

1,336,656.

S. ROGOZEA.
TORPEDO SHOOTING DEVICE.
APPLICATION FILED JULY 13, 1916.

Patented Apr. 13, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

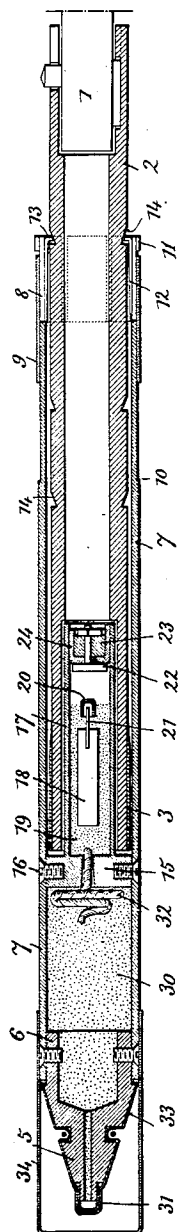
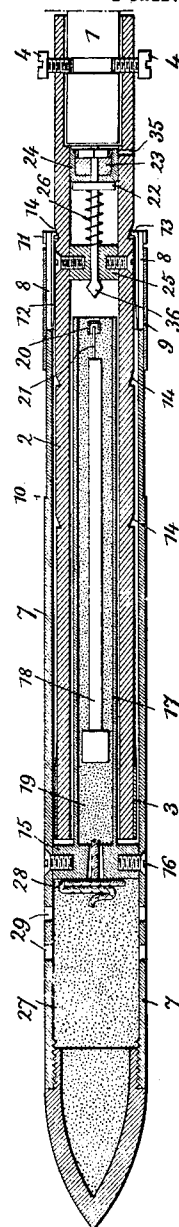


Fig. 2.



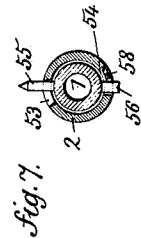
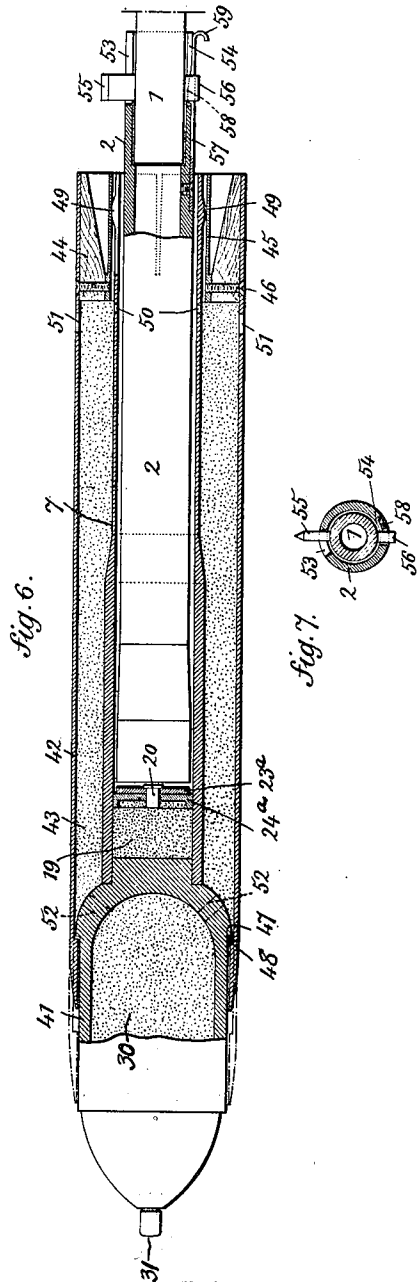
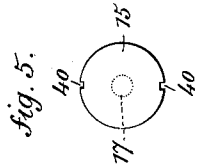
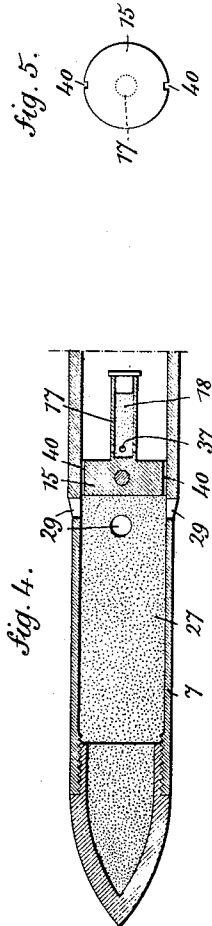
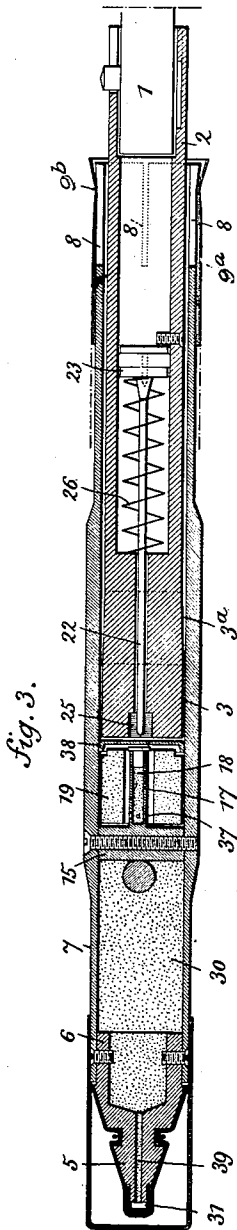
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

