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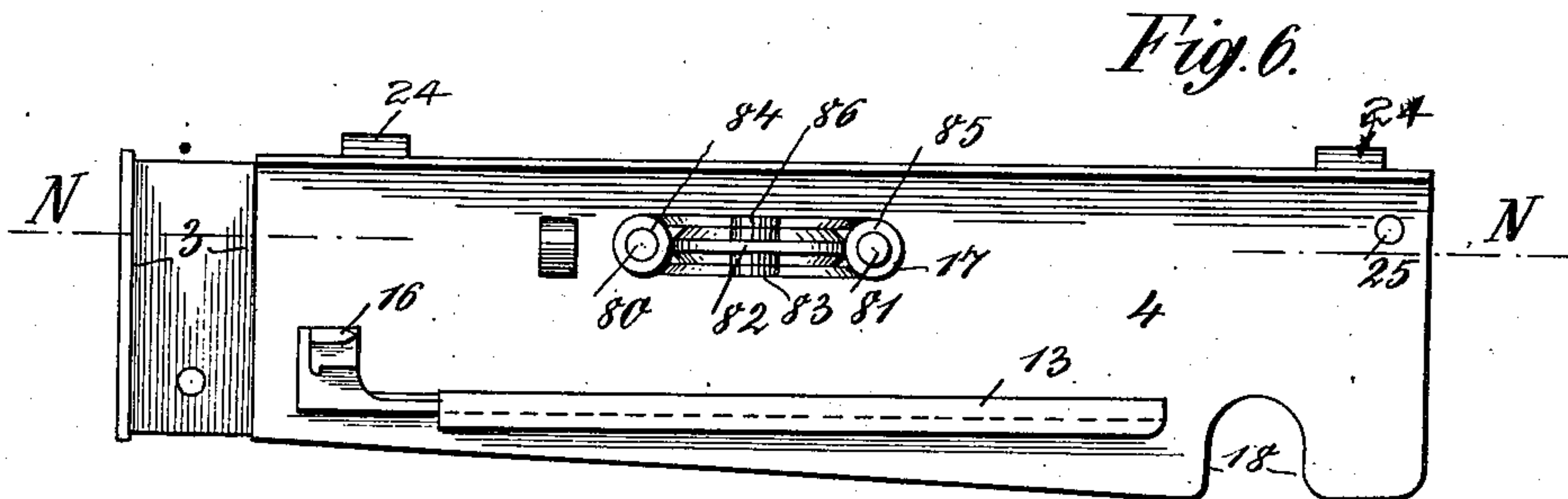
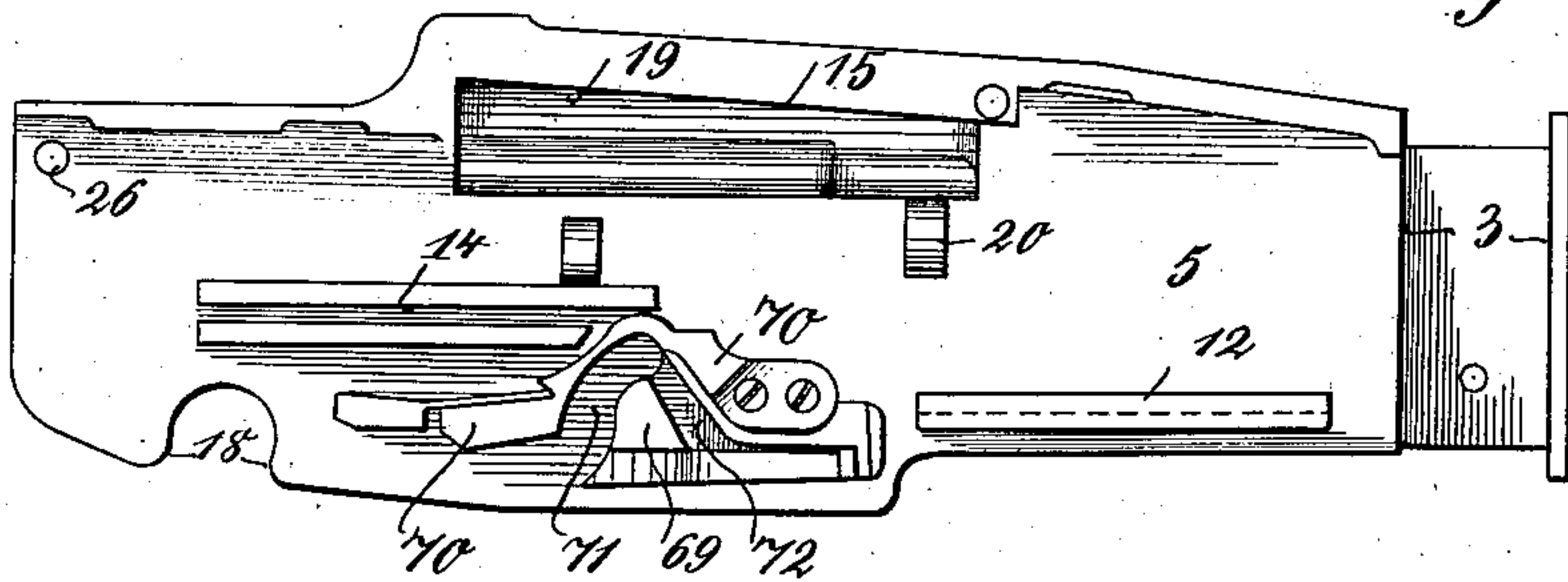
