

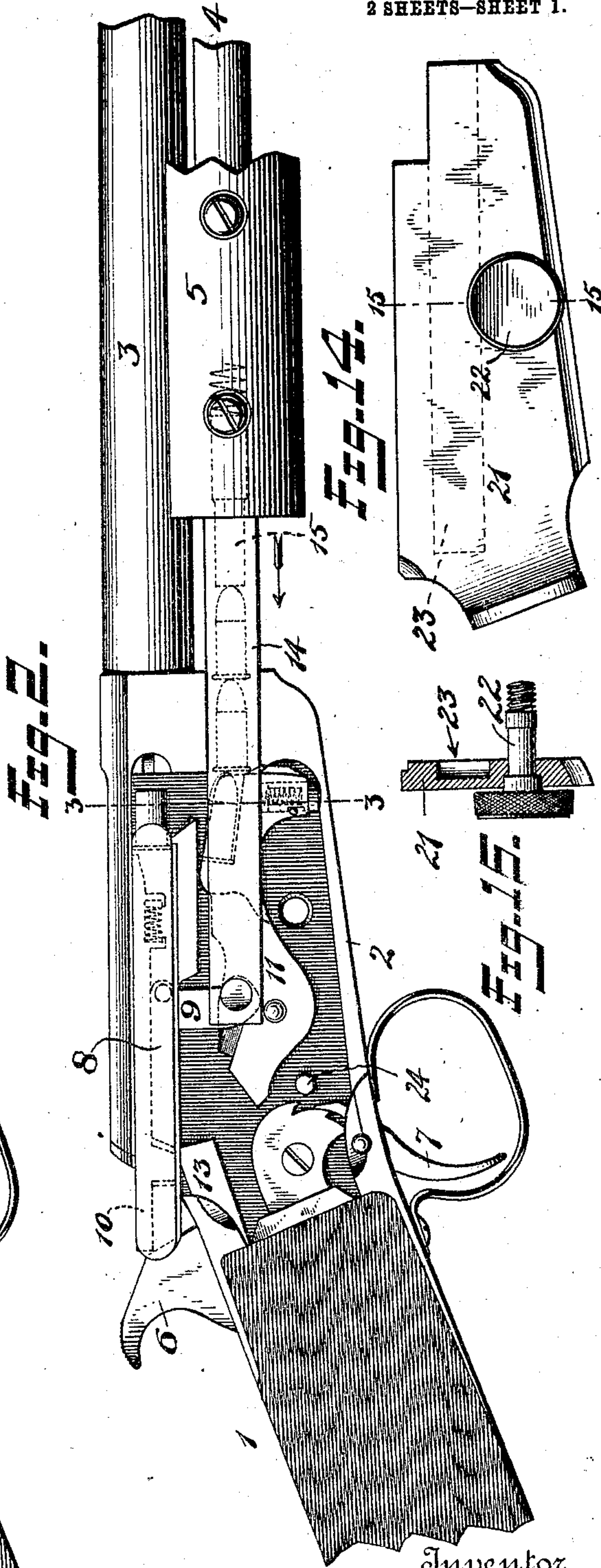
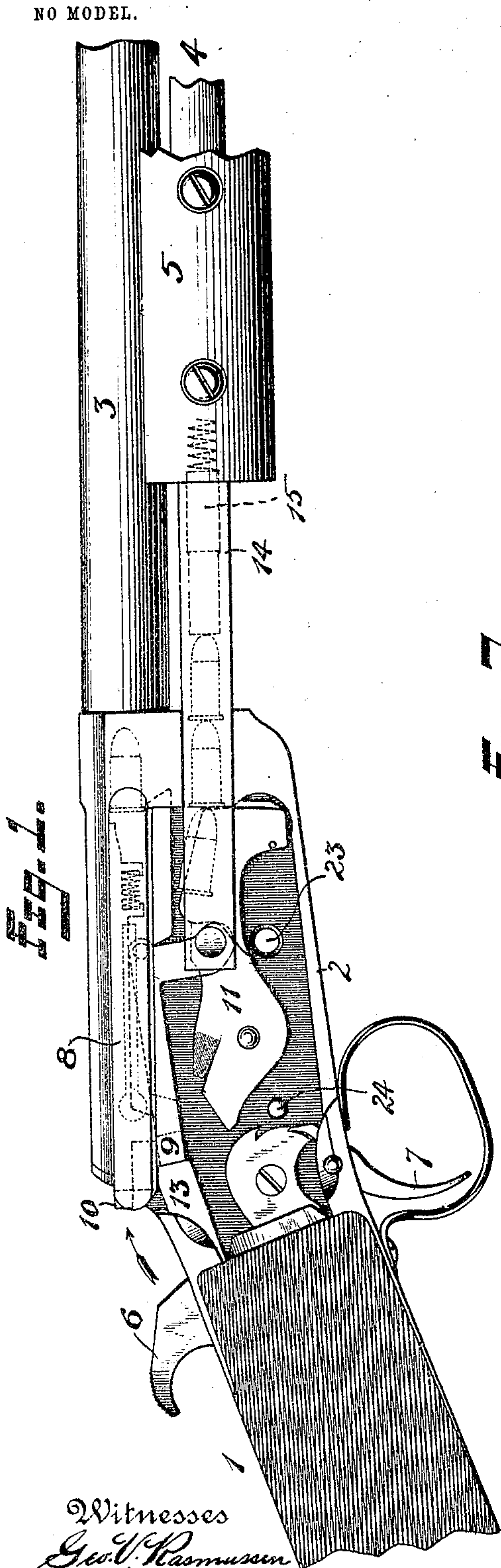
No. 776,243.

PATENTED NOV. 29, 1904.

