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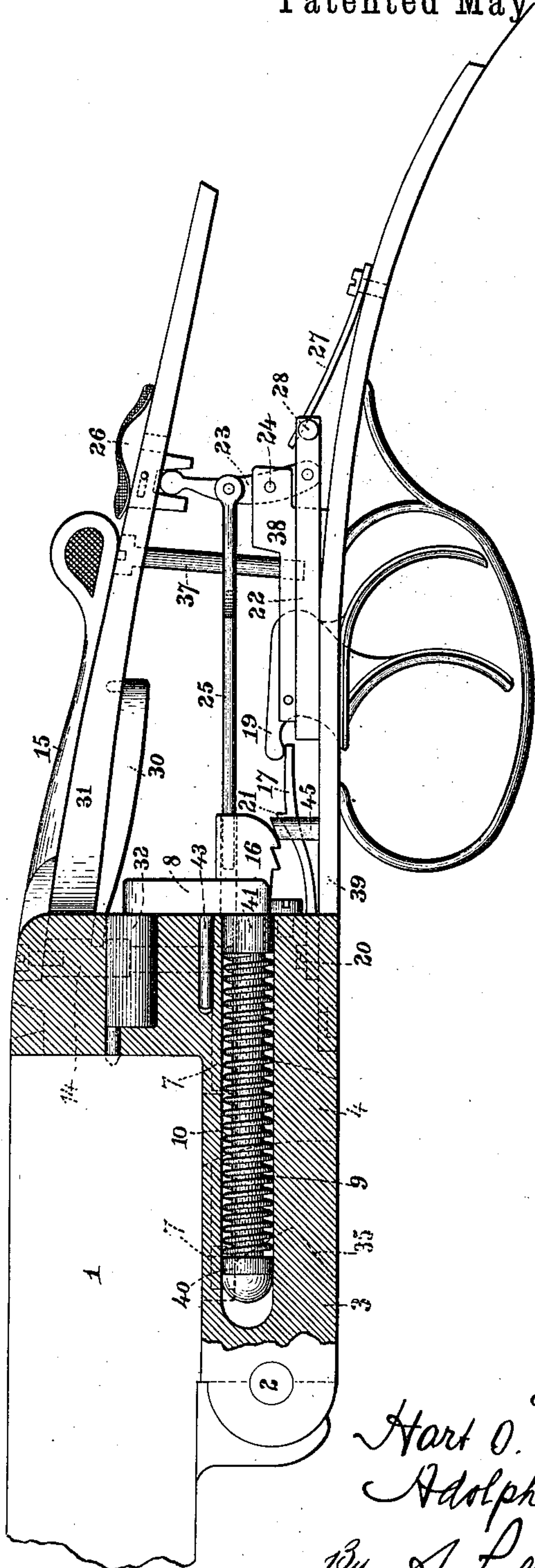
H. O. BERG & A. DECORTIS.

CONCEALED HAMMER GUN.

No. 363,577.

Patented May 24, 1887.

FIG. 1.