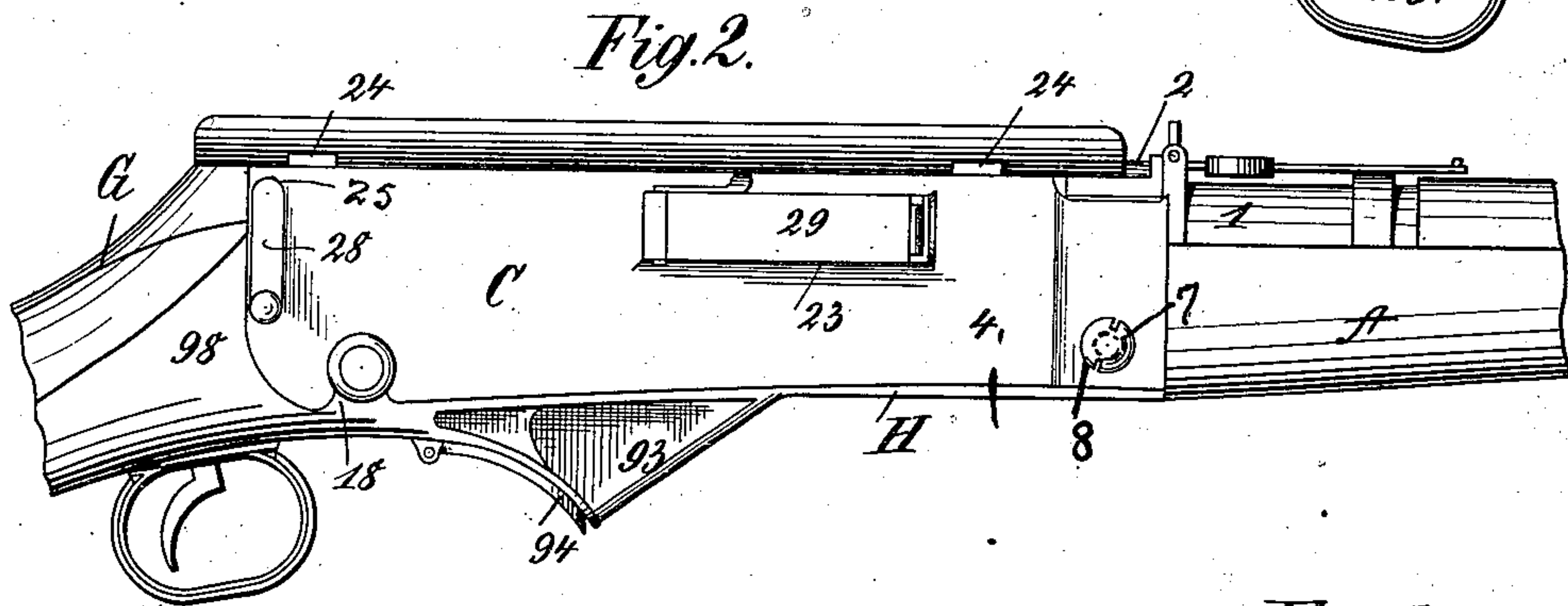
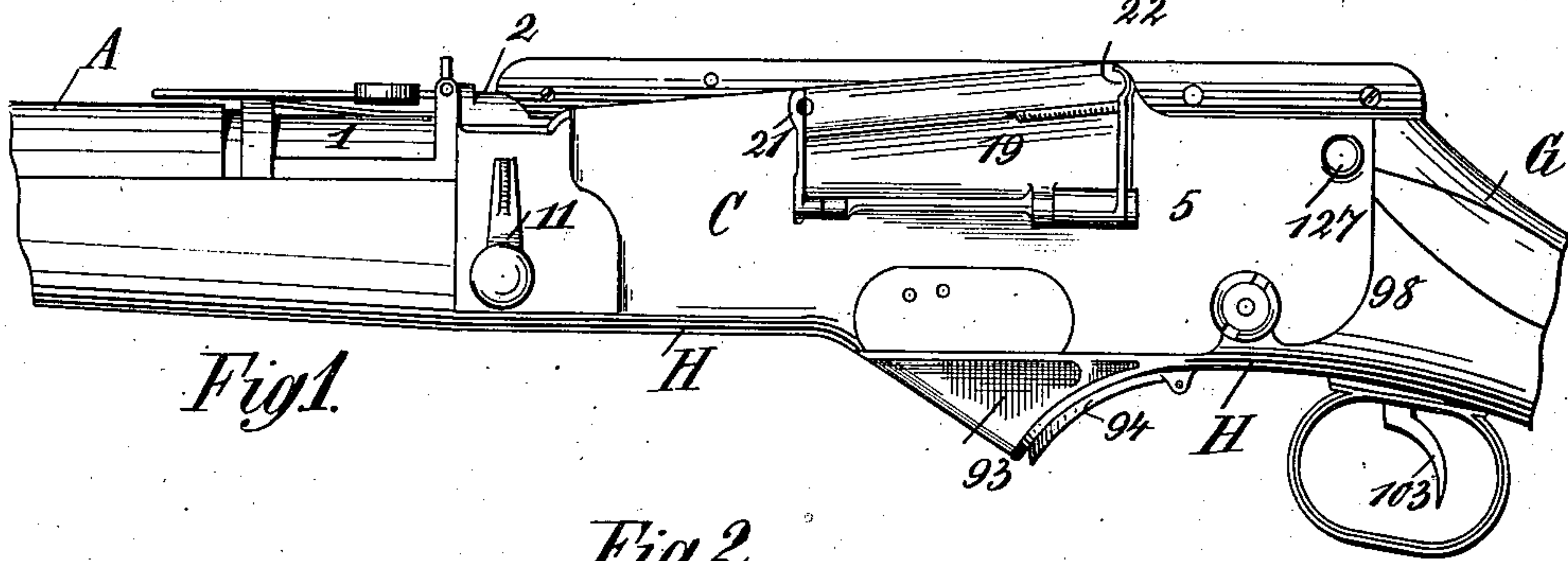
Patented June 3, 1902.