L. L. HEPBURN.  
MAGAZINE FIREARM.  
APPLICATION FILED JULY 22, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
Geo. V. Rasmussen  
*[Signature]*

Inventor  
LEWIS L. HEPBURN  
By *his* Attorney  
*[Signature]*

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2 SHEETS—SHEET 2.

Fig. 6.

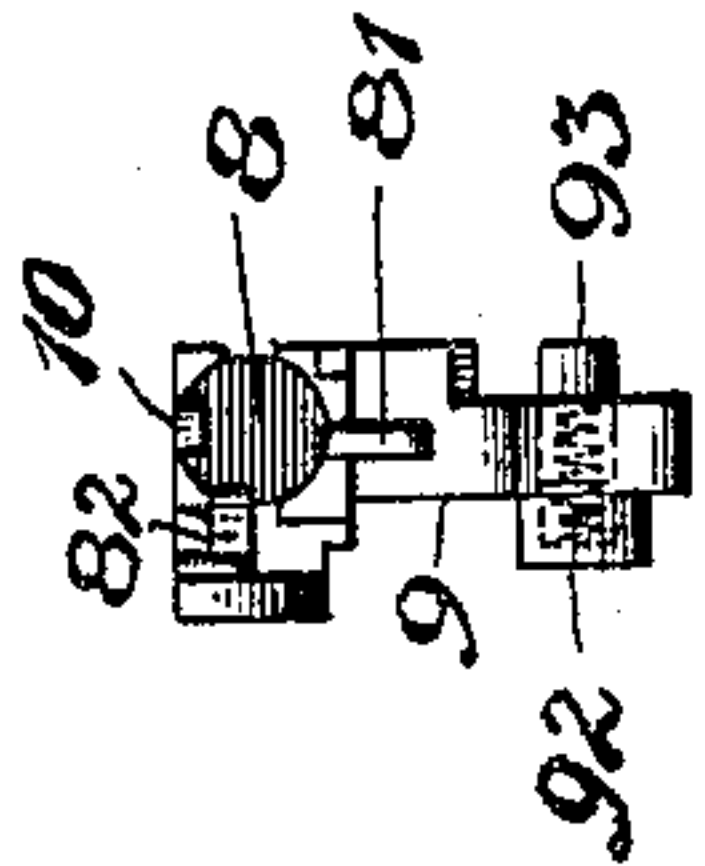


Fig. 4.

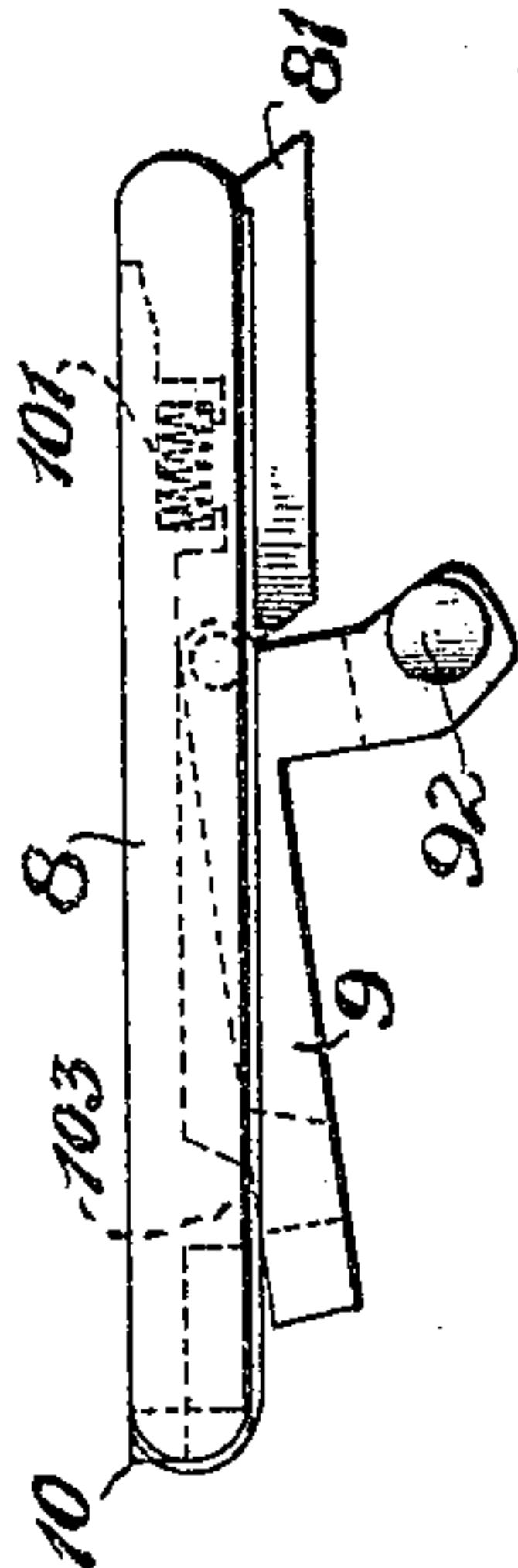


Fig. 5.

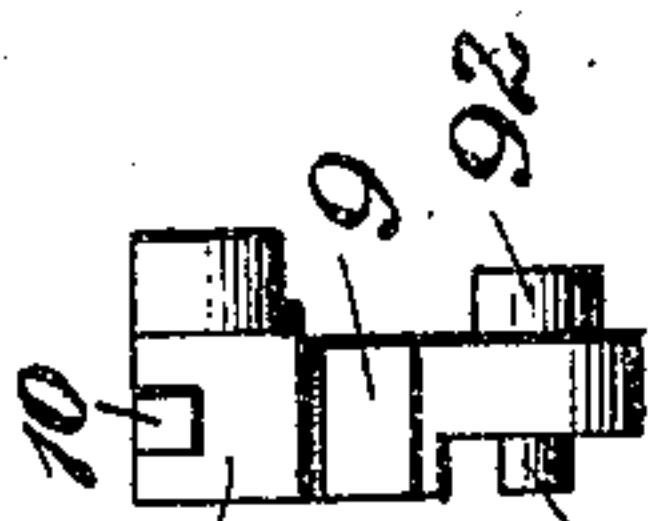


Fig. 3.