SAVA ROGOZEA, OF PARIS, FRANCE.

TORPEDO-SHOOTING DEVICE.

1,336,656.

Specification of Letters Patent.

Patented Apr. 13, 1920.

Application filed July 13, 1916. Serial No. 109,112.

To all whom it may concern:

Be it known that I, SAVA ROGOZEA, a citizen of the Kingdom of Roumania, residing at Paris, France, 91 Boulevard St.-Germain, Seine Department, engineer, have invented certain new and useful Improvements in Torpedo-Shooting Devices, of which the following is a specification.

This invention relates to fire-arms and its object is to provide a device for reducing or annulling the recoil of a gun when a heavy projectile is fired.

Various forms of my device which are to be attached to a gun, are shown in the accompanying drawings.

Figure 1 is a longitudinal section of a cylinder for shooting a torpedo or projectile.

Fig. 2 is a longitudinal section of a modified form of the same.

Fig. 3 is a longitudinal section of another form of the torpedo.

Fig. 4 is a part of a longitudinal section of a modified form.

Fig. 5 is a plan of a member of the latter.

Fig. 6 is a longitudinal section of another form of the torpedo, and

Fig. 7 is a cross section through the parts appearing at the right-hand end of Fig. 6.

To the end of the barrel 1 of a gun or other fire-arm is secured a sleeve or cylinder 2, the outer end of which presents a slight tapered bulge 3. The inner end of the sleeve fits over the barrel and is secured thereto either by a bayonet joint (Fig. 1) or by means of a screw 4 carried by the sleeve and engaging a circular groove in the barrel as shown in (Fig. 2).

The projectile or torpedo comprises a tapered point 5, a cylindrical body 6, and a tubular prolongation 7, open at the rear, said prolongation being adapted to slide freely on the bulge 3. The rear end of the prolongation 7 is split into several branches 8 to provide resilient fingers which are adapted to be locked on the cylinder 2, as shown in the drawings by means of a ring 9 sliding on the prolongation 7 between two shoulders 10 and 11. Before being split, the end of the prolongation 7 is strengthened inwardly being united with a copper ring 12, which is provided with a slight inner flange

13, and the ring 12 is split coincidentally with the part 7 so that the flange 13 is divided into a plurality of detents. Around the cylinder are formed several grooves 14 adapted to receive the detents formed by the flange 13, when the branches 8 are locked by the ring 9, so that the projectile can no longer be withdrawn nor can it escape accidentally from the cylinder. When the explosion of the cartridge in the gun or that of the cartridge on the projectile takes place, the projectile will be driven by the pressure of the gases so that the flange 13 will give way and the split ring 12, held locked on the cylinder by the ring 9, will meet the bulge 3 of the cylinder and can no longer slide freely thereon, so that when the projectile escapes, the ring 9 will have to stretch a little. Such action of the split ring 12 against the bulge 3 will give rise to a forward motion of the cylinder and of the gun, which will be nearly simultaneous with the backward motion of the gun under the influence of the explosion, so that the backward motion will be compensated. Furthermore, a tight joint will be produced between the cylinder and the projectile at the same time that the latter leaves the cylinder, which will insure the greatest efficiency of the gases.

Within the tubular prolongation 7 there is disposed a sort of cartridge comprising a bottom 15 firmly secured to the wall of the projectile by screws 16, and a socket 17 which has an opening in its rear portion and is attached to said bottom. In said socket there is placed a wooden cylinder 18, and the space remaining in front and around said cylinder is filled with powder 19. The ignition of said powder is obtained by means of a percussion cap 20, placed on a metal rod 21 which is secured at the rear of the cylinder 18, said percussion cap being hit, when the explosion of the cartridge in the gun takes place, by a metal hammer 22. Said hammer is secured at the center of a piston 23 which is covered by leather 24 and which is placed either in the socket 17 (Fig. 1) or in the cylinder 2 (Fig. 2). This piston prevents any penetration of the gases mixed with water vapor coming from the combustion of the cartridge in the gun into the

cartridge 17, so that the powder 19 is very dry at the time when the percussion hammer 22, projected by the pressure of the afore-said gases, hits the percussion cap 20.