J. A. N. RASMUSSEN.
AUTOMATIC FIREARM.

(Application filed June 15, 1899.)

(No Model.)

3 Sheets—Sheet I.



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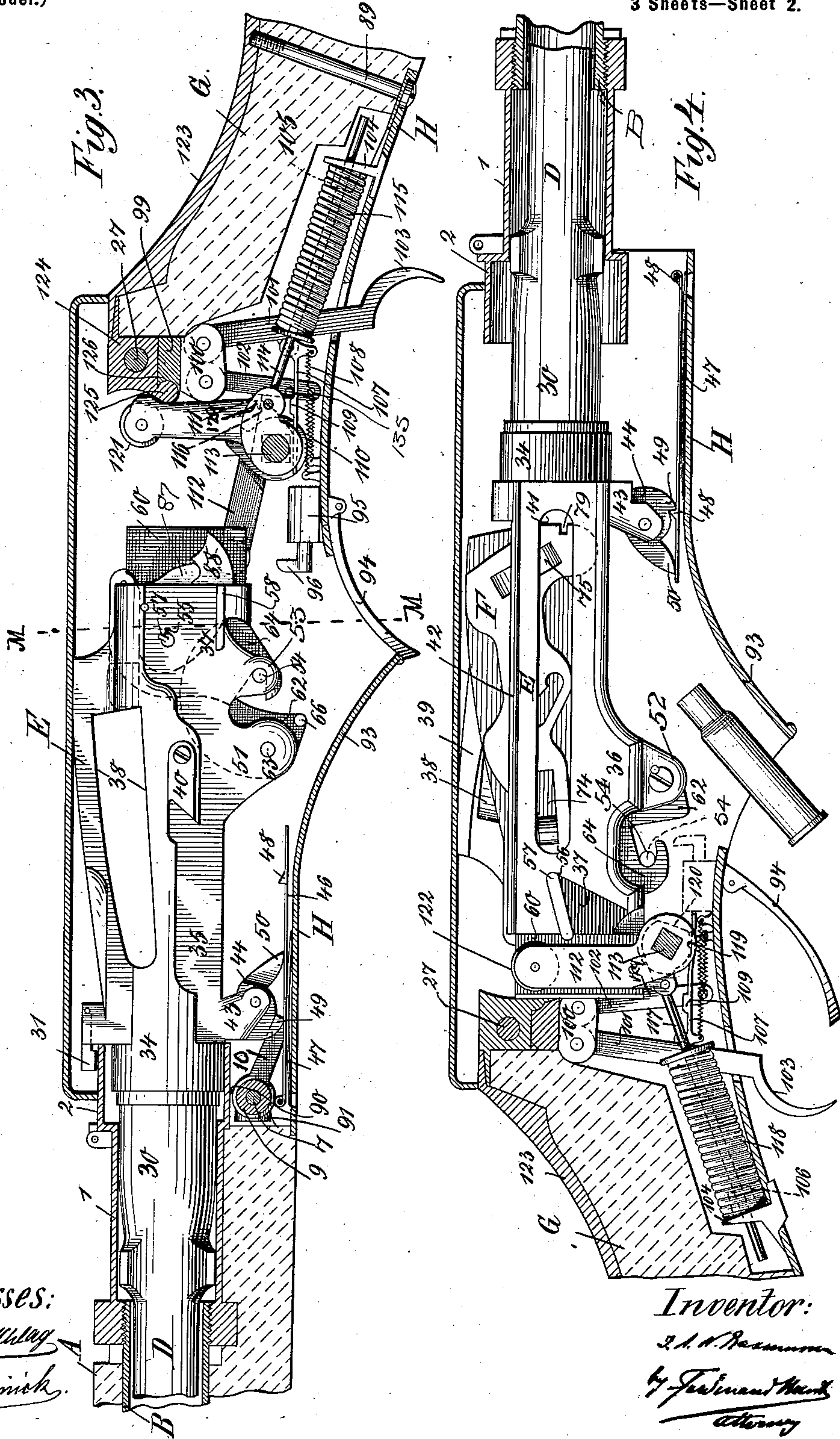
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3 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

JULIUS ALEXANDER NICOLAI RASMUSSEN, OF COPENHAGEN, DENMARK,
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AUTOMATIC FIREARM.