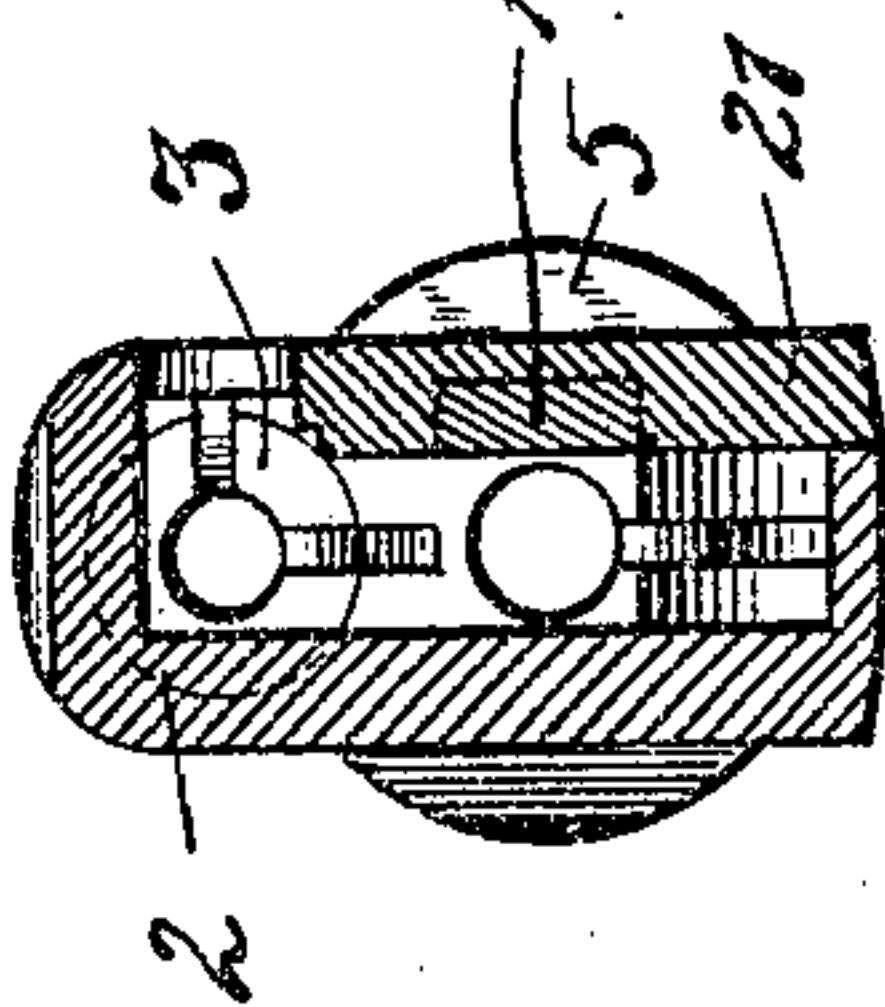


Fig. 7.

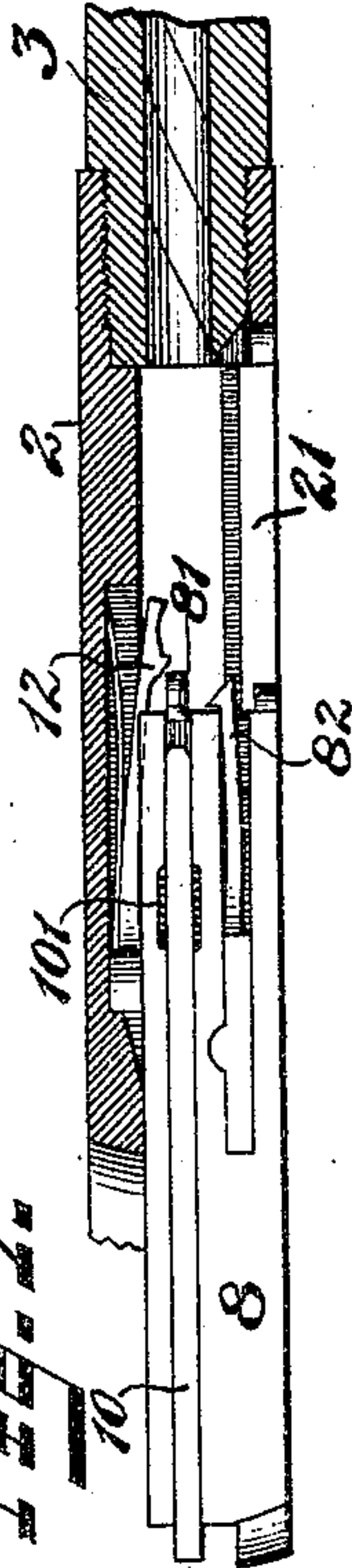


Fig. 8.