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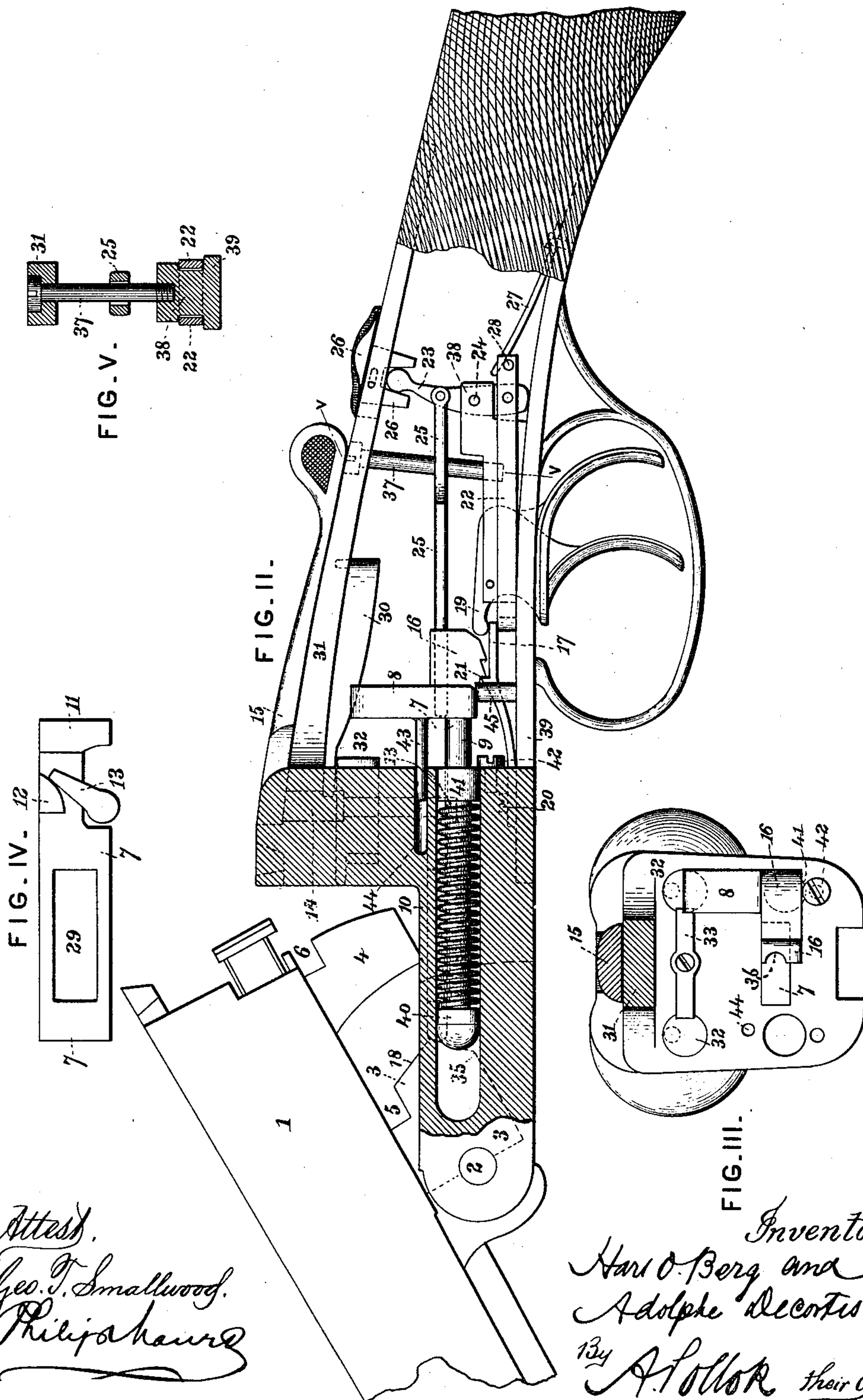
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UNITED STATES PATENT OFFICE.

HART O. BERG, OF BRICK CHURCH, NEW JERSEY, AND ADOLPHE DECORTIS,
OF CHARATTE, LIEGE, BELGIUM.

CONCEALED-HAMMER GUN.

SPECIFICATION forming part of Letters Patent No. 363,577, dated May 24, 1887.

Application filed February 10, 1887. Serial No. 227,134. (No model.) Patented in Belgium November 2, 1886, No. 75,081.

To all whom it may concern:

Be it known that we, HART O. BERG, of Brick Church, Essex county, New Jersey, and ADOLPHE DECORTIS, of Charatte, Province of Liege, Belgium, have invented a new and useful Improvement in Hammerless Guns, which improvement is fully set forth in the following specification.

This invention has reference to the construction of breech-loading small-arms, and more particularly to the so-called "hammerless guns."

The object of the invention is to improve in several respects the action of the gun with a view to securing greater simplicity, cheapness of manufacture, and less liability to get out of order.