SPECIFICATION forming part of Letters Patent No. 701,815, dated June 3, 1902.

Application filed June 15, 1899. Serial No. 720,630. (No model.)

To all whom it may concern:

Be it known that I, JULIUS ALEXANDER NICOLAI RASMUSSEN, rüstmeister, (director of the Royal Military Arms Factory,) a subject of the King of Denmark, residing at Tøjhuset, Copenhagen, Kingdom of Denmark, have invented new and useful Improvements in Recoil Mechanism for Small-Arms and Machine-Guns of Small Caliber, of which the following is a specification.

The object of the present invention is to provide an improved magazine-gun, and especially to provide an improved construction of gun of that class known as "recoil-operated guns," in which the energy developed by the recoil when the gun is fired is utilized in retracting the breech-bolt from the barrel to open the breech and performing the other operations of the gun required for a new discharge.

The invention is intended especially for use in shoulder-arms, either rifles or shot-guns; but it is applicable also to other classes of firearms and guns.

For a full understanding of the invention a detailed description of a construction embodying all the features of the present invention as applied in their preferred form to a shoulder-arm will now be given in connection with the accompanying drawings, forming a part of this specification, and the features forming the invention will then be specifically pointed out in the claims.

In the drawings, Figure 1 is a left-hand side elevation showing the complete gun with the barrel and stock broken away. Fig. 2 is a right-hand side elevation of the complete gun. Fig. 3 is a longitudinal section corresponding to Fig. 1. Fig. 4 is a longitudinal section corresponding to Fig. 2, but with the parts in their recoiled positions. Fig. 4^a shows a plan view of a detail of construction. Figs. 5 and 6 illustrate the two cheeks of the guide-frame as seen from the inside of the gun. Figs. 7 and 8 illustrate the cartridge-feeder in its two extreme positions. Figs. 9, 10, and 11 are side, rear, and front elevations of the breech-bolt. Fig. 12 illustrates the arrangement of the firing-pin in the breech-bolt. Fig. 13 shows a section on line N N of Fig. 6.

Fig. 14 shows a section on line M M of Fig. 3. Fig. 15 is a detail view of the rear end of the barrel. Fig. 16 is a cross-sectional detail view. Fig. 17 is a view of the parts of the trigger-and-hammer mechanism at the time of firing.

Referring to said drawings, A is the fore-stock; B, the barrel-cover; C, the frame in which the barrel extension and lock mechanism move; D, the barrel proper; E, the lock; F, the breech-bolt; G, the stock; H, the bottom plate for the frame C.

Considering now the construction of the gun in detail, the barrel-cover B, fitted in the customary manner with the sight, is located inside the forestock A. The barrel-cover B has its rearward end extended in accordance with the breech of the barrel. This extension 1 of the cover B terminates in a connecting-piece 2.

The frame C consists of two single cheeks or parts 4 and 5, an internal elevation of each of which is illustrated in Figs. 5 and 6, respectively. Both cheeks of the frame are provided with vertical channels 3 3 at their front ends, over which are pushed the side pieces of the barrel-cover B. The somewhat-projecting upper part of the barrel-cover fits with its corners over the edges of the frame C. Below the barrel-cover the two cheeks of the frame C are connected together by a bolt 7 with screw-heads 8. On said bolt 7 at the inside of the frame C the sleeve 9 and the safety appliance 10 are mounted. (See Fig. 3.) The safety appliance 10 is claw-shaped at its rearward end and is actuated by the handle 11, situated externally at the left-hand cheek of the frame C. (See Fig. 1.) This safety device is intended to lock the recoil parts against action, and for this purpose when this catch 10 is turned up it engages a cavity in the breech-casing E, which ordinarily would recoil, together with the barrel; but when the catch is up such movement will be prevented and the arm will remain locked.

The left-hand cheek 5 of the frame C, as indicated in Fig. 5, is provided with a ridge 12 at the inside, to which ridge corresponds the ridge 13 at the inside of the right-hand cheek 4 of the frame C, as shown in Fig. 6, said ridge 13 extending almost to the rear-

ward end of the frame C. The edges of the bottom or trigger plate H engage beneath these two ridges. At the rear of the ridge 12 the guide means for the cartridge-feeder are located, above which the guide-groove 14 for the lock-case is situated.

The upper edge of the cheek 5 of the frame C rises toward the rear in accordance with the shape of the lock-case; but its rearward extremity lies in a plane with the straight upper edge of the cheek 4.