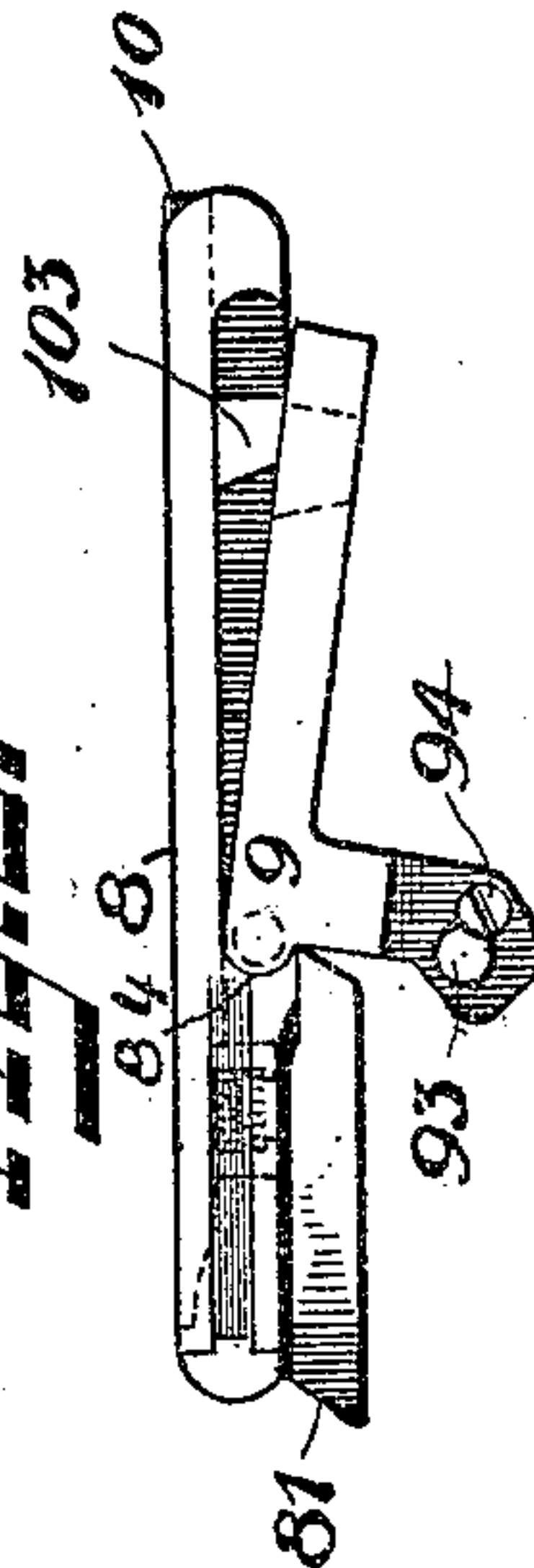


Fig. 9.

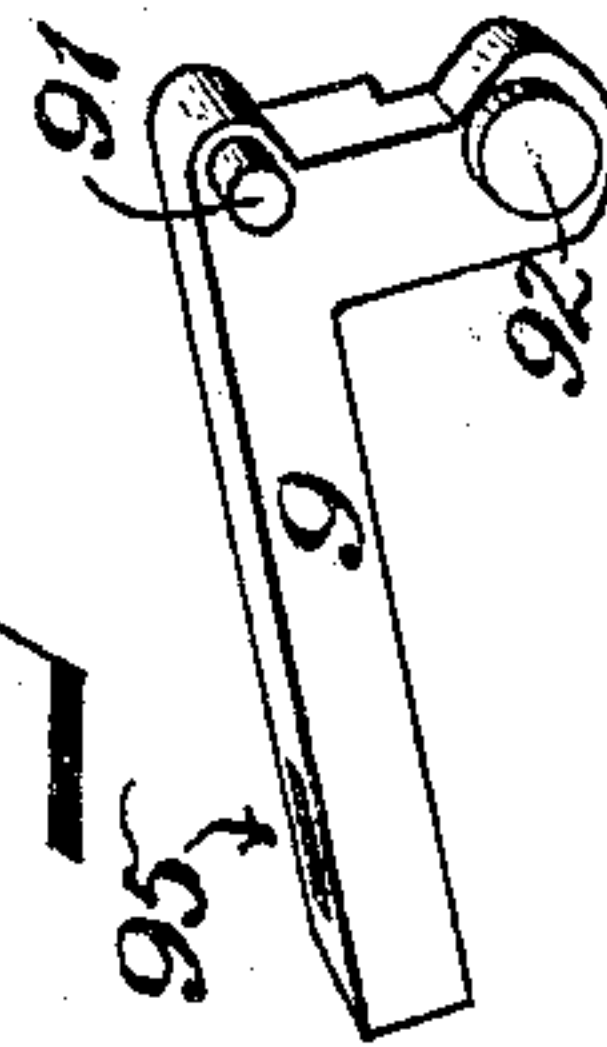


Fig. 13.

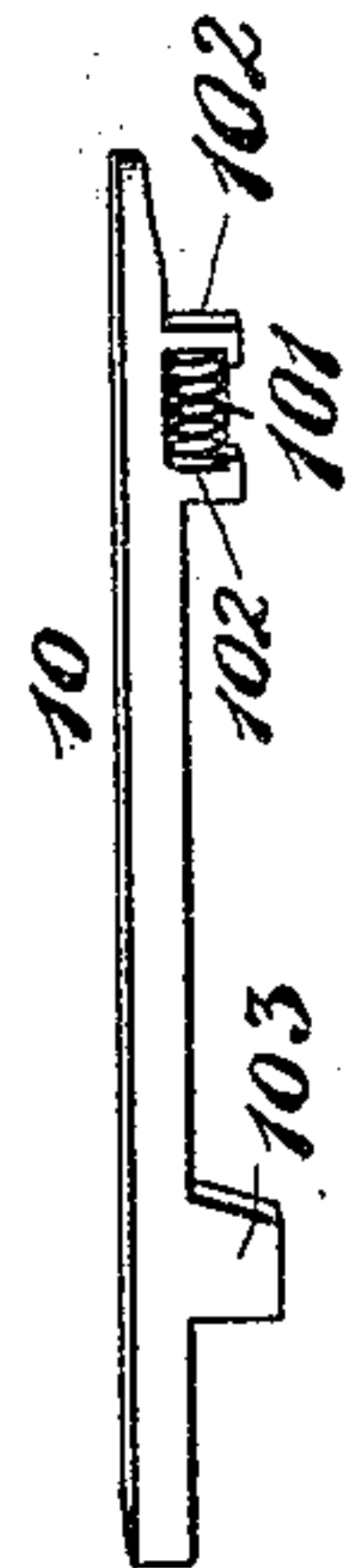


Fig. 10.

