

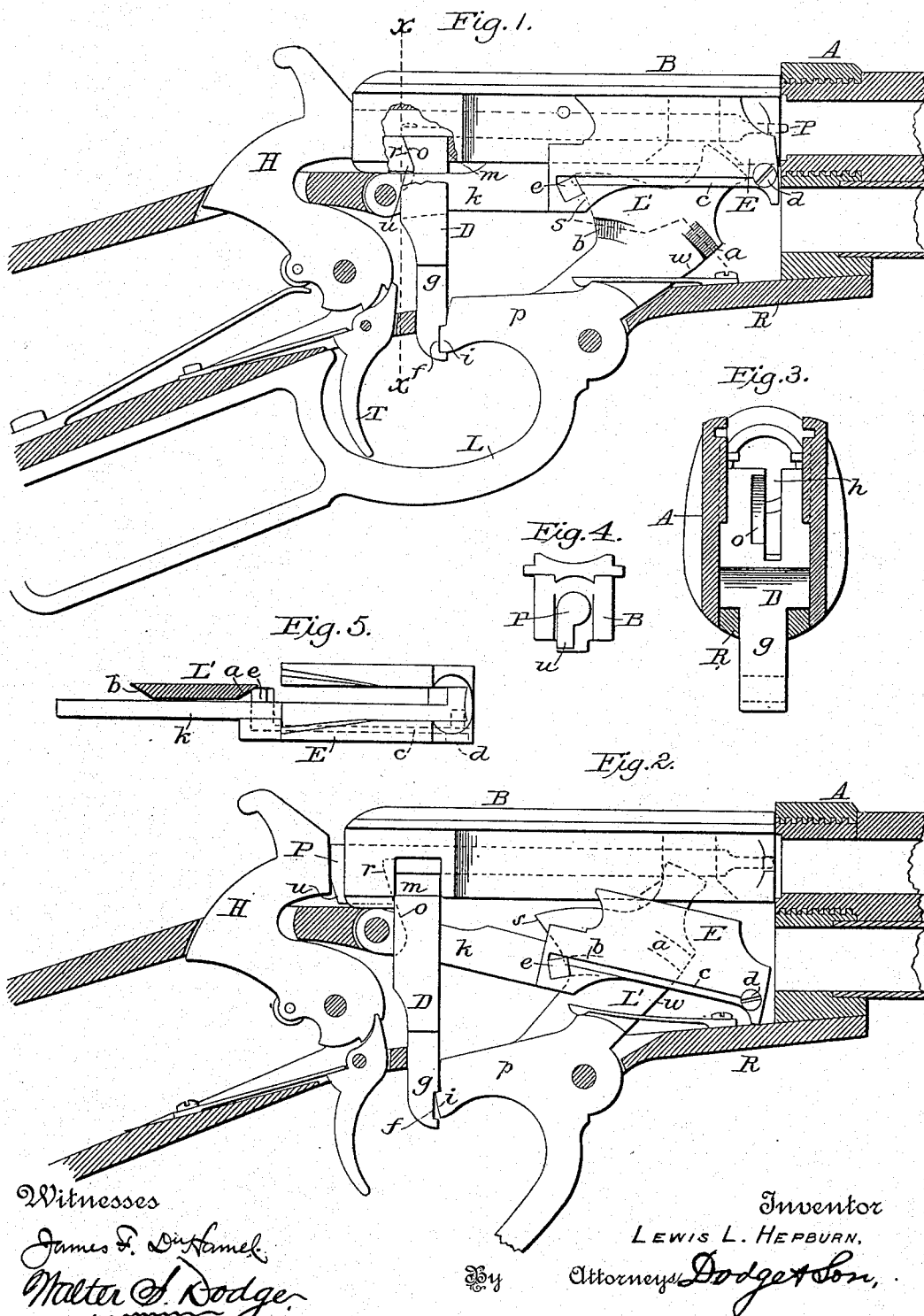
(No Model.)

L. L. HEPBURN.

MAGAZINE GUN.

No. 371,455.

Patented Oct. 11, 1887.



UNITED STATES PATENT OFFICE.

LEWIS L. HEPBURN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
MARLIN FIRE ARMS COMPANY, OF SAME PLACE.

MAGAZINE-GUN.

SPECIFICATION forming part of Letters Patent No. 371,455, dated October 11, 1887.

Application filed June 13, 1887. Serial No. 241,160. (No model.)

To all whom it may concern:

Be it known that I, LEWIS L. HEPBURN, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Magazine-Guns, of which the following is a specification.

This invention relates to magazine-guns; and the invention consists in certain details of construction and combinations of parts, as hereinafter more fully described.

Figure 1 is a side elevation of the breech portion of the gun with the front removed to show the mechanism. Fig. 2 is a similar view showing the parts in a different position. Fig. 3 is a transverse vertical section on the line *x x* of Fig. 1, looking from the rear forward. Fig. 4 is a rear end elevation of the breech-block and firing-pin detached from the arm, and Fig. 5 is a top plan view of the carrier detached with the operating-lever in section.

