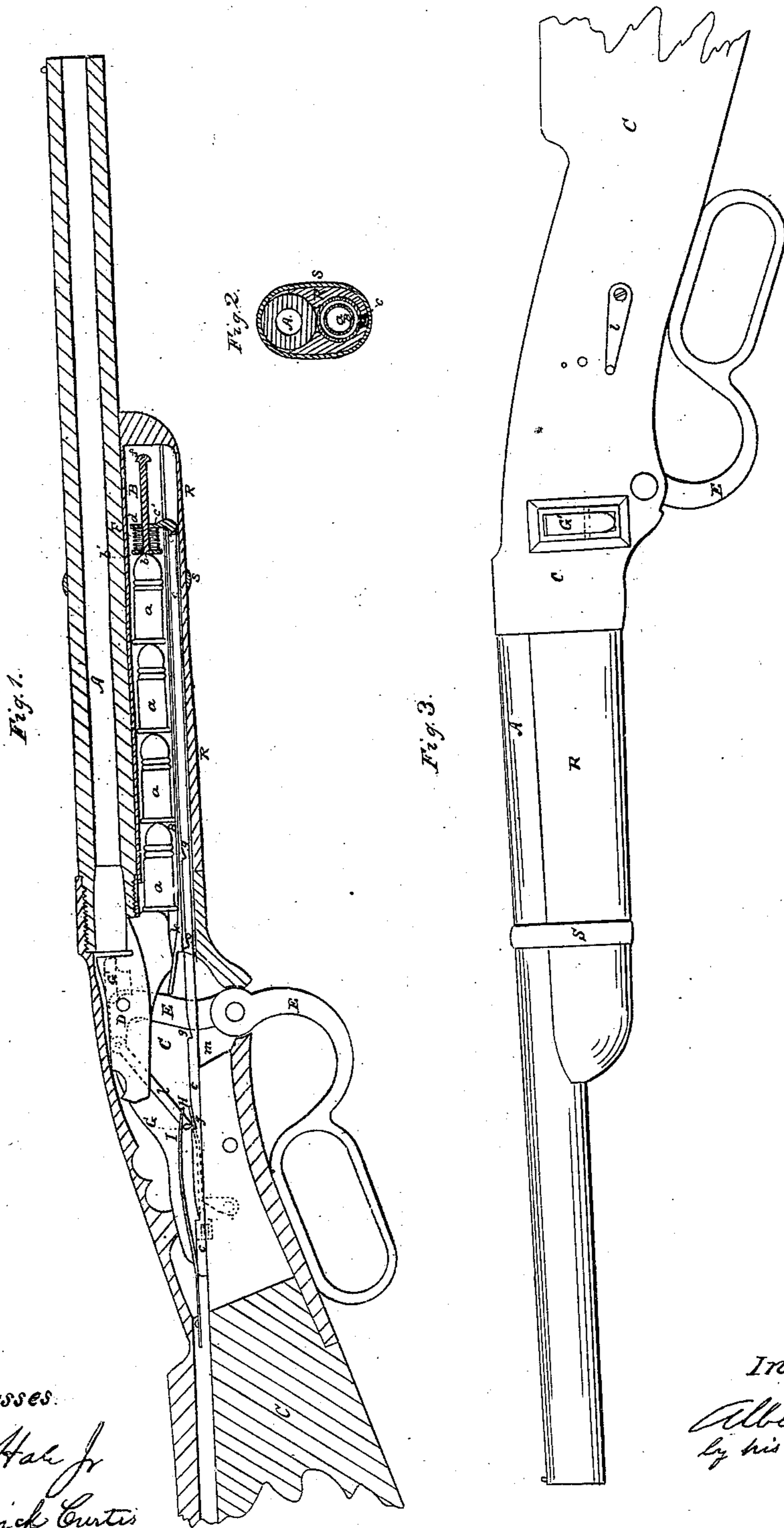


A. BALL.
Breech-loading Fire-arm.

No. 43,827.

Patented Aug. 16, 1864.



Witnesses:
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UNITED STATES PATENT OFFICE

ALBERT BALL, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN SELF-FEEDING BREECH-LOADING FIRE-ARM.

Specification forming part of Letters Patent No. 43,827, dated August 16, 1864.

To all whom it may concern:

Be it known that I, ALBERT BALL, now or late a resident of the city and county of Worcester, and State of Massachusetts, have invented an Improvement in Repeating Fire-Arms which Load at the Breech; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a longitudinal section of a fire-arm provided with my invention. Fig. 2 is a transverse section taken through its magazine-cover. Fig. 3 is a side view of it.