5 In case the hammer is placed in the socket 17, it will be held in place by friction.

When the hammer is mounted in the cylinder 2 (Fig. 2), its stem is guided by a guide 25 secured in said cylinder and is subjected 10 to the action of a spring 26, which holds it in its rear position.

Then a very small load of powder is sufficient in the gun, and the combustion gases of such powder escape through an opening 15 35 provided in the cylinder, said opening being uncovered by the piston 23 when the latter is projected forwardly.

The combustion of the powder 19, taking place at the same time the projectile is moved 20 forwardly, can be finished when the projectile escapes from the cylinder 2, or shortly afterward; this depends on the length of the cylinder 17 or on the nature of the powder and the like.

25 The combustion gases of the powder 19 will escape toward the rear and push the piston 23 out of the socket (Fig. 1). In case the piston is placed in the cylinder (Fig. 2) the bulged end 36 of its stem forms 30 a valve and, by bearing against the guide 25, prevents the combustion gases of the powder 19 from entering the barrel of the gun.

Fig. 2 shows a projectile, the body of 35 which incloses a load of fusible material 27 which is adapted to generate an incendiary or suffocating product. This fusible material is ignited by a fuse 28 which extends through the bottom 15 and communicates 40 with the load of powder 19. The combustion products of the load 27 escape through the openings 29, provided in the head 7.

Fig. 1 shows an embodiment in which the 45 projectile body incloses an explosive load 30 the explosion of which can be produced either by a percussion cap 31 under the influence of a jar caused by hitting an obstacle, or by a fuse 32 which passes through the bottom 15 and which communicates with 50 the powder load 19.

33 designates a cap made of impermeable tissue, and 34 designates a protecting cap which will be withdrawn before firing.

55 The employment of several grooves 14 in the cylinder 2 provides for projectiles of different lengths engaging therewith.

The projectile shown in Fig. 3 comprises 60 a point 5, a cylinder body 6 and a tubular prolongation 7, the latter being adapted to slide on the slightly bulged end 3 of the cylinder 2 which is secured to the mouth of the gun. Both the cylinders 2 and 3 are connected together by a tapering part 3*. The rear end of the prolongation 7 is di-

vided by slits into several branches which 65 terminate at the rear in slight bosses. On this part a ring 9* can slide and the rear end of the ring takes the shape of the bulged branches and is provided with a neck 9^b 70 which projects slightly inward. When the ring is drawn back as shown in the drawings, it causes the branches of the prolongation 9 to come together in such a manner that the latter can slide on the boss 3 producing great friction which is to compen- 75 sate the recoil of the gun. On the other hand, when the ring is pushed forward and leaves the branches free to separate, the projectile can easily slide on the cylinder.

The projectile incloses behind the ex- 80 plosive load 30 (Fig. 3), or the incendiary load 27 (Fig. 4), and the plug 15 an explosive mass 19 serving to push the projectile and consisting in a cylinder of agglomerated powder, preferably black powder to which is 85 added glue or Arabian gum, this mixture being molded, then dried in the air until it is of a very hard consistence. At the center of said cylinder there is provided an opening in which is held a tube 17 which is se- 90 cured to the plug 15 and which incloses some grains of powder 18 and a percussion cap.

The explosion of the propulsive load is provided by means of a hammer 22 placed 9 in the cylinder 2 and comprising a stem, which slides tightly through the packing 25, and a piston 23 provided with asbestos, which slides in the body of the cylinder and which is subjected to the action of a 1 spring 26.

During the explosion of the small load of powder inclosed in the cartridge which is placed in the chamber of the gun, the combustion gases act on the piston 23 and push 1 the hammer 22 forward, so that it will strike the percussion cap. The combustion of the powder 18 is transmitted, by vents 37 provided near the forward end of the tube 17, to the powder cylinder 19, and the gases 1 produced by the combustion of powder in the latter propels the projectile.

Between the powder cylinder 19 and the cylinder 2 a leather disk 38 is placed and the edge of the disk is turned forwardly to stop the escape of the explosion gases between the wall of the projectile 7 and the cylinder 2. The disk is perforated by the hammer when the latter strikes the percussion cap.

When the projectile incloses an explosive load as in the case of Fig. 3, the explosion of said load can be produced either by percussion by means of a percussion cap and of a little powder 39 as shown, or by means of a fuse, or the like. When it is loaded with an incendiary, suffocating composition 27 (Fig. 4), the ignition of the same can be

produced by means of the combustion gases of the agglomerated powder 19 through narrow grooves 40 provided in the periphery of the plug 15. The released gases escape from the projectile and pass through the lateral openings 29.