Above the guide-groove 14 an opening 15 is provided, through which the cartridge is introduced into the rifle. The cheek 4 of the frame C is fitted, adjacent to the vertical channel 3 and above the ridge 13, with a stud 16, which serves for retaining the breech-bolt when the rifle is ready for firing. About the center of the length of the cheek 4 and below the upper edge of same an aperture 17 is situated, through which the guide means for the breech-bolt project. The upper edges of the cheeks 4 and 5 are turned over, while at the lower rear end of both notches 18 are provided for the reception of fastening-studs in connection with the bottom or trigger plate H.

On the external surface of the cheek 5 of the frame C and at the front thereof the handle 11 for the safety appliance 10 is located, as already indicated hereinbefore. The opening 15 for introducing the cartridges is closed at the outside by a lid 19, which, hinged in connection with strong springs, is adapted to grip with its tongue 20 over the inner edge of the opening 15. Projections 21 and 22 serve for securing the cartridge-magazine in position. (See Fig. 1.)

The upper turned-over edge of the cheek 5 of the frame C is provided with two notches adapted to be engaged by two projections of the lock-case.

On the external surface of the cheek 4 a frame 23 for the guide means of the breech-bolt is arranged. On the upper edge of the cheek 4 of the frame C ears 24, Figs. 2, 6, and 14, are provided, which serve for the hinge-like connection of the top thereto. At the rear upper end of the cheek 4 a hole 25 is provided, (see Fig. 6,) which coincides with a hole 26 in the rear upper end of the cheek 5. (See Fig. 5.) The hole 26 is internally screw-threaded. Through these holes 25 and 26 passes a pin 27, screw-threaded at its free end and terminating at the other end outside the frame C in a crank 28. Said pin 27 serves for the purpose of connecting frame, buffer-plate, and the stock in a manner more particularly described later on.

The lid 19, covering the opening for feeding the cartridges to the rifle, is provided at its inner surface with a recess corresponding to the shape of the cartridge. The aperture 17 in the side part 4 is closed by a lid 29, the inner face of which carries the guide means for the breech-bolt, as will be more fully described later on.

The barrel D is at its rear end toward the

breech extended circumferentially and screw-threaded. The screw-threads on the breech end of the barrel D are interrupted or cut away at three of the six portions forming the circumference, as shown in Fig. 15, the internal screw-threads in the lock-case being treated similarly, so that in combination with the locking-hook 31, which engages a notch 32 at the rear edge of the barrel, a reliable and simple connection between barrel and lock-case is insured. Beneath the bore a notch 33, inclined toward the front edge, is provided for the front end of the ejector.

The lock-case E is secured to the barrel D by its sleeve-like front end 34 gripping over the rear end of the barrel, as set out above. From the front sleeve-like part 34 start rearwardly two straight side plates 35 and 36, connected together at their free extremities by the solid tailpiece 37. In the left-hand side plate 35 an aperture 38, in accordance with the opening 15 in the side part 5 of the frame C, is provided for feeding the cartridges, said aperture being somewhat inclined toward the interior. The upper edge of the side part 35 of the lock-case is shaped to constitute a guide-rail 39, the lower edge of which from the front end to the center is horizontal, whereat it rises as it approaches the rear end. The side plate 35 is provided at the outside with a recess adjoining the aperture 38, while beneath said aperture the body of the side plate is so turned or shaped that a sharp tongue 40 is produced, which tongue, if required, can be made as a separate piece of hardened steel and connected to the side plate. This tongue 40 serves for the purpose of engaging under the tongue 20 of the lid 19 in order to open the aperture for feeding a fresh cartridge during the return movement of the recoiling parts. The right-hand side plate 36 possesses a longitudinal aperture 41 for guiding the breech-bolt and is provided at the external upper edge with a longitudinal groove 42, which is adapted to be engaged by the turned-over edge of the cheek 4 of the frame C.

Beneath the sleeve-like rear end of the gun-barrel D a shoulder-piece 43 is situated, which, terminating in two arms, serves as a bearing for the extractor 44. The extractor 44 consists of a lower, shorter, and thicker lever-arm and an upper longer lever-arm. The latter engages a notch at the rear end of the sleeve 34, and its claw-shaped end enters the notch 33 in the end face of the barrel. The short lever-arm of the extractor 44 is rounded off at the front end and rests on a guide-piece 46, situated on the bottom plate H, resting on a spring 47 and fitted with a nose 48. The extractor is provided with a sharp nose 49 and a tailpiece 50.

At the lower edges of the side plates 35 and 36 of the lock-case E cheeks 51 and 52 are provided, which form the bearings for journaling the pin for securing the lower end of the cartridge-feeder. The cheek 51 is ex-

tended almost to the rearward end of the side plate 35 and fitted with an incision, into which the pin 66 of the cartridge-feeder is adapted to move. The rear part 53 of the cheek 51, formed by the aforesaid incision, is fitted at the inside with a stud 54, which serves as an abutment for the first member of the cartridge-feeder. On a transverse pin or bolt 57, Figs. 3, 7, and 14, held in openings 55 56 of the side plates 35 36, a movable bolt F is pivoted.

