Dec. 1, 1925. 1,564,014

J. D. PEDERSEN

FIREARM

Filed March 28, 1925

Fig.1

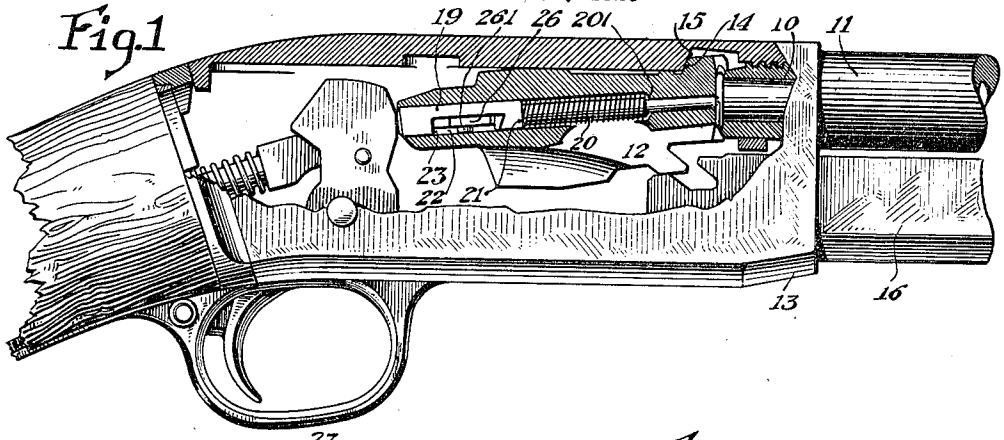



Fig.2

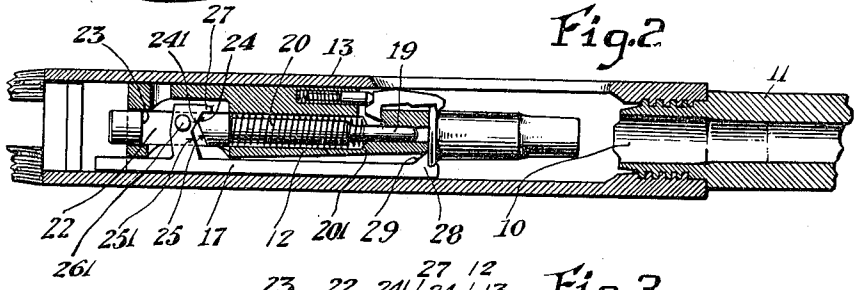



Fig.3

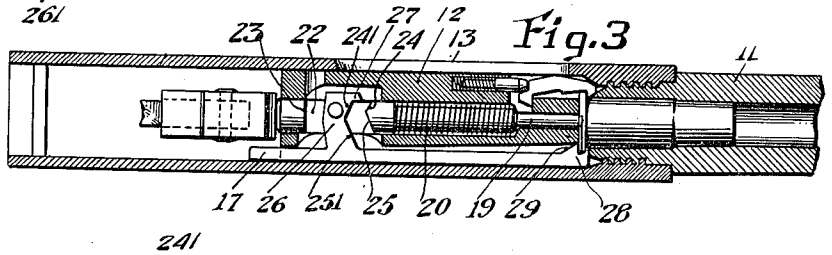



Fig.4

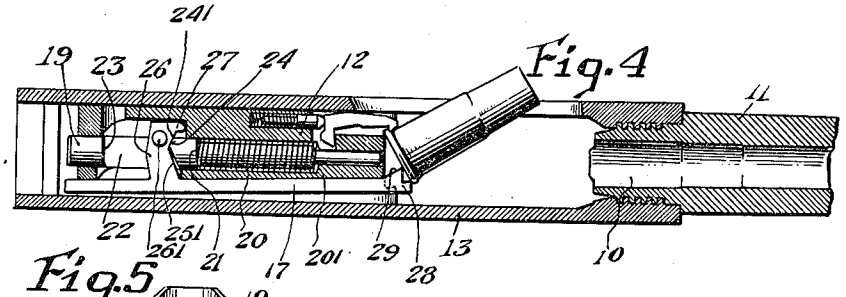
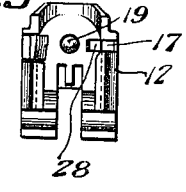



Fig.5




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# UNITED STATES PATENT OFFICE.

JOHN D. PEDERSEN, OF JACKSON, WYOMING.

## FIREARM.

Application filed March 28, 1925. Serial No. 19,055.