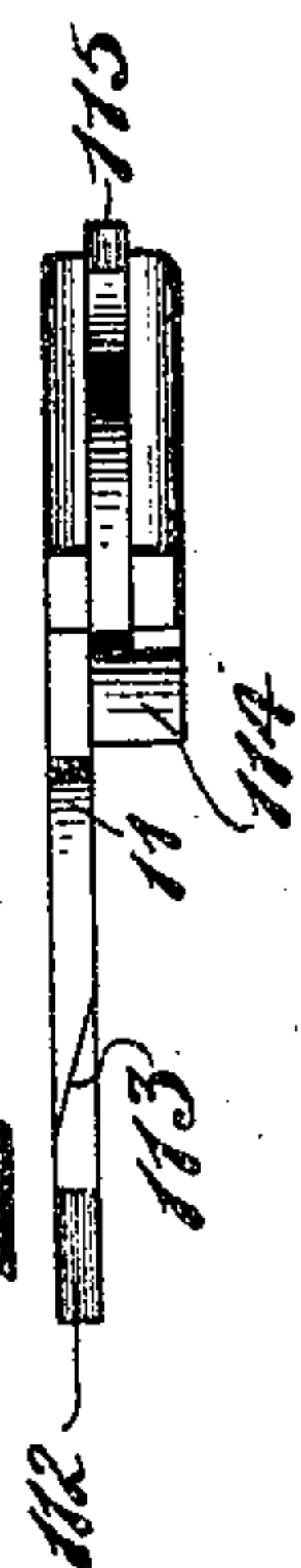


Fig. 11.

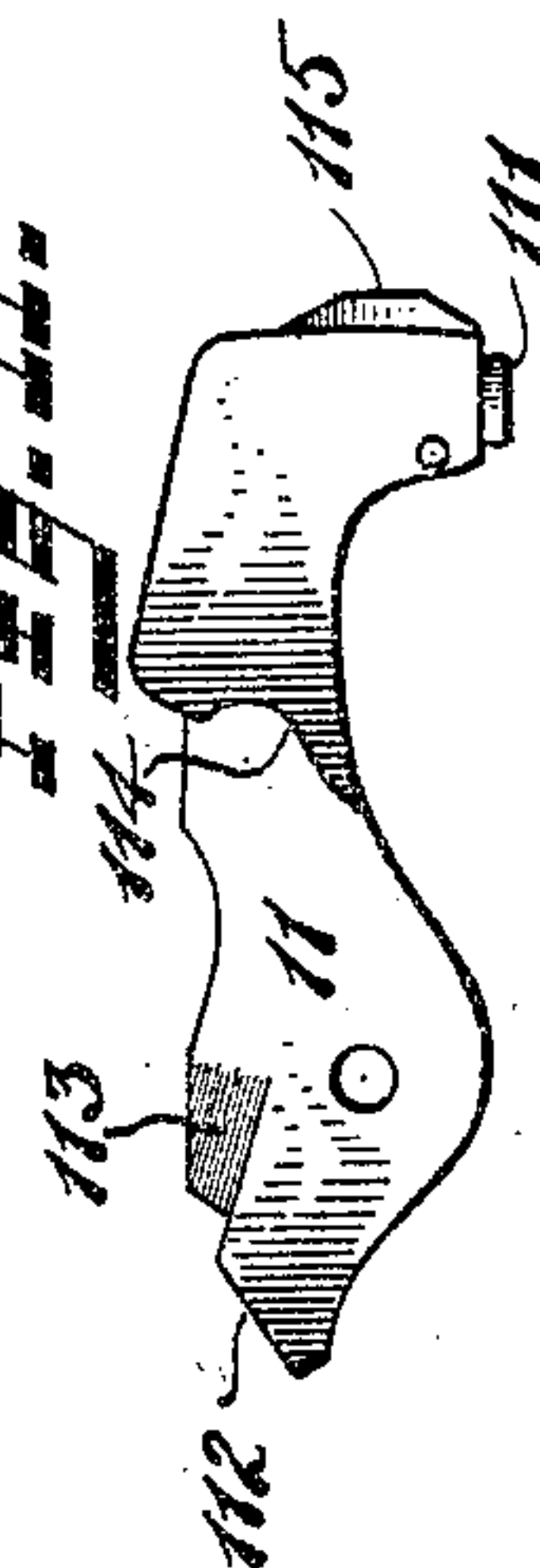
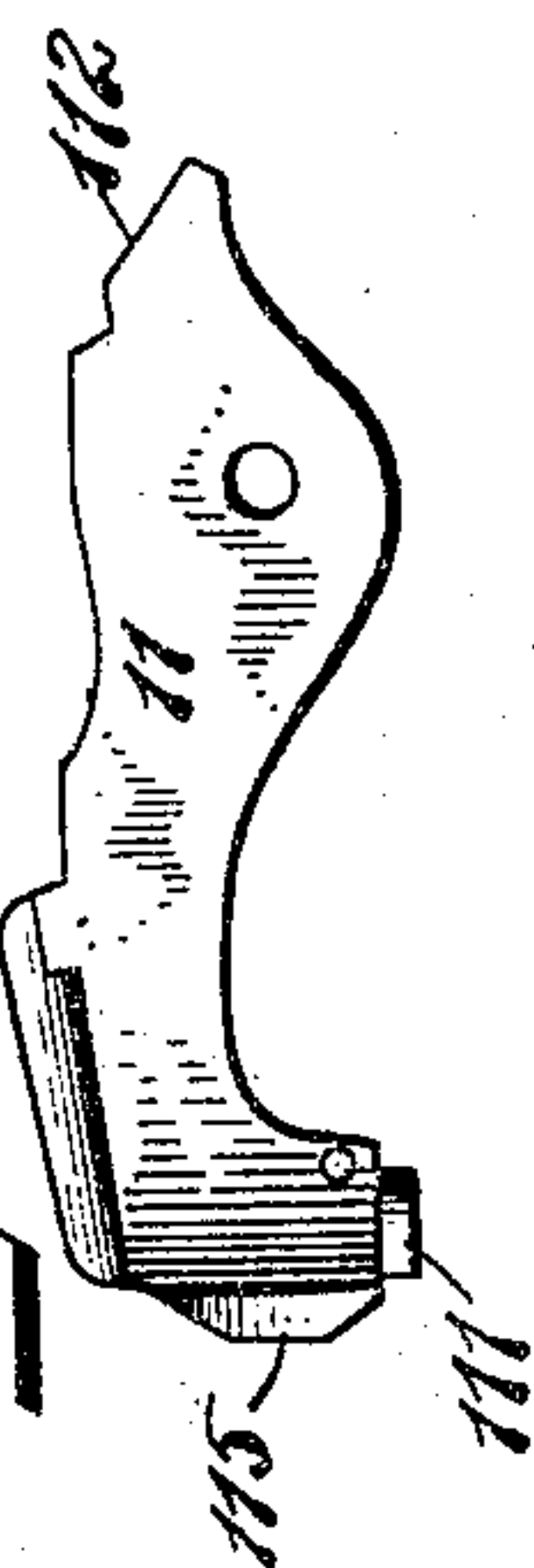