In guns of this class many different devices have been contrived whereby the cocking of the gun is effected by the dropping down of the barrels to remove the exploded cartridge. Guns of this class have also been contrived in such way that the dropping down of the barrel raises the hammer to half-cock, and the cocking is completed by the return movement of the barrels to their normal position.

According to the present invention the hammers are half-cocked by the key when the latter is turned to withdraw the bolt and permit the dropping down of the barrels, the hammer being in contact with the end of the bolt, and the hammers are carried to full-cock by the dropping down of the barrels, an incline or cam surface on the forward lump acting against the end of the bolt, pushing the latter to the farthest limit of its motion. The hammer is carried on a rod encircled by a spiral spring, which constitutes the mainspring of the gun. When the rod is pushed back by the action of the lump and bolt, the spring is compressed, and is thereby put in operative position for firing. This use of a spiral spring as the mainspring of the gun constitutes a special and important feature of our invention. One great advantage attending its use is that in case of breakage it is a simple matter to remove the spring and replace it with another. In the ordinary construction of gun-actions the replacing of a broken mainspring is a difficult and expensive matter.

In the present invention the sear is a leaf-spring screwed at one end to the trigger-plate and having a detent for engagement with the notches of the tumbler near its free end. In firing, the trigger depresses the sear, releasing the hammer. In cocking the gun a rod in contact with the bolt is pushed back. This rod, acting through an intermediate lever, forces a sliding block under the sear, which prevents the latter being depressed to release the hammer. The dropping down of the barrels therefore cocks the gun and automatically locks the sear in a position of safety. Connections are also provided for locking and releasing the sear by hand. This construction of the sear and safety mechanism is simple and effective. In ordinary gun-actions the sear is a pivoted piece under the influence of a spring. In the present invention the pivoted piece is dispensed with. The repeated lifting of the sear-spring by the sliding bar tends to prevent loss of resiliency of the spring, and therefore increases its durability.

The forward lump, which acts upon the bolt to cock the hammer, has two cam-faces inclined in opposite directions. The object of the second or lower cam-face is to act upon the bolt and push it back in order to replace the barrels when the latter have been removed entirely from the stock, as for purposes of transportation. Only the upper cam-face acts upon the bolt in the ordinary operation of dropping down the barrels and cocking the hammers.

In the accompanying drawings, which form a part of this specification, Figure I is a side view, partly in section, of a gun constructed in accordance with the invention; Fig. II, a similar view, the barrels being dropped down; Fig. III, a rear view of the break-off, one of the hammers being removed; Fig. IV, a detail view of the bolt and key inverted, and Fig. V a cross-section on line V, Fig. II.

The barrels 1 of the gun turn on the journal-pin 2, the bearing being in the front side of the forward lump, 3, as usual. The lumps 3 4 have each a recess, 5 6, into which the edges of the bolt 7 slide when the barrels are locked. The slot 29 in the bolt is for the passage of the lump 4. This bolt slides freely in a recess in

the break-off, and its rear end (shown in Fig. III) is in contact with the hammers 8, (only one of which is shown in the drawings.) The hammer 8 is carried by a rod, 9, which slides in a hole in the break-off. Around this rod is coiled a spiral spring, 10, which constitutes the mainspring. The bolt 7 has on its under side projections 11 12. (See Fig. IV.) In contact with projection 11 is a key, 13, on the lower end of a shank, 14, to the top of which is screwed a hand-lever, 15.

As shown in Fig. I, the locking-edges of the bolt are in the recesses 5 and 6 of the lumps 3 and 4, and the barrels are therefore locked in place. When the key 13 is turned by the hand-lever 15, as in Fig. II, it presses against the projection 11 of the bolt 7 and withdraws the latter from the recesses 5 and 6. By the same motion the rear end of the bolt, acting against the hammer 8, withdraws the latter sufficiently for the first notch of the tumbler 16 to be engaged by the sear 17. The gun is then at half-cock, the mainspring being but slightly compressed. The front edge of the bolt 7 is now in a position to be acted upon by the incline or cam-surface 18 of the forward lump, 2, and as the barrels are dropped down this cam-surface gradually pushes back the bolt, and consequently the hammer also, until the parts assume the position shown in Fig. II, the hammer 8 being then at full-cock.