This gun is of the same general character as those for which Patents Nos. 298,377 and 354,059 were heretofore granted to me, but differs therefrom in certain features and modes of operation, which I will now proceed to describe.

The frame or receiver A and the sliding breech-block B are essentially the same as in my former patents, except as to the means for locking the breech-block closed. In this as in the former patents the breech-block is moved to and fro by the projecting end of an arm, *L'*, of the guard-lever L, said arm *L'* engaging in a recess in the side of the breech-block B, the same as in Patent No. 354,059 and as shown in dotted lines in Figs. 1 and 2.

Instead of locking the breech-block closed by a pivoted brace, as before, I now lock it by means of a vertically-sliding block, D, as shown in Figs. 1 and 2, there being a recess or notch, *m*, cut in the under side of the breech-block for the upper end of block D to engage in when the breech is closed, as shown in Fig. 1. This block D works up and down in grooves cut on the inner walls of the receiver A, as shown in Fig. 3, and has a central stem, *g*, which projects downward through a slot in the guard-strap R, with which a rearwardly-projecting arm, *p*, of the lever L engages, as shown in Figs. 1 and 2, to raise and lower it. As shown in said figures, the stem *g* has a recess, *f*, in

its front face, near its lower end, and the arm *p* of the lever has a corresponding projection, *i*, arranged to engage in said recess, as shown in Fig. 1, so that when the lever is moved it will move the block D also, the relative arrangement of these parts being such that when the lever is thrown down the projection *i* (which moves in the arc of a circle, while the block D moves in a right line) will be disengaged from the stem *g* or its recess *f* as soon as the block D has been drawn down far enough to draw its upper end out of the notch *m* in the breech-block, after which the motion of the lever L can be continued as is necessary to move back the breech-block and depress the cartridge-carrier E, the parts *i* and *g* being shown at the point of disengagement in Fig. 2. The reverse movement of the lever L will of course cause these parts to engage again as soon as the lever has moved far enough to shove the breech-block forward, and then the last part of the movement of the lever will raise the block D, causing it to enter the notch *m* and thus lock the breech-block closed, as shown in Fig. 1.

The block D has a central vertical slot, *h*, in its upper end to permit the rearwardly-extended arm *k* of the carrier E to pass through, said arm *k* being pivoted to the solid abutment of the receiver just in rear of the block D, as shown in Figs. 1 and 2, this slot *h* being of such a depth that when the carrier E is raised to the position shown in Fig. 1 it will be held up by the block D, the arm *k* at such time resting on the block at the bottom of the slot.

At one side of the slot *h* a recess, *o*, is cut to form an incline on the rear face of the block D, as shown in Figs. 1, 2, and 3, and the firing-pin P, as shown in Fig. 4, is provided with a depending projection, *u*, the front face, *r*, of which is correspondingly inclined, as shown in Fig. 1 and by dotted lines in Fig. 2, so that when the block D is drawn down after firing, or to open the breech, the incline *o* on the block D, operating on the incline *r* of the firing-pin, will retract the latter at the first part of the movement in opening the breech. As the block D is never drawn entirely below the projection *u* of the firing-pin, it will be impossible to drive the pin forward while the block is

down or the gun unlocked. The inclination of the surfaces *o* and *r* must of course be sufficient to afford the necessary movement of the firing-pin when the block *D* is raised to its full extent. By this arrangement the gun is rendered safe against a premature discharge, even if the trigger should be struck by accident in closing the lever, or otherwise; and by this arrangement I am also enabled to dispense with the pivoted lever or incline shown in my former patents for retracting the firing-pin.

I have also devised a new method or means for operating the cartridge-carrier *E*. In the first place I make a hole transversely through the carrier *E* and seat therein loosely a pin, *e*, so that it will be free to move endwise to and fro, as shown in Fig. 5, this pin being held in its seat by the end of a flat spring, *c*, resting in a notch in the side of the pin, the spring itself being seated in a recess made along one side of the carrier, as shown in Figs. 1 and 2, and held in place by a screw, *d*, at its opposite end. The spring *c* is so curved or set as to normally cause one end of the pin *e* to project beyond the face of the arm *k* of the carrier, as shown in Fig. 5. The arm *L'* of the hand-lever is widened about midway between its upper end and the pivot on which it turns, as shown in Figs. 1 and 2, its front edge, *w*, being nearly straight, with a slight backward inclination as it approaches the extremity of the widened portion, while its rear edge is inclined, so as to form an inclined or cam-shaped surface, *s*, which, when the gun is closed and the carrier raised, will bear against the front inclined surface of the pin *e*, this latter being set with its surfaces arranged diagonally to the axial line of the carrier, as shown, so that its front and rear sides will present inclined surfaces for the arm *L'* to work on.