The fire-arm on which my present invention is based has a tubular magazine arranged underneath and alongside of its barrel. With this magazine a charging-carriage is employed to receive the cartridges and introduce them successively into the rear end or charge-chamber of the barrel. The charging-carriage of this fire-arm and its mode of operation are essentially like those of the fire-arm on which Letters Patent No. 38,935, and dated June 23, 1863, have been granted to me.

My invention consists in a new mechanism for retracting the cartridges or drawing them out of the magazine and into the charging-carriage, as circumstances may require, the said mechanism consisting of a rack-bar, a spring or spring-presser, and certain impelling and retaining pawls, arranged together and operating as hereinafter described; also, in the combination of a pawl-elevator with the pawls, and the rack-bar, and spring-presser; also, in the combination of a magazine-cover and its band or connection with the magazine and the barrel; also, in the arrangement of the pawl-spring with reference to the two pawls.

In the drawings, A denotes the barrel, and B the tubular magazine, of the fire-arm. C is the stock; D, the charging-carriage; E, trigger-guard lever, by which the said carriage is operated, and G' the device for expelling a cartridge-shell from the cartridge-carriage.

The cartridges are represented at *a a a a* as arranged within the magazine in line with one another, and in rear of a helical spring-presser, F, placed within the magazine and supported at the front extremity of a notched or rack bar, *c*, which extends from the lock case or chamber *m* into the magazine, as shown in Fig. 1. This spring-presser consists of a double-headed slider, *b*, and a spring, *c'*, en-

veloping it, and arranged between the larger head *b'* of the slider and a projection, *d*, from the rack. The rod of the slider plays freely through the projection *d*, and is furnished with a smaller head, *f*, which is in advance of the projection *d*, and serves to keep the presser F in connection with the rack-bar.

The said rack-bar is notched, as shown at *g g*, the distance between each two next adjacent notches being equal to the length of a cartridge. Furthermore, the presser F is in length about equal to that of a cartridge.

Two pawls, G H, act on the upper edge of the rack-bar, and with its notches, they (the said pawls) being pressed upon the bar by the force of a spring, I, which presses on the two pawls, and is fastened at its rear end to the stock. One of these pawls is a retaining and the other an impelling pawl. The latter, which is exhibited at G, is jointed to the shorter arm of the lever E, and consequently is operated by such lever during its movements.

While the longer arm of the lever is in the act of being forced downward, the impelling-pawl will be pressed against a notch of the rack-bar, and will cause such rack-bar to be moved backward the length of a cartridge, the retaining-pawl, by taking into another notch, serving to prevent any advance of the rack-bar. The spring-presser during the rearward movement of the rack-bar should be contracted, so as to press with elastic force against the next adjacent cartridge, and so as to press the range of cartridges backward against the cartridge-carriage. Under these circumstances, and as soon as a cartridge-shell may have been withdrawn from the barrel and expelled laterally from the cartridge-carriage, the rearmost cartridge of the series in the magazine will, by the action of the spring-presser, be suddenly forced back on an inclined guide or plane, *k*, and from thence into the seat or recess of the cartridge-carriage.

A lever, *l*, is applied to the stock, and so as when turned in one direction it will press upward the retaining-pawl, which at the same time will elevate the impelling-pawl, the said lever serving to raise the pawls out of action with the rack-bar, in order that the latter may be drawn out of the magazine.

As the magazine has a slot extending through it lengthwise, and for reception of the rack-bar, it becomes desirable to have the

slot protected from dirt or extraneous matters, which, getting into the magazine, might effect the proper movements of the cartridges. For this purpose I cover the magazine by a wooden cover, slider, or shoe, R, so adapted to the magazine as to slide on it and be held to it and the barrel by a band, S, going around the two. This cover not only protects the magazine from dust, but from becoming indented or otherwise injured.

Another mode in which I have contemplated the application of the pawls to the rack-bar and its spring-presser is to hinge the pawls to the latter when it is separate from the rack-bar, the teeth of the rack-bar being arranged nearer its front end, and so that the pawls may work in them. In this case the rack-bar is to be connected with the trigger-guard lever by a connecting-rod, which, when the lever is moved, will produce a movement of the bar longitudinally of it.

I claim as my invention—

1. The combination of the rack-bar *c*, the

spring-presser F, or its equivalent, and the impelling and retaining pawls G H, the whole being applied to the magazine B and the trigger-guard lever E, and so as to operate together and with the charging-carriage, substantially as specified.

2. I also claim the combination of the pawl-elevator *l* with the pawls G H, and the rack-bar *c*, and spring-presser F, when applied to a magazine, B, and trigger-guard lever E, substantially in manner and so as to operate as specified.

3. I also claim the arrangement of the pawl-spring I with reference to the two pawls G H, whereby it is caused to operate both of them.

4. I also claim the combination of the magazine-cover R and its band or attachment S with the separate tubular magazine B and the barrel A.

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Witnesses:

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