

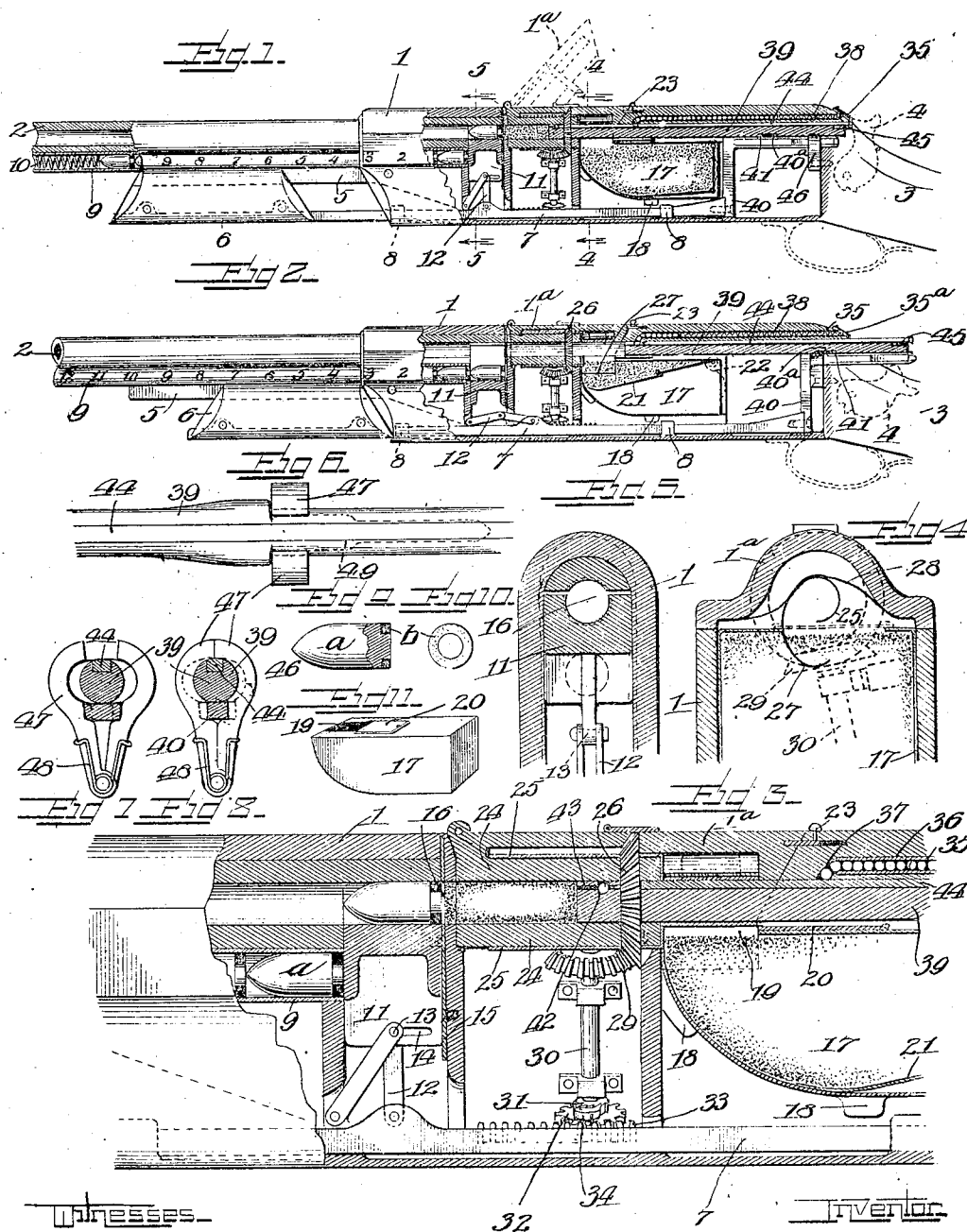
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FIREARM.

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941,662.

Patented Nov. 30, 1909.



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FIREARM.

941,662.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL B. SMITH, a citizen of the United States, residing at Willow Springs, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

One of the objects of my invention is to produce an improved firearm adapted to use bulk powder charges, bullets and percussion balls or caps.

Another object of the invention is the production of a firearm of the class mentioned, which may be operated with great rapidity.

A further object is to produce a repeating rifle that will fire a larger number of shots without reloading than the repeating rifles now in use.

The invention also relates to the other improvements in firearms hereinafter set forth.

Referring to the accompanying drawings, Figure 1 is a side elevation, partly in section, of a rifle embodying my invention, portions of the barrel and the gun stock being broken away. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is an enlarged view of parts shown in Fig. 1. Fig. 4 is a sectional view through the powder magazine taken on dotted line 4 4 of Fig. 1. Fig. 5 is a section on dotted line 5 5 of Fig. 1. Fig. 6 is a plan view of the breech lock and plunger rod, showing the former in the open position. Fig. 7 is an end view of the breech lock and a section of the plunger rod. This view shows the breech lock in the open position. Fig. 8 is a similar view showing the breech lock closed. Fig. 9 is a side elevation of the bullet used. Fig. 10 is an end view of the same. Fig. 11 is a perspective view of the powder magazine.

