

No. 695,485.

Patented Mar. 18, 1902.

H. H. PASSAGE.  
FIREARM.

(Application filed May 22, 1901.)

(No Model.)

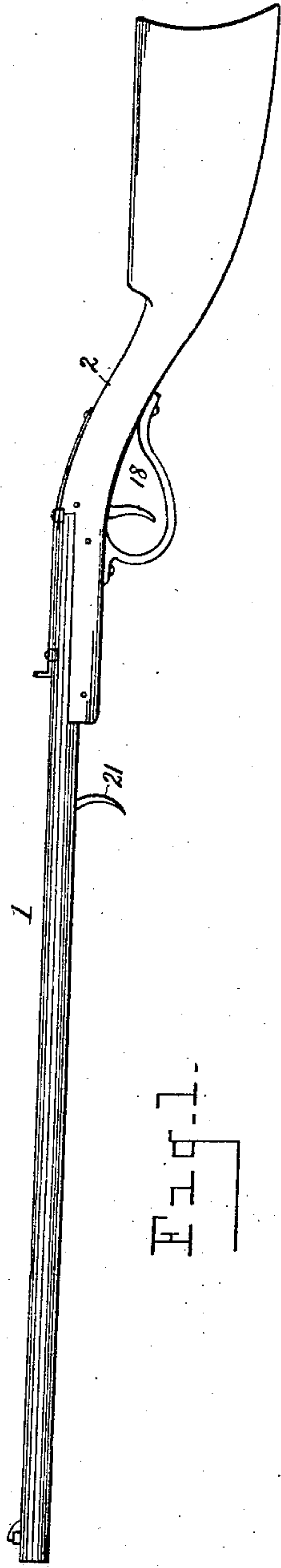


Fig. 1.

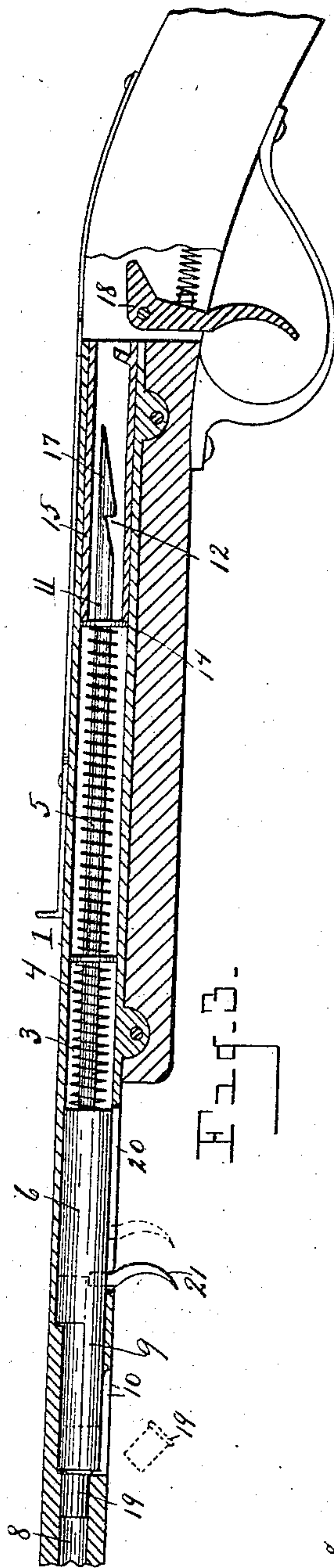


Fig. 2.

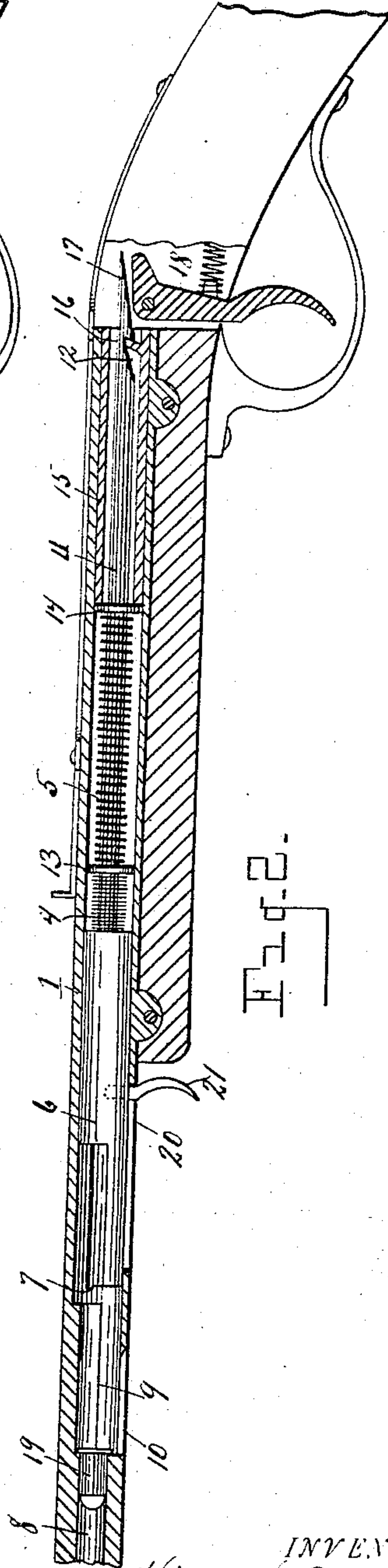


Fig. 3.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## FIREARM.