*To all whom it may concern:*

Be it known that I, JOHN D. PEDERSEN, a citizen of the United States, and resident of Jackson, in the county of Teton and State of Wyoming, have invented certain new and useful Improvements in Firearms, of which the following is a specification.

This invention relates to a firing mechanism for firearms and more particularly, to a firing pin and ejector construction designed as an improvement on the firing pin and ejector mechanism disclosed in the prior copending application of Crawford C. Loomis, Ser. No. 578,436, filed July 29, 1922.

The said application Ser. No. 578,436 discloses a firing pin and ejector mechanism comprising a firing pin which is located centrally of the breech block, and an ejector placed in the side of the breech block, these two members being retracted from engagement with the head of the shell in the chamber by a plunger which engages both said members and is moved rearwardly by a spring which is located between said members. The assembly is secured in place by a vertical pin engaging a suitable groove in the ejector. When this pin is removed the ejector, firing pin spring and plunger, and firing pin may be removed from the breech block in the order mentioned.

One object of the present invention is to simplify the firing pin and ejector mechanism by reducing the number of parts utilized in performing the firing and ejecting functions.

A further object of the invention is to provide a construction in which a spring which encircles the firing pin, is adapted to retract the ejector as well as the firing pin.

A further object of the invention is to provide a firing pin and ejector construction, the parts of which are effective to retain each other in place without the aid of pins, screws or other retaining members.

A further object of the invention is to provide a firing pin and ejector construction which may be assembled in and removed from the breech block, merely by relative movement of the part thereof, although retained in operative position when the breech block is assembled in the receiver.

A further object of the invention is to provide improved means for moving the forward end of the ejector inwardly, simultaneously with its longitudinal movement; this rocking movement of the ejector facilitating the ejection of light cartridge cases.

A further object of the invention is to provide improved means which resists the forward movement of the ejector but acts on a projection extending laterally from the ejector, whereby the ejector is given a pivotal movement simultaneously with its forward movement.

With these and other objects in view my invention consists in the novel combinations and arrangements of parts which are illustrated in the drawing and will be hereinafter described.

In the drawing, Fig. 1 is an elevation, partly in section of so much of a firearm as is necessary to show the application of my invention thereto.

Fig. 2 is an inverted horizontal section through the receiver and breech block of a firearm embodying my invention, the firing pin and ejector being shown in retracted position.

Fig. 3 is a view similar to Fig. 2, showing the firing pin pressed forward into engagement with the head of the shell by the hammer.

Fig. 4 is a view similar to Fig. 2, showing the position of the firing pin and ejector at the time the empty shell is ejected.

Fig. 5 is a front elevation of a breech block embodying my invention.

The chamber 10 at the rear end of barrel 11 is adapted to be closed by a breech block 12 which is mounted for vertical and longitudinal movement in the receiver or frame 13. The breech block is held in breech closing position by the engagement of recoil shoulder 14 thereon with the locking shoulder 15 on the receiver; and is adapted to be reciprocated longitudinally as well as moved into and out of locking engagement with the locking shoulder 15, by an action bar 16.

The breech block comprises a longitudinal recess adapted to receive an ejector 17, and a longitudinal bore adapted to receive a firing pin 19. A firing pin and ejector spring 20 encircles an intermediate section of the firing pin, bearing at its forward end against a shoulder 201 in the breech block, and at its rear end against a shoulder 21 on the firing pin. The firing pin comprises a notch or recess 22 which terminates at its rear end in a square shoulder 23, and at its forward end in the laterally receding shoulders 24 and 25.

Integral with the ejector 17 is a laterally extending foot 26 adapted to be received in

the slot 22. The forward face of this foot comprises the angularly disposed faces 241 and 251, the inclination of these faces being somewhat less than the inclination of the shoulders 24 and 25, whereby relative lateral movement of the ejector foot with respect to the firing pin is facilitated. A forward extension 27 at the end of the foot engages the side of the firing pin opposite the ejector when the parts are in their normal retracted position. (Fig. 2.) The ejector foot also comprises a short downwardly extending stud 261, whose end contacts with the floor of the breech block recess, thereby retaining the foot against downward displacement. The notch 22 in the firing pin is wider than the width of foot 26, whereby the firing pin is permitted to move forward independently of the ejector when struck by the hammer.

