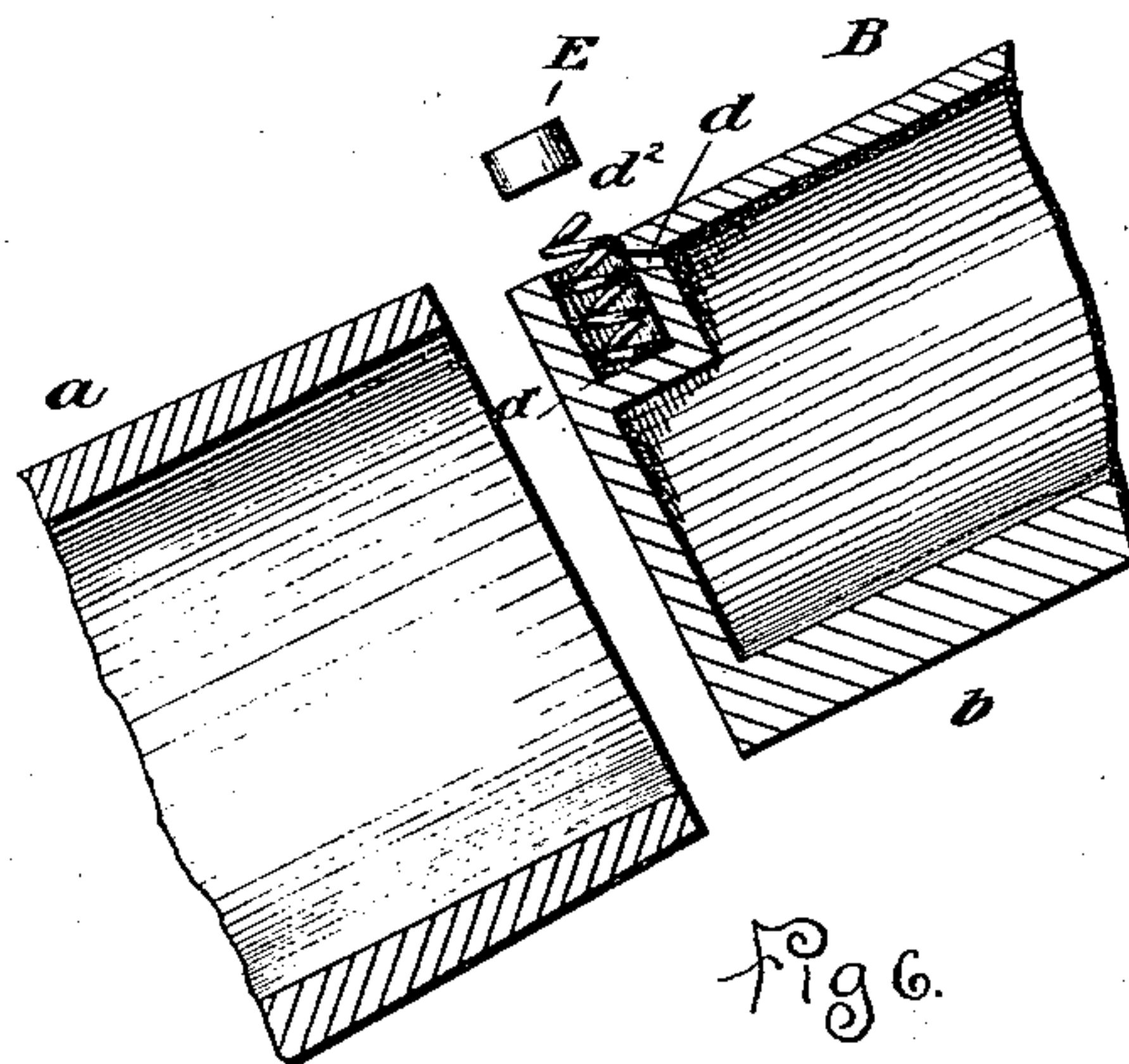


Fig 6.

Witnesses
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UNITED STATES PATENT OFFICE.

SIMON O'DAY, OF MUSKEGON, MICHIGAN.

OIL-CARRYING PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 560,747, dated May 26, 1896.

Application filed September 14, 1895. Serial No. 562,495. (No model.)

To all whom it may concern:

Be it known that I, SIMON O'DAY, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Devices for Quieting Waves; 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 an improvement in devices for quieting waves by the application thereto of oil, the object of my invention being to produce a cheap and effective means whereby the severity of a tempestuous sea can be quickly calmed by the application of oil covering a large area in the vicinity of a vessel that is stranded, wrecked, or otherwise incapacitated for service.

The invention is adapted to be used by the crew of a life-saving station by being discharged from a gun from the shore, as well as by the crew of a vessel by being thrown by the hand wherever the most effective results can be obtained.

The invention consists, essentially, in the construction of a metallic shell or projectile to be discharged from a gun, and so arranged that when it sinks to the bottom of the water by virtue of the shell having a heavy side the orifice through which the oil is discharged will always be on the top side, and consequently the oil, by reason of the pressure of water operating on the larger orifice on the cap of the shell, will continue to rise to the surface until the oil is exhausted.

The invention further consists in other peculiarities, which will be more fully explained and pointed out in the specification and claims.

In the annexed drawings, illustrating my invention, Figure 1 is a longitudinal section of the projectile filled with oil and ready to be inserted in the gun. Fig. 2 is a cross-section on the line 1 2 of Fig. 1. Fig. 3 is a cross-section through the main body of the projectile. Fig. 4 is a detail cross-section showing the location of the discharge-orifice as it would preferably be used when the projectile is to be thrown from the vessel. Fig. 5 is a partial section of a gun, with the projectile in

place when ready to be fired. Fig. 6 is a partial section of the muzzle of a gun and the rear end of a projectile after being fired.