It is obvious that the pin *e* may be round instead of square, the square one being preferred simply because it presents a larger wearing-surface. On the side of the arm *L'* which is next to the arm *k* of the carrier I make two lateral inclines, *a* and *b*, as shown in Figs. 1, 2, and 5, the incline *a* on the front being at such a height that it will be in line with the projecting end of the pin *e* when the carrier is raised, and the incline *b* at the rear side lower down, so it will be in line with pin *e* when the carrier is down, as shown in Fig. 2. The inclined edges *s* and *w* are located at the proper height to strike against and operate on the inclined faces of the pin, but on opposite sides, as the lever is moved to and fro.

The operation of these parts is as follows: Suppose the gun to be closed, as shown in Fig. 1, and in which case the extremity of the rear inclined edge *s* will be in front of the upper inclined front face of the pin *e*. Now by throwing down the hand-lever *L* the inclined edge *s* of the arm *L'* will press against the upper front face of pin *e*, and thereby force the carrier down, and by the time it is entirely down the arm *L'* and the carrier will have been so moved as to bring the lateral incline *b*

opposite the end of the pin *e*, and then as the arm *L'* continues its movement this incline *b*, acting against the end of the pin *e*, will force it back into its seat and thus permit the arm *L'* to move past the pin *e*, so that when the lever *L* has been thrown entirely down the front edge, *w*, of the arm *L'* will be just in rear of the pin *e*. Now by reversing the movement of the lever the front edge, *w*, of the arm *L'* (which had been by the former movement thrown over back, and therefore is slightly inclined backward) will act against the lower rear inclined face of pin *e*, thereby raising the carrier, and when it is fully raised the lateral incline *a* will have been brought opposite the end of the pin *e*, and acting thereon will shove it back into its seat and permit the arm *L'* to move forward past it, so that when the gun is closed the arm *L'* will again be in front of the pin, as shown in Fig. 1, or as it was at the beginning of the operation. This makes an exceedingly easy and smooth operating mechanism. The parts are few and strong, and can be manipulated quickly and with little effort.

While I have shown and prefer a flat spring for operating the pin *e*, it is obvious that a spiral spring may be used by seating the spring in a recess around the pin and forming a shoulder on the latter, or by placing the spring in rear of the pin and closing the hole under or behind the spring. So, too, it is obvious that the parts may be reversed—that is to say, the yielding pin may be secured to the arm *L'* and the inclines *s* and *w* be formed at the proper points on the carrier; but that would be a mere inversion of the parts, and would not be so easy to construct or arrange, and hence I prefer the plan shown.

I am aware that a gun has been patented in which the breech-block is held closed by a vertically-moving block which is shoved up in rear of the breech-block, the upper end of the locking-block being bifurcated, so as to straddle the firing-pin in rear of the breech-block, and I do not claim such a construction; but

What I do claim is—

1. The combination, in a magazine-gun, of the reciprocating breech-block *B*, provided with the recess or notch *m* on its under side, and the vertically-movable block *D*, provided with the rigid stem *g*, and the pivoted lever *L*, provided with the arms *L'* and *p*, all constructed and arranged to operate substantially as shown and described.

2. In combination with the vertically-sliding block *D*, provided with the incline *o*, the firing-pin *P*, provided with the projection *u*, having its front face provided with the incline *r*, and the pivoted lever *L*, said parts being arranged to operate as described, whereby the firing-pin is retracted by the movement of block *D* in the act of unlocking the breech-block.

3. The combination of the firing-pin *P*, provided with the projection *u*, and the vertically-sliding locking-block *D*, the abutting

faces of said projection *u* and block D being inclined, as shown, whereby when the breech is closed sufficient space is left between these inclined abutting faces to permit the movement of the firing-pin necessary to ignite the charge, and when the locking-block is drawn nearly out of the recess in the breech-block the firing-pin is prevented from moving forward, as and for the purpose set forth.

10 4. In combination with the pivoted carrier E, the slotted locking-block D and operating-lever L, said block D being arranged to bear against the under side of the carrier and hold it up when the gun is closed, as set forth.

15 5. The pivoted carrier E, provided with the spring detent or pin *c*, in combination with the lever L and arm L', the latter being provided with the opposite inclined edges *s* and *w* and the lateral inclines *a* and *b*, all ar-

ranged in relation to each other substantially 20 as shown and described, for operating the cartridge-carrier.

6. The combination, in a magazine-gun, of the reciprocating breech-block B, the slotted and vertically-sliding locking-block D, the 25 pivoted carrier E, provided with the spring-detent *c*, and the pivoted lever L, provided with the arm *p* and the arm L', the latter having the inclined edges *s w* and the lateral inclines *a b*, all being constructed and arranged 30 for joint operation substantially as herein shown and described.

In witness whereof I hereunto set my hand in the presence of two witnesses.

LEWIS L. HEPBURN.

Witnesses:

C. F. DEMMER, §

J. LAWLOR.