Fig. 12.



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# UNITED STATES PATENT OFFICE.

LEWIS L. HEPBURN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO  
MARLIN FIREARMS COMPANY, OF NEW HAVEN, CONNECTICUT,  
A CORPORATION OF CONNECTICUT.

## MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 776,243, dated November 29, 1904.

Application filed July 22, 1903. Serial No. 166,537. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS L. HEPBURN, a citizen of the United States, residing at New Haven, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Magazine-Firearms, of which the following is a full, clear, and exact description.

My invention relates to firearms, and particularly to breech-loading repeating firearms.

Among the objects of my invention are simplicity, economy, and durability of construction and ease, freedom, and certainty of action. These objects are attained by the mechanism described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a firearm constructed after the manner of my invention with the side plate of the receiver removed to reveal the construction of the internal parts. Fig. 2 is a similar view with the breech-block partially retracted and the cooperating parts relatively shifted. Fig. 3 is a cross-section on the plane of the line 3 3, Fig. 2, looking forward. Fig. 4 is a side elevation of the breech-block and locking-bolt removed. Fig. 5 is an end view of the parts shown in Fig. 4 looking from left to right. Fig. 6 is an end elevation of the parts shown in Fig. 4 looking from right to left. Fig. 7 is a top view of the breech-block and a longitudinal sectional view of the receiver-frame adjacent thereto. In this view a longitudinal section of the barrel also appears. Fig. 8 is an elevation of the breech-block and locking-bolt from the side opposite to that shown in Fig. 4. Fig. 9 is a perspective view of the locking-bolt. Fig. 10 is a plan view of the carrier. Fig. 11 is a side elevation of the carrier. Fig. 12 is an elevation of the carrier from the opposite side to that shown in Fig. 11. Fig. 13 is a side elevation of the firing-pin. Fig. 14 is a side elevation of a removable side plate. Fig. 15 is a section at 15 15, Fig. 14.

1 is the stock, which is secured to the rear

end of the receiver 2, in which the breech mechanism is carried.

21 is a removable side plate which is held in place by a thumb-screw 22, the inner end of which takes into a threaded opening 23 in the frame 2.

3 is the barrel.

4 is a magazine.

5 is an operating-handle which has longitudinal reciprocating motion.

6 is the hammer, controlled in the usual way by means of a trigger 7.

8 is the breech-block, which has a longitudinal reciprocating motion in the receiver 2.

9 is a locking-bolt carried by the breech-bolt and which has a swinging motion relatively thereto.

10 is a firing-pin which has a longitudinal motion in the breech-block as well as with the breech-block.

11 is the carrier, which is pivotally mounted on the frame of the receiver at a point intermediate in its length and so as to have a tilting motion.

12 is an ejector of any suitable type and which is carried in a groove or recess in the inner wall of the receiver 2.

The details thus briefly referred to are the main operating details, and it will be observed that they are very few in number. Specifically considered, these details perform their respective functions in a simple and effective manner, and the same will be understood from the following description:

The breech-block 8 is provided with an upwardly-inclined projection 81 at its forward end, which aids in elevating a cartridge after it leaves the carrier 11, so that it will stand in alinement with the bore of the barrel 3 and so that it will be gripped with the usual gripping-finger 82 at the forward end of the breech-block. The breech-block is grooved in its upper surface, (as best seen in Fig. 7,) and in this groove is located the firing-pin 10. The under side of the breech-block is provided with a rounded shoulder 84, against which the thrust of the locking-bolt 9 is taken, and there



is also a hole bored in the lower under side of said breech-block to loosely receive the pivot-pin 91 at one side of said locking-bolt. The groove in which the firing-pin 10 is placed is enlarged slightly as to width at any desired point to receive a spring 101, which is carried between two lugs or shoulders 102 102 on said firing-pin. The length of the widened portion of said groove corresponds substantially to the length of the spring 101. Hence when the firing-pin is advanced the forward end of the spring will take against the shoulders formed by widening said groove, while the rear end of said spring will take against the rear shoulder 102 on the firing-pin 10, so that when the firing-pin is freed the said spring 101 will push it back to its normal position. The firing-pin also carries a depending shoulder or horn 103, which has a locking action upon the locking-bolt 9 in the manner hereinafter described.