The mainspring 10 bears at its forward end against the collar 40, fixed on the end of the rod 9, and at its rear end against the loose collar 41. The latter is held in the recess by the head of screw 42. Thus, when the rod 9 is pushed back, the collar 41 remains stationary, being held by the head of screw 42, whereby the mainspring is compressed. The hammer and mainspring can be readily removed, if desired, by taking out the holding-screw 42.

Above the rod 9 is a small guide-rod, 43, attached to the hammer 8. This rod 43 works in a hole, 44, in the break-off. (Shown in Fig. III.)

The sear 17 is a leaf-spring screwed at 20 to the trigger-plate 39, and having near its free end a catch or detent, 21, which engages the notches in the tumbler 16. The sear projects backwardly, and the forward end of the trigger 19 bears directly upon it, so as to depress the sear to release the hammer and discharge the gun.

The upright pin 45, fixed to the trigger-plate, bears at its upper end against the under side of the tumbler 16. When the sear is depressed by the trigger, there is a tendency to draw the tumbler down with it, and thus cause the gun to hang fire. The pin 45 acts as a stop and prevents such movement of the tumbler, causing it to be promptly released when the sear is depressed. In dropping down the barrels the sear is automatically locked in a position of safety.

A sliding bar, 22, is arranged on the trigger-plate 39 in such position that its forward

end can slide under the sear, locking the latter in place. This bar is slotted (see Fig. V) so as to embrace the stationary block or lug 38, in which the triggers 19 are pivoted. To the rear end of sliding bar 22 is pivoted a lever, 23, fulcrumed at 24 in the block 38. To this lever, on the other side of the fulcrum, is pivoted a rod, 25, which is slotted near its end for the passage of the fastening-screw 37. This rod 25 projects forward between the hammers sufficiently far to be struck by the bolt 7 before it reaches the backward limit of its motion under the influence of the cam 18.

As shown in Fig. III, the hammers have grooves 36 for the passage between them of the rod 25. When the rod 25 is thrown back by the movement of the bolt 7, the lever 23 is thereby operated to push the end of the bar 22 under the sear, as shown in Fig. II. The upper end of lever 23 is embraced by the forked end of slide, 26, whereby it can be operated by hand to either lock or unlock the sear.

A light spring, 27, engages a pin, 28, on the bar 22, bearing with sufficient pressure to prevent the accidental movement of the latter.

When the barrels are raised again into their normal position, the bolt 7 is automatically thrown into engagement with the lumps by the action of a spring, 30, screwed at one end to the tail-piece 31 and at the other entering a notch in the shank 14 of key 13. When the handle 15 is moved to one side, it turns against the pressure of the spring 30; hence the latter tends to return it to its normal position as soon as the bolt is free from contact of the cam 18.

As clearly shown in Fig. IV, the key 13 always has a bearing on the bolt 7, by reason of the projections 11 and 12, so that in case of failure of the mechanism to act properly the bolt can always be thrown by hand by means of the key and its operating handle 15.

The striker-pins 32 slide freely in holes in the break-off. They are held in place and their motion limited by a holding piece or bar, 33, let into a groove in the break-off and fastened by a screw. The ends of the bar 33 extend a short way into the holes provided for the striker-pins, the shanks of the latter being cut away for a short distance from their rear ends sufficient to permit the requisite longitudinal movement.

The forward lump, 3, of the gun, in addition to the cam-surface 18, has a second cam-surface, 35, beneath the former and inclined in the opposite direction. In the ordinary action of the gun this cam performs no function. When, however, the barrels have been removed entirely from the stock, as for convenience in packing for transportation, and it is desired to put the parts together again, the bolt 7 has to be pushed back to its farthest limit against the pressure of both mainsprings. This would be very difficult but for the second incline or cam-surface, 35, on the lump, which performs

the same function in throwing back the bolt as does the cam 18 when the barrels are dropped down.