On the outside of the side plate 35, at the lower rear end thereof, a guide-ledge 58 is arranged, so as to engage the guide-groove 14 in the cheek 5 of the frame C. The tailpiece 37 is provided with a recess at the upper left-hand side for the reception of the upper member of the cartridge-feeder when in inoperative position. (See Fig. 3.) The tailpiece 37 has at its rearward end at one side a dovetailed indentation, into which the sliding frame 60 fits. In the lower left side of the tailpiece 37 a channel is provided for the percussion-hammer. (See Fig. 3.)

Referring to Figs. 7 and 8 of the drawings, the cartridge-feeder consists of three interconnected members or links, of which the lower one, 62, is turnable on a bolt 63, said bolt being journaled in the cheeks 51 and 52 of the lock-case. On the front end of the member 62 the second member 64 of the cartridge-feeder is mounted, to whose forward end the front member 65 is hingedly secured. The lower member 62 of the cartridge-feeder possesses at its bottom end a stud 66, which is movable in a guide 71, provided at the inner side of the cheek 5 of the frame C. The second member 64 is saddle-like, fitted over the first member 62, and terminates at its rearward closed end in a hook, which when the cartridge-feeder is in the position of rest fits around the stud 54 on the inside of the rear part 53 of the cheek 51. The front end of the second member 64 is closed and formed into a rearwardly-pointing hook, which when the cartridge-feeder is in a position of rest lies in the recess in the tailpiece 37. The third member 65 of the cartridge-feeder is hinged with its rearward end to the hook-shaped front end of the second member 64, resting with a slot in its body saddle-like over a portion of this member 64. The member 65 is fitted with a broad head 67, projecting on the right-hand side, as shown in Fig. 14. The guide 71, provided on the inner face of the cheek 5 of the frame C (see Fig. 5) for the stud 66 of the cartridge-feeder, consists of the elastic link 69, having its front end firmly secured to said cheek 5, while its rear somewhat-broader end projects from the surface of said cheek 5. The elastic link 69 is partly surrounded by a raised guide-piece 70, which, shaped in accordance with the configuration of the elastic link 69, stands from the edge of said elastic link sufficiently apart to form a groove 71 between them, as illustrated in Fig. 5. The lower edge of the elastic link 69 is recessed to

the width of the stud 66, so that a sharp projection is formed between the upper and lower portions of the guide-link 69. The groove 71 communicates with the groove 72, cut out in the upper portion of the elastic link 69.

The breech-bolt F, (see Figs. 9 to 12,) which is located between the side plates 35 and 36 of the lock-case E, is mounted to swing on a bolt 57, passing through a hole 73 in its rearward end. The right-hand side of the breech-bolt is raised and provided in its external surface with guide-grooves 74 and 75. The somewhat-recessed upper surface of the breech-bolt serves as a passage for the cartridge to be introduced. In a longitudinal bore 76 in the body of the breech-bolt the firing-pin 77 is situated, as shown in Fig. 12. On the lower side of the breech-bolt a channel 78 is provided, which serves for guiding the spent cartridge to be ejected. On the right-hand front side a notch 79 is provided, into which the stud 16 of the cheek 5 of the frame C fits, said notch insuring the position of the breech-bolt when the rifle is ready for firing.

The above-referred-to guide-grooves 74 and 75 become shallower, and more particularly the guide-groove 74' at its rear end and the guide-groove 75' at its forward end. These grooves are engaged by the guide-studs 80 and 81, supported in connection with the lid 29, as shown in Fig. 13. These guide-studs 80 and 81 are mounted on the ends of a lever 82, pivoted centrally and resting in a recess 83 of the lid 29, provided with sockets 84 and 85 for the movement of the guide-studs. In the recess 83 a spring 86 is mounted, which serves for the purpose of preventing the lever 82 from accidentally changing its position. The guide-studs act alternately—i. e., when one projects from its socket the other is retracted.

The wing 60, (see Fig. 4^a), which is inserted into the tailpiece 37, is bent on its right-hand rear end at a right angle. On the left-hand side of the wing 60 and on the foot of same the guide-piece for the main lever is provided, Fig. 3, against the lower edge of which the hook-like turned-up hammer 88 rests, which, with its hook-shaped end, grips over the guide-piece 87 when in a position ready for firing. (See Fig. 4^a.)

The stock G, with the bottom or trigger plate H, is connected with the frame C on the one hand by the front end of said bottom plate H and on the other hand by a prolongation 123 of the stop-plate. The trigger-plate H is secured to the stock G by means of the screw 89. At the front end of the trigger-plate H two hooks 90, opening toward the front, are provided, which grip over the two square projections 91 92 of the sleeve 9, mounted on the bolt 7, in connection with the frame C, as previously set out. Between the lower ends of these hooks the flat spring 47 and the guide-piece 46 for the extractor are located on the inner face of the trigger-plate H. Behind