The locking-bolt comprises, substantially, a bell-crank lever, the main body of the lever being suitably borne at one end by the breech-block, for example, as previously described, while the other end is adapted when said locking-bolt is tilted into the position shown in Fig. 1 to bear against the solid abutment 13 of the receiver. When the parts are in this position, (see Fig. 1,) the breech-lock 8 is locked against the recoil of a discharging shell. The crank-arm of the locking-lever 9 is provided with a stud 92, with which engages a rod 14, which leads back from the operating-handle 5. On the opposite side of said crank-arm is a spring-pressed stud 93, which normally projects outward slightly, but is held from accidental disengagement by the head of a screw 94, which cuts into the side of said stud 93, as shown.

95 is a cavity or recess in the main body of the locking-bolt 9, and the same is of such size as to permit said locking-bolt to be raised so that the horn 103 on the firing-pin will rest within said cavity or recess when the firing-pin is advanced. (See dotted lines, Fig. 2.) When, however, the firing-pin is retracted and the locking-bolt 9 tilted into the locked position, the said horn will stand over the locking-bolt to the rear of the cavity 95, (see dotted lines, Fig. 1,) so that said locking-bolt cannot be raised. Hence while the locking-bolt 9 locks the breech-block in the closed position the firing-pin when retracted locks the locking-bolt in operative position. When the hammer 5 is retracted, the firing-pin is of course retracted or pushed back under the influence of the spring 101. As this is the condition that prevails when the user is ready to fire the gun and in order that the user may bring the gun to his shoulder and press the stock of the gun against the arm or shoulder by pulling back with the hand which grasps the operating-handle 5, it is important that

this rearward pull on the operating-handle 5 should not disengage the locking-bolt 9 from its operative position. It is to prevent this that I have arranged that the firing-pin shall lock the locking-bolt. In the absence of this supplemental locking device the user might retract the handle 5 preparatory to firing a gun just sufficient to disengage the locking-bolt 9 from the abutment 13, whereupon if the cartridge were discharged the recoil might force the breech-block rearwardly and cause injury to the operator. This, however, is absolutely prevented by the novel arrangement just described.

The carrier is constructed and operated substantially as follows: 111 is a spring-pressed stud carried at the forward lower end of the carrier and arranged to normally elevate the said carrier slightly and to a sufficient extent to cause the nose 115 at its forward end to rise slightly to the rear of the cartridge in the magazine, as is best seen in Fig. 2. The rear end of the carrier is provided with an incline 112, which affords an operating-shoulder against which the spring-pressed stud 93 engages on the first part of the forward excursion of the breech-block. This engagement causes the carrier to tilt in such a manner as to elevate its forward end and bring any cartridge that may be therein up into the front of the breech-block. By preference the stop 24 is provided on the inner side of the receiver, which stands under the rear end of the carrier to check it and prevent its forward end from being raised beyond the necessary height. By the time this is accomplished the rear end of the carrier is tilted down sufficiently far, so that the spring-pressed stud 93 will ride off the said incline 112, whereupon it will next engage with a beveled side surface 113, which serves to press the stud 93 back into its cavity in the crank-arm of the locking-bolt 9 until the end of said stud 93 bears against the plain side surface of the carrier. A second incline, 114, is provided on the carrier, and the same is engaged on the last part of the forward movement of the operating-handle 5. This engagement is effected between the end of the crank-arm of the locking-bolt 9 and said incline 114 and occurs at the same time the rear end of the locking-bolt moves down against the abutment 13. By this movement of the locking-bolt the forward end of the carrier 11 is depressed against the action of the stud 111, so that the parts will assume the position shown in Fig. 1. In this position the gun is in position for firing. The cartridges are indicated by dotted lines. The cartridges of the magazine are pressed rearwardly by the action of the usual spring-pressed follower 15. When the parts are as shown in Fig. 1, the cartridge on the carrier serves to hold the cartridges ahead of it in the magazine. When the hammer descends,



the firing-pin is advanced against the action of the spring 101 and the cartridge in the barrel is discharged. The advancing of the firing-pin unlocks the locking-bolt, whereupon the operator by pulling the handle 5 rearwardly first shifts the locking-bolt 9 into the position indicated in Fig. 2, which motion unlocks the breech-block and frees the carrier, the forward end of which tilts slightly under the influence of the spring-pressed stud 111, so that its nose 115 blocks the cartridges in the magazine against rearward movement. The continued rearward movement of the handle 5 moves the breech-block back, which motion extracts the empty shell after the usual manner until the same is engaged by the ejector 12 and ejected through an opening in the wall of the receiver. This is accomplished before the breech-block reaches the limit of its rearward excursion. When the operating-handle 5 is advanced, the carrier will be tilted down at its rear end and up at its forward end, so as to bring the cartridge thereon into line with the bore of the barrel and in front of the breech-block, which latter engages with the rear end of said cartridge, forcing it into the barrel, so that it will stand as shown in Fig. 1. The carrier meanwhile descends, the forward end 81 of the breech-block pushing the same down into approximately the position indicated in Fig. 2. The last slight forward movement of the handle 5 again tilts the locking-bolt 9, which locks the breech-block and depresses the forward end of the carrier, so that the nose 115 will free a single cartridge in the magazine, which is then moved back onto the platform of the carrier and temporarily serves to block the balance of the cartridges in the magazine against rearward movement. This completes one cycle of operations.