Referring to Figs. 1 and 2, 1 is a casing inclosing and supporting the operating mechanism of my repeating rifle, 2 the barrel, and 3 a portion of the stock. 4 is the hammer. Upon a guide 5 on the under side of the barrel the grip or handle 6 is slidably mounted. To said grip is attached the action rod 7, said rod entering and lying along the lower wall of the casing 1 and within the guide-straps 8. Along the under side of the rifle barrel 2 is a tubular magazine 9 adapted to contain projectiles which may be bullets or shot. When shot is to be used, the shot is placed in cloth or paper cases or

shells of suitable size to be contained in the magazine 9 and handled by the mechanisms hereinafter described. Preferably a wad is placed between the projectile and the powder charge, and in this instance I attach the wad to the projectile in order to avoid the necessity of providing special mechanism to handle the wad. The rear end of the projectile *a* is reduced in diameter, and upon said reduced portion is placed a ring *b* of leather or other suitable material, said ring forming a wad or packing between the projectile and the powder. A compression spring 10 in the forward end of the projectile magazine tends to force the projectile or shot shells rearward out of said magazine. A projectile lifter 11 mounted for vertical movement at the rear end of the projectile magazine is adapted to receive a projectile from said magazine and lift the projectile into line with the bore of the barrel 2 and crimp said projectile against the top wall of the bore. The projectile shifter which in this instance is an elevator or lifter 11 is operated by means of a toggle lever 12. Said toggle lever is pivoted at one end in the casing 1 and at the other end to the action rod 7. The pivot pin 13 of said toggle lever extends through a horizontal slot 14 in the projectile lifter. Attached to the rear end of the projectile lifter 11 is a shutter plate 15 provided with an opening 16 adapted to register with the bore of the gun at the breech when the projectile lifter is in the raised position. Its use will be more fully explained later herein.

Within the casing 1 is a powder magazine 17 supported by lugs 18 on the inner walls of said casing. The said magazine is constructed of sheet metal, and is provided with an opening 19 in its upper wall arranged to be closed by a sliding door 20. In the powder magazine 17 is a false bottom 21 consisting of two hinged plates conforming, when the magazine is loaded, to the rear and lower walls of the magazine. The leaf spring 22 tends to unfold the false bottom 21 as the weight of the powder decreases, thereby keeping the powder in the magazine at a constant level.

The casing 1 comprises the hinged section 1^a which extends from the rear of the shutter plate 15 to the rear of the powder magazine door 19. The said section is hinged at its upper forward end to the casing and is ar-

ranged to be locked in place by means of a locking pin 23, in the main casing.

In the forward portion of the hinged section 1^a is a cylinder 24 having a longitudinal opening therein alined with and equal in diameter to the rifle bore, said longitudinal opening constituting a firing chamber, as will appear hereinafter. The cylinder 24 furnishes a bearing for a sleeve 25 upon which is fixed the bevel gear 26. To one end of the sleeve 25 is fixed a dipper 27 made of spring metal and located in position to enter the powder magazine 16 through the opening 19. A guide plate 28 fixed in the casing 1 is arranged to be engaged by the dipper 27 and cause said dipper to curl into a tube of substantially the same diameter as the bore of the rifle barrel 2. The bevel gear 26 meshes with the bevel gear 29 fixed to a shaft 30, the other end of said shaft carrying a fixed ratchet wheel 31 and a gear 32 loosely mounted on said shaft and adapted to mesh with the rack 33 on the action rod 7. Said gear carries a spring-held pawl 34 arranged to engage the ratchet wheel 31.

The percussion caps or balls are contained in a magazine consisting of a tube 35 removably seated in a cylindrical opening 36 in the upper wall of the casing 1 and secured in place by a latch 35^a. A curved duct 37 connects the inner end of the opening 36 with the inner face of the casing wall and forms the outlet for the percussion caps or balls. The latter are held forward in the tube 35 and the duct 37 by a coiled spring 38 in the rear end of said tube.

The means for removing the powder from the dipper 27 to the firing chamber and for transferring a percussion ball from the percussion ball magazine to a point near the powder charge comprises a plunger 39 adapted to enter the dipper 27 and the firing chamber. Said plunger is reciprocated by the action rod 7, which has a bracket 40 fixed to its rear end, a stud 41 on said bracket lying within an elongated recess 40^a in said plunger. In the plunger 39 near its forward end is a recess 42 arranged to register with the end of the duct 37 and adapted to contain one percussion ball. An opening 43 connects the recess 42 with the space in front of the plunger.

A firing pin 44 is slidably mounted in the plunger 39 and normally held rearward by a spring 45. The forward end of the pin 44 is arranged to strike a percussion ball lying in the opening 42 and its rear end is arranged to be struck by the hammer 4.

The plunger is locked in its forward position by a breech lock 46 comprising two detents 47 pivoted in the casing 1 and adapted to receive between them the plunger 39 and the bracket 40. The detents tend to remain closed by the action of the spring 48.