the guide-piece 46 the channel 93 for the exit of the spent cartridges is situated, which may be closed by a lid 94. A spring is in connection with the hinge 95 of the lid 94, which is actuated by the hook 96 at the interior of the lock-plate. In the side faces of the trigger-guard the journal 113 for the main lever 111 and for the recoil-rod 112 is situated. The side faces 98 of the trigger-plate H, which extend to the upper edge of the stock, carry the bearing-plate 99 between downwardly-extending wings 100, on which the duplicated trigger-rod 101 102 pivots. The rear arm 101 of the trigger-rod terminates outside the bottom or trigger plate in the trigger 103. The rear end of the bottom or trigger plate H is provided with the abutment 104, which carries the tubes 105 106 for the guide-rod of the recoil-lever and the main lever. Said tubes 105 106 extend forwardly. About the center of the rear arm 101 of the trigger-rod the bifurcated extremity of the horizontal angle-lever 107 is pivoted, movable up and downward. To the shorter depending arm of the angle-lever 107 a spiral spring 108 is attached, the other end of this spiral spring 108 being secured to the bottom or trigger plate. The longer horizontal arm of the angle-lever 107 is tongue-shaped and provided on its upper side and about centrally with a nose 109, against which the front arm 102 of the trigger-rod abuts. To the lower end of this trigger-rod arm 102 a spiral spring 110 is attached, the other end of which is secured to the bottom or trigger plate H. The main lever 111 and the recoil-rod 112 are both mounted on a journal 113, located in the side faces of the bottom or trigger plate H. The right-hand side of this journal 113 is shaped square in conformity with the square bore of the recoil-rod. The main lever 111 as well as the recoil-rod 112 are in the shape of angle-levers. The lower arm of the main lever 111 carries a rod 114, which rests with its other end in the tube 105, previously mentioned, said rod 114 being provided in the well-known manner with an abutment for the spiral spring 115. The short arm of the main lever 111 is thickened on the right-hand side. The front and lower faces of this short arm are rounded off. The lateral projection on same terminates toward the rear in a sharp nose 116, which rests under the nose 129 on the front arm 102 of the trigger-rod when the various organs of the rifle are in a position ready for firing. The curved lower face of the shorter arm of the main lever 111 rests on the tongue-shaped portion of the angle-lever 107. The recoil-rod 112 assumes the shape of an angle-lever, as previously indicated, the shorter lower arm of which is engaged by a rod 117, resting in the tube 106 in connection with the recoil-spring 118. A ring-boss 119 is provided at the bottom of the shorter arm of the recoil-rod 112, said projection 119 resting on the tongue-shaped portion of the angle-lever 107. The ring-boss 119 is flattened at

120 for a purpose explained hereinafter. A guide-roller 121 is located in connection with the right-hand side top portion of the main lever 111, a guide-roller 122 being similarly provided in connection with the left-hand top portion of the recoil-rod 112. The buffer-plate 123 is situated at the upper portion of the stock G, where it is secured by means of the screw 89, together with the bottom or trigger plate H. The front end of the buffer-plate 123 is in connection with a block 124, which is formed with a projection 125 and a cross-groove 126 in the bearing-plate 99. A bore in the block 124 coincides with a pair of holes in the side faces 98 of the bottom or trigger plate H, a bolt 27 penetrating them, so as to insure a rigid connection between trigger-plate stock and buffing-plate.

The individual parts are composed together as follows: When the rifle is ready for firing, the various organs of the lock assume the position illustrated in Fig. 3. On now pulling the trigger 103 the nose 109 of the angle-lever 107 presses backward the front arm 102 of the trigger-rod, thereby liberating the catch 116 of the shorter lever-arm of the main lever 111, so that the latter, under the influence of the spiral spring 115, is forced forward and downward. During this movement of the main lever it comes in contact with the hammer 88, which, swinging around its pivot, forces forward the firing-pin 77, thereby firing the gun. The energy developed by the powder-gases after firing causes the barrel, lock-case E, and breech-bolt F to travel backward together. (See Fig. 4.) During the recoil of barrel, lock-case, and breech-bolt the latter is guided by the stud 80, which moves in the groove 75, and as soon as the stud 80 has reached the downwardly-inclined portion of said groove the breech-bolt is lifted in such a manner that the spent cartridge is ejected by the extractor 44. As the sharp nose 49 of the extractor abuts against the nose 48 of the guide-piece 46, thereby turning the extractor and retracting the spent cartridge, and at the same time the cheek 52 of the side plate 36 presses against the hook 96, Fig. 4, so that the lid 94 of the channel 93 is opened. This is attained by the sharp nose 49 of the extractor coming to bear against the nose 48 on the guide-piece 46 and the cheek 52 of the lock-case E pressing against the hook 96, Fig. 4, whereby the lid 94 of the exit-channel 93 is opened. The tail-piece 37 of the lock-case presses during the recoil movement against the guide-roller 122 of the recoil-rod 112 and against the guide-roller 121 of the main lever 111, which consequently are turned upward. The turning of the recoil-rod 112 and of the main lever 111 causes the shorter arms of same to move downward, thereby tensioning the recoil-spring 118, as well as the main spring 115. At the same time the nose 116 of the main lever presses the front arm 102 of the trigger-rod back and takes up a position beneath the nose 129 of said trigger-rod arm. The projection 119 on the shorter