It will be seen that this construction retains both the firing pin and the ejector in the breech block, without the aid of screws, pins, or other securing devices. To assemble the mechanism in the breech block, the spring is placed on the firing pin, and the firing pin inserted from the rear end of the breech block. While the firing pin is held forward against the pressure of the spring the ejector is placed in its slot, the foot 26 passing thru the notch 22. The firing pin is then permitted to move rearwardly under the action of spring 20, the shoulders 24 and 25 engage the faces 241 and 251 on the ejector foot 26, and the ejector moves rearwardly until the rearward edge of foot 26 engages the end of the slot in the breech block. The forward extension 27 of foot 26 is now engaged by the side of the firing pin, thereby retaining the ejector in place. When the ejector is in its normal retracted position the cartridge head engaging lug 28 at its forward end is in contact with the inner edge of the ejector slot. The rearward edge of lug 28 is beveled to form a cam 29, which controls the pivotal movement of the ejector, occurring simultaneously with its forward movement.

The ejector is adapted to be operated when the breech block is retracted, by engagement with an abutment in the end of the receiver 13. In this operation the ejector not only moves forward, but as cam 29 passes forward out of the breech block, rotates about its rear end to the position shown in Fig. 4, owing to the fact that forward movement of the end of foot 26 is restrained by spring 20. The foot 26 moves laterally with respect to the firing pin to the position shown in Fig. 4. The point at which the parts associated with the spring 20 engage the foot 26 being removed some distance from the longitudinal axis of the ejector, a torque of considerable magnitude tending to rotate the forward end of the ejector inwardly is secured. An inward movement of the forward end of the ejector simultaneous with its forward movement is thus insured, and a positive ejection of the cartridge case is effected, even when the breech is opened very slowly.

The invention is not to be considered as limited to the precise form of the device which has been described and illustrated. For example, while in the drawings I have illustrated my invention as applied to a center fire gun, it is obviously applicable to rim fire guns as well. In this and in all respects the invention is to be construed as extending to all equivalent devices falling within the scope of the appended claims.

I claim:

1. In a device of the character described, in combination, a firing pin, an ejector, and a spring for retracting said ejector, said spring surrounding said firing pin.

2. In a device of the class described, in combination a firing pin, an ejector and a common spring for said firing pin and ejector, said spring surrounding said firing pin.

3. In a device of the class described in combination, a firing pin, an ejector, a spring surrounding said firing pin, and means including a part of said firing pin whereby said spring is effective to retract said ejector.

4. In a device of the character described, in combination a firing pin, a spring associated with said firing pin, an ejector, and means associated with said ejector adapted to engage a part of said firing pin, whereby said spring is effective to retract said ejector.

5. In a device of the character described, in combination a firing pin comprising a transverse slot, an ejector, and means associated with said ejector adapted to engage in said slot.

6. In a device of the class described, a firing pin, and an ejector adapted to be retracted by a spring surrounding the firing pin.

7. In a firearm, in combination, a breech block, a firing pin and an ejector mounted in said breech block and interengaging parts on said firing pin and said ejector normally effective to retain said firing pin and ejector in place in said breech block.

8. In a device of the character described, in combination, an ejector having longitudinal and rotary movements, a firing pin and means associated with said firing pin adapted to control the rotary movement of said ejector.

9. In a device of the character described, an ejector, means for moving said ejector forward, a firing pin, and means associated with said firing pin adapted to restrain the forward movement of a part of said ejector, thereby producing a rotation of the ejector.

10. In a firearm, in combination a breech

block adapted to contain a firing pin and an ejector, a firing pin and an ejector contained therein, and means comprising a part of said firing pin effective to retain said ejector in place in said breech block and to release said ejector for separate removal from said breech block by movement relative thereto.

11. In a firearm, in combination, a breech block adapted to contain a firing pin and an ejector, a firing pin and an ejector contained therein and releasable for removal therefrom by movement relative to each other.

12. In a firearm, in combination a breech block adapted to contain a firing pin and an ejector, a firing pin and ejector contained therein, and means whereby said ejector is released for removal from said breech block by movement of said firing pin relative to said ejector.

13. In a firearm, in combination a breech block, a firing pin and an ejector retained in said breech block, and means whereby movement of said firing pin relative to said ejector releases the ejector for removal from said breech block, and removal of the ejector releases the firing pin for removal from the breech block.

14. In a firearm, in combination a breech block, a slidable and rotatable ejector contained in said breech block and means for controlling the rotational movement of the ejector comprising a spring pressed foot extending laterally from said ejector, and a cam at the forward end of said ejector.

15. In a firearm, in combination a breech block, an ejector contained in a slot in said breech block, means for imparting a longitudinal movement to said ejector, means for rotating said ejector, simultaneously with its forward movement comprising a spring adapted to act on a lateral extension of said ejector, and means for controlling the rotational movement of said ejector comprising a cam at its forward end.

JOHN D. PEDERSEN.