In the embodiment shown in Figs. 6 and 7, the tubular prolongation 7 has a diameter less than that of the projectile 41 to which it is secured, and it is surrounded by a socket 42 which fits over the projectile and slides on the same.

The interval between the tube 7 and socket 42 forms a powder chamber 43 which is closed at the rear by a wooden ring 44 provided with a brass ring 45, the latter sliding with a little friction on the tube 7. The ring 44 is secured to the socket by means of screws 46. The sliding of the socket 42 with the ring 44 and the ring 45 is limited by a shoulder 47 on the projectile 41, against which abuts an inner shoulder 48 of the socket 42. This sliding is for the purpose of producing the release or the locking of the slit end of the tube 7, said end being provided with slightly tapering bosses 49 on which the ring 45 slides so as to move its free end into and out of engagement with the bosses 49, the latter being moved radially outward by the spring action of the resilient fingers on which they are formed.

In this embodiment the powder load 19 serving to push the projectile is placed directly in the forward part of the tube 7. It is inclosed between the bottom of the torpedo and a leather plug 24^a and a wooden washer 23^a, which are traversed by a percussion cap 20.

The annular chamber 43 is filled with a fusible material which is ignited by the combustion gases of the propelling load passing through one or more small orifices 50 in the tube 7, and the gases released by the combustion of the powder 43 escape through the orifices 51 in the socket 42.

In the modification shown in Fig. 6, the orifices 50 and 51 may be omitted and the annular chamber 42 may be filled with explosive material in the same way as the body of the torpedo. The explosion is then determined by a percussion cap 31 placed at the point of the projectile, said percussion cap igniting the load 30 and the latter in its turn igniting, through the orifices 52, the load of the annular chamber.

The sleeve 2 can be attached to the mouth of the barrel by a bayonet joint. The L-shaped slots 53 and 54 are provided for that purpose in the sleeve and receive the muzzle-sight 55 and the usual tenon 56 of the barrel. In order to prevent the accidental removal of the assembled parts, a locking spring 57 can be secured to the sleeve, said spring having a nose 58 which penetrates into the longitudinal part of one of the slots, 54, in order to prevent the rotation of the sleeve with regard to the barrel when the tenon has been placed in the transverse part of said slot 54. The bevel of the nose 58 allows the tenon to slide freely in the slot 54 when the barrel is pushed into the sleeve. The end of the spring forms a little hook 59 which can be taken hold of to remove the nose 58 of the slot when the barrel is to be withdrawn from the sleeve.

This device is only given by way of example and it can be replaced by any other locking device. It may furthermore be applied to any other arm.

In the torpedo shown in Fig. 6, the dimensions of the parts will be determined in such a manner that the center of gravity of the torpedo will be found to be at a little distance to the rear of the rear end of the body 41 or substantially at the cap 20.

Claims:

1. The combination of a sleeve adapted to be secured to the mouth of the barrel of a gun, the forward end of said sleeve having a slight tapering boss, and a torpedo having a tubular prolongation extending to the rear, the rear end of said prolongation being slit and adapted to slide on the said sleeve, and a ring sliding on said slit end and adapted to cause the latter to engage closely the periphery of the aforesaid sleeve, whereby the projectile can only escape from the sleeve by causing the said end and the ring to be dilated by the aforesaid boss of the sleeve.

2. The combination of a sleeve adapted to be secured to the mouth of the barrel of a gun, a torpedo having a tubular prolongation adapted to engage externally said sleeve and having also a tubular part adapted to engage internally said sleeve, a percussion cap and a load of powder in said tubular part for the purpose of producing the propulsion of the torpedo, and percussion means adapted to be projected against said percussion cap by gases under pressure penetrating into the aforesaid sleeve at its rear end.

3. The combination of a sleeve adapted to be secured to the mouth of the barrel of a gun, a torpedo having a tubular part adapted to engage said sleeve, a percussion cap and a load of powder within said tubular part for the purpose of producing the propulsion of the torpedo, percussion means adapted to be projected against said percussion cap by gases under pressure penetrating into the said sleeve at its rear end, and obturation means adapted to prevent said gases from coming in contact with said load of powder.

4. The combination of a torpedo having a tubular stem the rear end of which is slit

and has an inner flange, a ring sliding on said stem and adapted to contact radially its slit end, and a sleeve adapted to be secured to the mouth of the barrel of a gun, said sleeve having at its periphery spaced circular grooves to receive the inner flange at the end of the stem of the torpedo.

In testimony, that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

SAVA ROGOZEA.

Witnesses:

CH. BAUDRY,
CHAS. P. PRESSLY.