arm of the recoil-rod 112 depresses the angle-lever 107 in order to keep this practically out of operation until the lock-case and barrel have been again advanced into closed position and the arm is ready to fire. In other words, the operation of the main lever 111 for the discharge of the arm being dependent upon the operation of the front arm 102 by the nose 109 and trigger 101 the said nose is kept in a position to be inoperative as against the front arm 102, this being effected by the projection or high part 119 of the ring-shaped hub or boss of the recoil-arm 112. This position is maintained until the recoil-arm forces the lock-case and barrel forward and the arm is closed, at which time a low or cut-away part 120 on the recoil-arm 112 allows this arm to rise to get in position for operating the front arm 102 when the trigger is pulled. As soon as the wing 60 touches the block 124 of the buffing-plate 123 the recoil of the various organs has terminated and they start traveling back to their original position. The guide-stud 80, having been pressed back into its recess by the inclined surface 75' at the end of the guide-groove 75, the guide-stud 81 will now project from its recess by virtue of the interconnection of the two guide-studs hereinbefore described. Said guide-stud 81 engages the groove 74, so that owing to the shape of said groove the breech-bolt during the return travel is turned downward. On the cartridge-admission opening 15 being opened by the tongue 40 of the lock-case engaging under the tongue 20 of the lid 19 and after a fresh cartridge has entered the lock the rear end of the cartridge is engaged by the head 67 of the cartridge-feeder, which pushes it into the breech. The stud 66 of the cartridge-feeder has meanwhile entered the groove 71 during the return travel, in which groove it is guided upward, so that the lower member 62 of the cartridge-feeder turns around 63 and all three members of the cartridge-feeder assume their extended position until the head 67 of the feeder has properly pushed the cartridge into the breech. During the further return travel the stud 66 engages the downwardly-directed groove 72. It consequently descends and causes the collapse of the three members of the cartridge-feeder, so that they assume their original position. As soon as the return travel is finished the downwardly-pointing portion of the groove 74 causes the breech-bolt to ascend to its former position and its notch 79 is engaged by the projection 16 on the guide-frame. The firing-pin has been returned to its former position after the discharge by the spiral spring 128, which encircles same. (See Fig. 12.) At the start of the return movement after the recoil the power of the recoil-spring comes into action, the roller 122, moving in the wing 60, assisting the movement of the lock-organs and insuring their proper position for firing the rifle. The recoil-rod 112 liberates the tongue of the angle-lever 107 as soon as it has assumed a vertical position, so

that the latter can move upward, so that the projection 109 rises up in front of the projection 135 on the trigger-rod arm 102. The rifle is then again ready for firing.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In the small-arms and machine-guns of small caliber in which after the discharge by the recoil of the barrel and lock the spent cartridge is automatically ejected and a recoil-spring tensioned in such a manner that after the finish of the recoil movement the barrel and lock automatically return to normal position and the rifle is rendered fit for discharge again, the combination of a breech-bolt G of suitably-shaped grooves 74, 75, movable studs 80, 81 supported in the guide-frame, of a movable cartridge-feeder, guided in grooves 71, 72 of the guide-frame, of a sliding frame E with guide-piece 87 provided in connection with the tailpiece 37 of the lock-case, of the recoil-rod 112 and main lever 111, the recoil-spring 118 and the mainspring 115, of an angle-lever 107 in connection with the rear arm of the trigger-rod with nose 109 and of a projection on the upper side of an arm 102 of the trigger-rod.

2. In firearms of the kind described the combination of a cartridge-feeder composed of three interconnected members 62, 64, 65 of a stud 66 on the lower member 62 and of guide-grooves 71 and 72 for stud 66 in the side part 5 of the guide-frame, essentially as described and shown.

3. In combination with the recoil parts of the arm, a recoil-arm to be operated by the recoil of the parts, a spring placed under tension and acting through said recoil-arm to move the parts forward, and trigger mechanism controlled by the said recoil-arm to hold the same inoperative until the parts are moved forward into closed position by the recoil-arm, substantially as described.

4. In combination in a firearm, the parts to be affected by the recoil, a hammer, a main lever for operating the same, a pivoted rod 102 for controlling the main lever, an angle-lever having an arm 107 for controlling the rod 102, a trigger carrying the angle-lever, a recoil-lever and a spring for placing the same under tension, said recoil-lever being arranged to control the angle-lever to keep the same inoperative until the parts are returned to closed position by the recoil-arm, substantially as described.

5. In combination with the frame of the arm having a cartridge-admission opening and a lid covering the same, said lid having a tongue projecting therefrom, a sliding lock-case and a wedge projection thereon for operating the lid 19, substantially as described.

6. In combination, a pivoted cartridge-feeder having grooves therein, a sliding part to which the cartridge-feeder is pivoted, the pins 80 81 adjustable toward and from the

cartridge-feeder to engage and disengage the
grooves thereof, said pins being carried by
the frame of the arm and the connection be-
tween the pins whereby when one is moved
5 in the other is moved out, substantially as
described.

In testimony whereof I have hereunto set

my hand in presence of two subscribing wit-
nesses.

JULIUS ALEXANDER NICOLAI RASMUSSEN.

Witnesses:

A. Y. LARSEN,

B. RENNOLD.