Similar letters of reference designate corresponding parts in the different figures of the drawings.

A represents the rear end of a gun, a the muzzle part of the same, and a^2 the powder for discharging the shell. B denotes a metallic shell or projectile filled with a suitable flowing oil and adapted to be discharged from a gun located on the shore or at any other desired point, or from a vessel in distress, by being thrown from the deck. This shell B is provided with a heavy side b of sufficient weight, so that when the shell is deposited in the water and sinks to the bottom the heavy side will naturally be the side which always rests on the ground. This shell B is formed with one end smaller than the other, as shown, and the small end is provided with a cap C, which is screwed onto the end of the shell, making thereby a perfectly tight joint. The cap C is pierced with a hole c , through which the water enters into the inside of the shell. The rear end of the shell is provided also with a perforation or hole d , which is of smaller diameter than the hole c , and is the orifice through which the oil is discharged from the shell. The shell is also provided at the rear end with a lateral circular receptacle d' , in which receptacle is placed a spiral spring d^2 . (See Figs. 1, 5, and 6.)

E denotes a plug preferably made of metal, so that it will not expand. This plug fits nicely the bore of the recess d' and is used for the purpose of covering up the discharge-orifice d when the shell is inserted into the gun to be fired, as shown in Fig. 5. It is only necessary to use this plug device when the projectiles are to be fired from a gun.

When the shells are to be thrown from the deck by hand, the spring and plug E can be dispensed with and the receptacle d' fitted only with a wooden or metallic plug that can be taken out just before the shell is deposited in the water; or the shells that are intended for use on a vessel can be constructed, as shown in Fig. 4, with a discharge-orifice f on the top and adapted to be plugged up with a plug that can be easily taken out before the projectile is used.

Fig. 1 shows the shell B filled and ready to be deposited in the gun. After the plugs that close the orifices *c* in the cap and the receptacle *d'* are withdrawn the spring and plug E are then inserted in their place, and by depressing the plug E with the finger the shell can be inserted in the gun as far as necessary. Fig. 5 shows the shell in place and against the powder *a*². In this position it will be obvious that the plug E covers the discharge-orifice *d*, which will be closed, so that the oil cannot leak and communicate with the powder. The spring *d*² in this position is depressed to a point sufficiently powerful, so that when the projectile is discharged from the gun the plug will be driven out of the receptacle by the spring assuming its original form, thus allowing the oil in the shell to freely discharge into the water through the orifice *d*. (See Fig. 6.) By this device it will be evident that when the shell is deposited at the bottom of the water the oil will be forced automatically out of the shell by reason of the discharge-orifice *d* being smaller than the orifice *c* in the cap C, through which the water enters. The pressure on the oil can be regulated to flow at different speeds by making the area of the two orifices of a larger or smaller degree. These metallic shells, which are cheaply manufactured, can be kept ready filled for use, in quantities at life-saving stations, and are merely provided with the necessary plugs for keeping the oil from oozing out. A necessary quantity of springs and plugs is also to be kept on stock and only inserted in the shell when it is to be fired off. Any quantity of the filled and plugged shells can be carried on board vessels, where they can be used with great effect by being thrown into the water to windward of the vessel or deposited, if necessary, all around the boat.

It will be evident that when a vessel is unable to make the harbor by reason of a tempestuous sea and is stranded on the shore this device will be of the greatest utility in calming the waters around the wreck, for the reason that the life-saving crew can deposit all around the vessel sufficient shells, so that a large area of the water can be quickly covered with oil where its effects will produce the best results. The mouths of harbors, wharves, &c., can also be kept smooth enough by the same process to enable any vessel to easily approach and enter a harbor in safety. Other methods of floats and shells designed to float on or near the surface of the water and which require the use of a pump to eject the oil must of necessity be able to accomplish only small results as compared with my

method of distribution, and where devices which discharge a shell from a gun on the shore and to which a pump is attached and operated by a line from the shore that arrangement must fall short of producing good results, for the reason that the best results to be obtained from the distribution of the oil will be on the windward side of the vessel, and even if the shell could be shot over the vessel to windward the effective working of the pump would in nearly all cases be rendered useless by reason of the line becoming entangled among the rigging, &c., whereas by my device most effective advantage is at once gained. When the breakers are dispersed, a life-boat from the shore can easily approach a vessel in distress, and thus succeed in achieving a rescue which might not be possible without the use of the oil.

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

1. In an oil projectile for use in quieting waves, a shell having a water-inlet aperture at one end of larger size than the oil-outlet aperture at the other end, and means for automatically opening the oil-outlet when the vehicle is projected.

2. In an oil projectile for use in quieting waves, a shell having one longitudinal side thickened to weight the same, a water-inlet at one end, and an automatically-operated oil-outlet at the other, substantially as described.

3. In a device for quieting waves, a shell having an automatically-operated oil-outlet opening near one end, said shell having one side opposite said opening thickened to cause the shell to assume by gravity the desired position when thrown into the water.

4. In a device for quieting waves, a shell having near one end a lateral recess, an aperture in the wall of said recess leading into the interior of the shell, and a spring-plug in the recess covering said aperture.

5. The shell filled with oil, in combination with the apertured cap at one end and the spring-plug contained in an outlet-recess at the other end, substantially as described.

6. The combination with the shell, of the apertured screw-cap, and the spring-plug seated in the lateral recess having an apertured wall, substantially as described.

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

SIMON O'DAY.

Witnesses:

NELLIE ROACH,
PETER W. LOSBY.