The bracket 40 is provided with cams 49. As the grip 6 is drawn toward the operator the cams 49 spread the detents 47 before the stud 41 engages the plunger 39.

After loading the powder and bullet magazines and the percussion ball magazine the rifle is ready for use. The first motion of the grip 6, that of drawing said grip toward the operator, operates the mechanism as follows: The movement of the action rod 7 attached to the grip straightens the toggle lever 12, thereby lowering the projectile lifter 11 into register with the projectile magazines 9. The lifter then receives the projectile forced in by the spring 10. The rearward movement of the bracket 40 opens the breech lock, draws the plunger 39 rearwardly and cocks the hammer 4. The rack 33 drives the bevel gear 29, rotating the powder dipper 27 as the plunger 39 is withdrawn. When said plunger reaches the rearward position a percussion ball is forced into the recess 42 by the spring 38. Upon returning the grip to its original position the bullet lifter 11 is raised into the bore of the rifle, placing the bullet in position for firing, and the plunger 39 forces the powder ahead of it into the firing chamber and carries a percussion ball forward. When the trigger is pulled the hammer 4 strikes the rear end of the firing pin 44, exploding the percussion ball and the powder charge. The rifle may now be reloaded by a reciprocation of the grip 6. When desirable the firing chamber may be cleaned upon swinging the casing-section 1^a upwardly into the position indicated in dotted lines in Fig. 1.

It will be apparent to those skilled in the art that various mechanical embodiments of the invention are possible, and I therefore do not wish to be limited to the arrangement and construction shown.

I claim as my invention:

1. In a firearm, in combination, a bullet magazine; a powder magazine; a percussion-ball magazine; separate means for bringing a bullet, a powder charge and a percussion ball into firing position; and a rod reciprocable lengthwise of the firearm and operatively connected with all of said means.

2. In a firearm, in combination, a bullet magazine; a powder magazine; a percussion-ball magazine; a bullet lifter; a firing chamber; a powder dipper; and means for transferring the powder from said dipper to said firing chamber and for placing a percussion ball in firing position.

3. In a firearm, in combination; a bullet magazine; a powder magazine; a percussion-ball magazine; a firing chamber; means for placing a bullet in firing position; a powder dipper; and a plunger adapted to transfer powder from said dipper to said

firing chamber, said plunger being adapted to carry a percussion ball. 45

4. In a firearm, in combination, a firing chamber; means for placing a bullet in firing position; means for transferring powder from said powder magazine to said firing chamber, comprising a plunger adapted to carry a percussion ball; and a firing pin traveling with said plunger. 50

5. In a firearm, in combination, a bullet magazine; a powder magazine; a percussion-ball magazine; a reciprocable action rod; a bullet lifter arranged to be reciprocated by said rod; a powder dipper arranged to be rotated by said rod; and a plunger arranged to be reciprocated by said rod. 55

6. In a firearm, in combination, a firing chamber; a powder magazine; a means for removing powder from said magazine; a plunger for transferring powder from said removing means to said firing chamber; and a single means for actuating said powder-removing means and said plunger. 60

7. In a firearm, in combination, means for placing powder in firing position, comprising a reciprocable plunger; a breech-lock device adapted to engage said plunger; and means for reciprocating said plunger adapted to operate said breech-lock device. 65

8. In a firearm, in combination, a bullet magazine; a powder magazine; a percussion-ball magazine; a firing chamber; a bullet lifter; a powder dipper; a plunger adapted to carry a percussion ball; a firing pin slidably mounted in said plunger; a breech lock for said plunger; and a reciprocable action rod arranged to reciprocate said bullet lifter, rotate said powder dipper, open said breech lock, and reciprocate said plunger. 70

9. A firearm comprising a firing chamber, a powder magazine, a device for automatically selecting a determined quantity of loose powder and bringing a powder charge

into line with said chamber, and a plunger for advancing said charge into said chamber. 75

10. A firearm comprising a powder magazine, a firing chamber, means for automatically selecting and presenting powder to said chamber, a percussion-ball magazine having an outlet, and a plunger for placing the charge of powder in said chamber, said plunger having a recess therein adapted to contain a percussion ball and arranged to communicate with the firing chamber, said plunger being reciprocable past the outlet for said percussion-ball magazine. 80

11. A firearm comprising means for bringing a bullet into firing position, means for bringing a powder charge into alinement with the bullet, and means for moving said powder-charge into firing position adjacent to the bullet. 85

12. A firearm comprising a barrel, a bullet magazine directly below the barrel, powder and percussion-ball magazines behind said bullet magazine, bullet and powder handling devices located between said bullet magazine and powder magazine, and a reciprocable rod for actuating said handling devices, said rod having a handle located beneath said bullet magazine. 90

13. A firearm comprising a projectile magazine, a firing chamber, a member for carrying a projectile from said magazine to said chamber, means for selecting a powder charge and placing it in the rear of said projectile, an operating member reciprocable in a direction at right angles to the direction of movement of said projectile carrying member, and connections between said projectile carrying member and powder selecting means and the operating member. 95

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