In the construction shown the detached side plate 21 has a longitudinal groove 23 on the inner side of the same, partially or wholly receiving the handle-rod 14, said groove forming a raceway therefor. This gives a greater compactness to the receiver portion of the gun than would otherwise be the case. I have described the crank-arm of the locking-lever as provided with a stud or hub which takes into a hole in the handle-rod 14. Obviously this arrangement could be reversed, the stud being formed on the handle and the hole being formed in the crank-arm.

The lower end of the crank-arm of the locking-bolt performs the function of a cam in giving to the carrier the slight downward movement at the extreme limit of the forward excursion of the handle, which movement, as before described, depresses the forward end of the carrier against the action of the spring-stud, so as to release one of the cartridges in the magazine and allow it to move back into the receiver and above said carrier.

In the drawings I have shown the firing-pin

as provided with the two lugs or brackets 102 102 to receive the spring. Obviously this permits only one convenient way of providing a spring-retaining recess in the firing-pin.

The bore of the cavity in the breech-block which receives the hub or pivot of the locking-bolt should preferably be slightly larger than said hub or pivot, so that the recoil of the gun will not be taken by the pivot, but rather by the ends of the locking-bolt. By this means all danger of bending said pivot is avoided.

It is obvious that changes may be made in the particular construction and arrangement of the parts herein described, since I have shown and described only the preferred form. It should also be understood, therefore, that I intend my claims shall cover mechanical modifications thereof.

What I claim is—

1. In a repeating firearm, a breech-block, a locking-bolt pivotally mounted at one end thereto, a firing-pin carried by said breech-block, a horn carried by said firing-pin and engaging said locking-bolt in its locked position when said pin is retracted, means for moving said bolt out of and into its locked and unlocked position and means for retracting said firing-pin.

2. In a repeating firearm, a breech-block, a tilting locking-bolt fulcrumed at one end thereto, a firing-pin carried thereby, a depending horn on said firing-pin, a recess or mortise in the locking-bolt adjacent to said horn, said horn overstanding said locking-bolt at the edge of said mortise when said bolt is in its locked position and the firing-pin is retracted, means for tilting said locking-bolt and means for retracting said firing-pin.

3. In a repeating firearm, a carrier pivotally mounted intermediate its length, a platform at one end to support a cartridge, an incline toward the other end, a bevel on the side face of said carrier and an operating part arranged to engage with the incline and tilt the carrier and to be freed from the edge of the carrier by engagement with the bevel side face.

4. In a repeating firearm, a tilting carrier pivotally mounted at a point intermediate its length, an incline at the rear end, a bevel on the side of said carrier forward of said incline, a cartridge-supporting platform at the forward end of said carrier, a reciprocating breech-block, a member connected to said breech-block and reciprocating therewith and operating said carrier when the breech-block is in one position and thrown out of the operative position by said carrier when said breech-block is in another position.

5. In a repeating firearm, a carrier pivotally mounted intermediate in its length, a reciprocating breech-block, a yielding stud carried by said breech-block and coacting with the carrier to depress the rear end and elevate the front end of said carrier when the breech-



block is in one position said stud being moved out of the operative position by said carrier when said breech-block is in another position.

6. In a firearm, a carrier pivotally mounted intermediate its length, a spring-pressed dent to elevate the forward end of said carrier slightly when the latter is unrestrained, a reciprocating breech-block, a locking-bolt carried by said breech-block, an arm depending therefrom, operating means connected to said locking-bolt, a spring-pressed stud carried by said depending arm said stud coacting with the rear end of said carrier to elevate the forward end on the forward reciprocation of the breech mechanism, the side of said carrier being beveled forward of said incline to press said stud back when the carrier has performed the function of elevating the cartridge to a position in front of the breech-block, and means carried by the reciprocating parts to depress the forward end of said carrier before the breech-block reaches the limit of its forward excursion.

7. In a repeating firearm, a firing-pin, a breech-block supporting said firing-pin, a groove in one face of said breech-block said firing-pin being located in said groove, a spring held by the firing-pin and carried between two shoulders thereon and projecting laterally thereof, one end of said spring engaging a portion of said breech-block and arranged to normally retract said firing-pin.

8. In a repeating firearm, a breech-block, a longitudinal groove therein, a firing-pin located in said groove and guided by said block, a spring held by said firing-pin and projecting laterally therefrom on each side thereof said groove in said block being widened to receive the projecting sides of said spring, said spring being arranged to encounter the shoulder at the end of the widened part of the groove when the firing-pin is advanced.

9. In a reciprocating firearm, a breech-

block, a longitudinal groove therein, a firing-pin located in said groove and guided by said block, two shoulders on said firing-pin, a coiled spring engaging between said shoulders the side of said spring projecting laterally thereof, said groove being widened to receive the projecting side of said spring and to form a shoulder at the forward end thereof.

10. In a repeating firearm, a firing-pin, brackets carried by said firing-pin, a coil-spring carried by said firing-pin between said brackets, the diameter of said spring being greater than the thickness of that part of the firing-pin adjacent thereto, a breech-block supporting said firing-pin, a shoulder on said breech-block adjacent to one end of said spring and arranged to receive the thrust thereof when the pin is advanced.

11. In a repeating firearm, a receiver, breech mechanism therein, a removable side plate, a reciprocating operating-rod entering said receiver, a groove on the inner side of said removable side plate to receive and steady said operating-rod.

12. In a repeating firearm, a receiver, breech mechanism therein, a removable side plate, a reciprocating operating-rod, a groove on the inner side of said side plate, said operating-rod entering said receiver through said groove in said side plate and steadied by the side walls of said groove.

13. In a repeating firearm, a receiver, a breech-block, a locking-bolt pivoted thereto and a detachable side plate for said receiver inclosing the same, a reciprocating operating-rod and a raceway in said side plate to receive and steady said rod.

Signed at New Haven this 20th day of July, 1903.

LEWIS L. HEPBURN.

Witnesses:

MAHLON H. MARLIN,  
M. L. Post.