SPECIFICATION forming part of Letters Patent No. 695,485, dated March 18, 1902.

Application filed May 22, 1901. Serial No. 61,469. (No model.)

*To all whom it may concern:*

Be it known that I, HIRAM H. PASSAGE, a citizen of the United States, residing at Plymouth, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Firearms; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to firearms; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide means for automatically extracting the shell after the cartridge has been exploded by the force of the recoil, whereby the breech-bolt at the breech of the barrel is retracted sufficiently to allow the shell to be expelled by the pressure of the exploded charge within the barrel.

The above object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a gun embodying my invention. Fig. 2 is an enlarged longitudinal section through the gun-barrel, the propulsive, and the trigger mechanism, showing the position of the parts when the gun is cocked. Fig. 3 is a like view showing the position of parts at the instant of firing, the dotted lines illustrating the recoil of the breech-bolt and the expulsion of the shell from which the ball has been fired.

Referring to the characters of reference, 1 designates the barrel, which is suitably attached to the stock 2. The rear end of the barrel contains a receiver 3, adapted to confine the propulsive springs 4 and 5, which are located therein, as well as the reciprocating breech-bolt 6, adapted to reciprocate in said receiver and carrying the firing-pin 7 at its forward end. The breech-bolt 6 is adapted to close the bore 8 of the barrel, which carries the cartridge. In the under face of the barrel adjacent the breech of the bore 8 is a shell-chamber 9, having an exterior opening 10,

through which the shell may be entered for insertion into the breech end of the bore 8.

Projecting rearwardly from the breech-bolt 6 is a stem 11, whose rear end is provided with a notch 12. Surrounding said stem 11 are the coiled springs 4 and 5, the spring 4 of which is the weaker and is confined between the rear end of said bolt and a washer 13, which is slipped upon said stem and interposed between the springs 4 and 5 to afford a bearing for the opposed ends of each. The rear end of the spring 5 bears against a washer 14, through which the stem 11 passes and which abuts against the end of a tube 15, inserted in the rear end of the receiver and carrying at its rear end a projection 16, adapted to engage the notch in the rear of the stem 11 when the breech-bolt is retracted to compress the springs 4 and 5 and place the gun in a cocked position, at which time the rear end 17 of said stem projects into the path of the trigger 18, by the operation of which the stem is disengaged from the projection 16, allowing the springs to propel the breech-bolt forward and explode the cartridge 19, occupying the breech of the bore 8, as will be well understood.

Formed in the under face of the barrel is a slot 20, through which projects a finger-piece 21, whose inner end is attached to the breech-bolt 6 and through the medium of which said bolt may be retracted to compress the springs and cock the gun.

The spring 5 is the main propulsive spring, while the spring 4 is an auxiliary spring of weaker tension and occupies a position between the breech-bolt and the main spring. The purpose of the auxiliary spring is to allow the breech-bolt 6 to recoil slightly from the barrel 8 as the cartridge is exploded, thereby removing all pressure from the end of the shell of the cartridge and allowing the reaction of the gas in the bore 8 incident to the explosion of the cartridge to force the shell outward and eject it from the barrel, as shown by dotted lines in Fig. 3, whereby the shell is automatically extracted by the operation of discharging the gun, in which operation the spring 4 only yields sufficiently to allow the breech-bolt to recede from the path of the shell, but not sufficiently to re-



cock the gun, as the tension of the spring 5 is sufficient to prevent the breech-bolt receding but a limited distance.

In actual practice it has been found that 5 by means of the above arrangement the shell is automatically extracted from the gun by the force of the expanding gases within the barrel through the receding of the breech-bolt, due to the yielding nature of the spring 10 4, without perceptibly impairing the force of the charge.

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

15 1. In a sporting rifle, the combination of a barrel adapted to receive a cartridge, a receiver, a breech-bolt in said receiver normally contiguous to the end of the barrel, a stem extending rearwardly from the breech-bolt adapted to be engaged by the trigger, a 20 spring of comparatively weak tension engaging the rear of said breech-bolt and a spring of greater tension interposed between said first-mentioned spring and the rear end of 25 the receiver.

2. In a sporting rifle, the combination of a barrel having a bore for the cartridge, a breech-bolt carrying a firing-pin, means for driving the breech-bolt forcibly forward in the receiver to explode the cartridge and a 30 spring for allowing a slight recoil of said breech-bolt as the cartridge is exploded.

3. In a sporting rifle, the combination of a barrel, a receiver, a reciprocatory breech-bolt carrying a firing-pin, a stem projecting rear- 35 wardly from said breech-bolt adapted to be engaged by the trigger, a spring of strong tension surrounding the stem of said breech-bolt and a spring of less tension mounted upon said stem and interposed between the 40 end of the breech-bolt and the end of said first-mentioned spring, and means for holding said springs so as to apply tension thereto as the breech-bolt is retracted.

In testimony whereof I sign this specifica- 45 tion in the presence of two witnesses.

HIRAM H. PASSAGE.

Witnesses:

E. S. WHEELER,  
C. E. JOSLIN.