In describing the action reference has been made to but a single hammer, mainspring, and other parts; but it will of course be understood that the mechanism for the other barrel is a duplication of that described.

It will further be understood that parts of the invention may be used without the whole, and that modifications may be made in details of construction without departing from the spirit of the said invention.

Having now described our said invention and the manner of carrying the same into effect, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with the hammer, of the locking-bolt having its rear end in contact with said hammer, and the forward lump having a cam-surface on its rear side, which acts on said bolt when dropping down the barrels to force it back, and thereby cock the hammer, substantially as described.

2. In a drop-down gun, the combination of the barrels, the lump having a cam-surface, the locking-bolt in contact at its forward end with said lump and adapted to be retracted by said cam in dropping down the barrels, the hammer in contact with the rear end of said bolt and carried by a sliding rod, and the spiral mainspring encircling said rod, substantially as described.

3. The combination of the barrels, the lump or lumps having a locking recess or recesses, the sliding bolt, the hammer in contact with the rear end of said bolt, the key engaging said bolt and adapted to withdraw it from said recess or recesses and to put the hammers at half-cock, and the cam-surface on the forward lump for acting on the bolt as the barrels are dropped down and bringing the hammer to full-cock, substantially as described.

4. The combination, with the barrels of a drop-down gun and the lumps thereon, of the locking-bolt, the key and hand-lever for operating the same, the hammer carried by a sliding rod, a spiral mainspring encircling the same, and a cam-surface on the forward lump for retracting said bolt, whereby the hammer is put at full-cock, substantially as described.

5. In a drop-down gun, the combination of the lump or lumps, the locking-bolt in contact with the forward lump, the hammer in contact with the rear end of said bolt, and the mainspring, the forward lump being provided with two cam-surfaces, one above the other, inclined in opposite directions, substantially as and for the purpose described.

6. The combination, with the hammer and means for cocking the same, of the sear composed of a leaf-spring having a catch or de-

tent near its free end, substantially as described.

7. The combination, with the hammer and mainspring, of a sear consisting of a leaf-spring having a catch or detent, and a sliding bar for insertion under the sear to hold the same in contact with the tumbler to lock the hammer in a position of safety, substantially as described.

8. The combination, with the hammer and mainspring, of the sear consisting of a spring screwed at one end to the trigger-plate or other suitable part, the sliding bar to lock the sear in place against the action of the trigger, and devices for operating said bar automatically, substantially as described.

9. The combination of the hammer, the bolt, devices, as specified, for retracting said bolt and thereby cocking said hammer upon the dropping down of the barrels, the sear consisting of a leaf-spring having a detent formed thereon, the sliding bar, and suitable connections—such as a lever and rod—whereby said bar is moved to lock the sear in engagement with the hammer by the withdrawal of said bolt, substantially as described.

10. The combination, with the hammers and operating mechanism, of the striker-pins having their shanks partly cut away, and a bar or holding-piece let into the break-off, whereby both said pins are held in place, substantially as described.

11. The combination, with the cocking mechanism, of the hammer carried by a rod sliding in a hole in the break-off, and provided with a guide-rod, also sliding in a hole in the break-off, substantially as described.

12. The combination of the hammer, the sliding rod working in a hole in the break-off, the mainspring encircling said rod, the loose collar thereon, and the holding-screw bearing against the end of said collar, substantially as described.

13. The combination of the sliding rod, the hammer carried thereby, the tumbler, the sear adapted to engage notches on said tumbler, and a stop bearing against the under side of the tumbler and preventing its movement in the direction of the sear when depressed by the trigger, substantially as described.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

HART O. BERG.
ADOLPHE DECORTIS.

Witnesses to signature of H. O. Berg:

PHILIP MAURO,
C. J. HEDRICK,

Witnesses to signature of Adolphe Decortis:

L. GRIMBERIEUX,
J. B. MAWET.