

(No Model.)

C. B. WITHINGTON.

AUTOMATIC EJECTING MECHANISM FOR BREAKDOWN GUNS.

No. 485,313.

Patented Nov. 1, 1892.

Fig. 1.

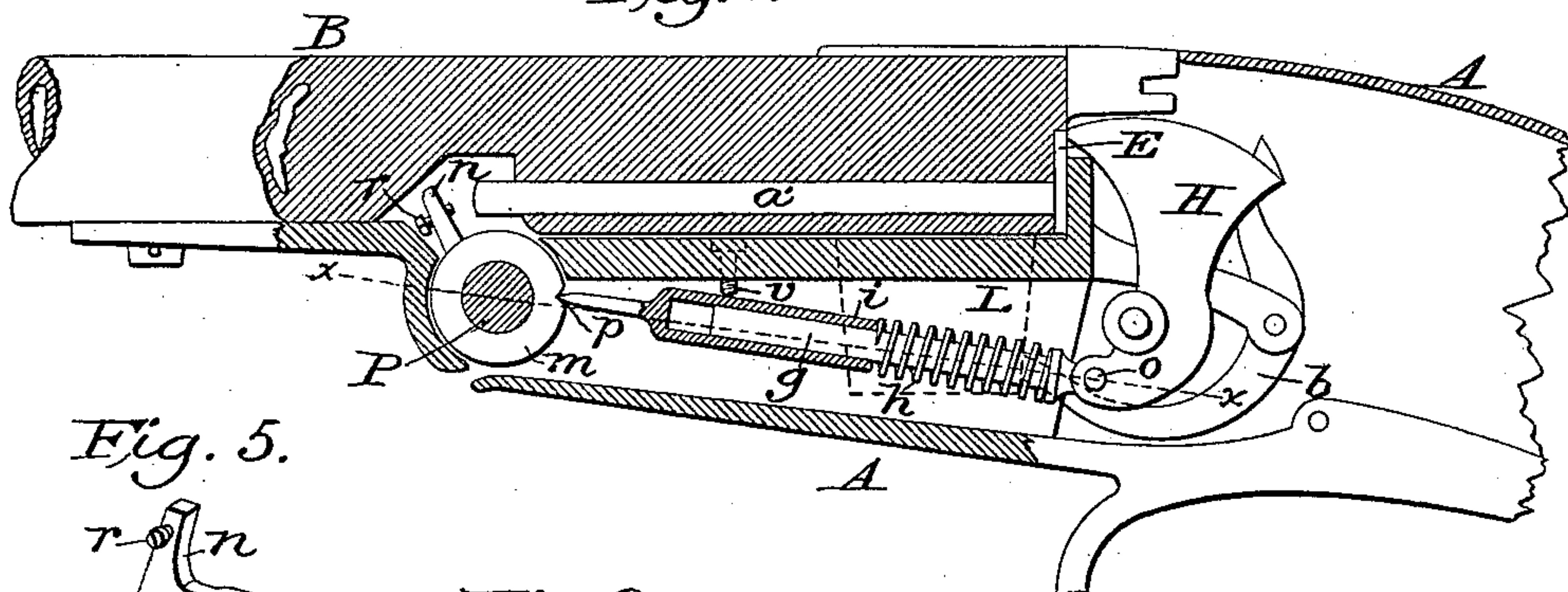


Fig. 5.

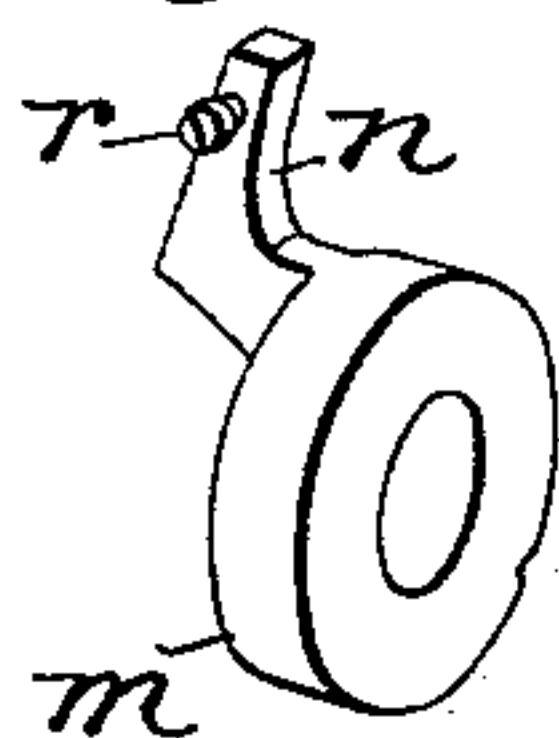


Fig. 2.

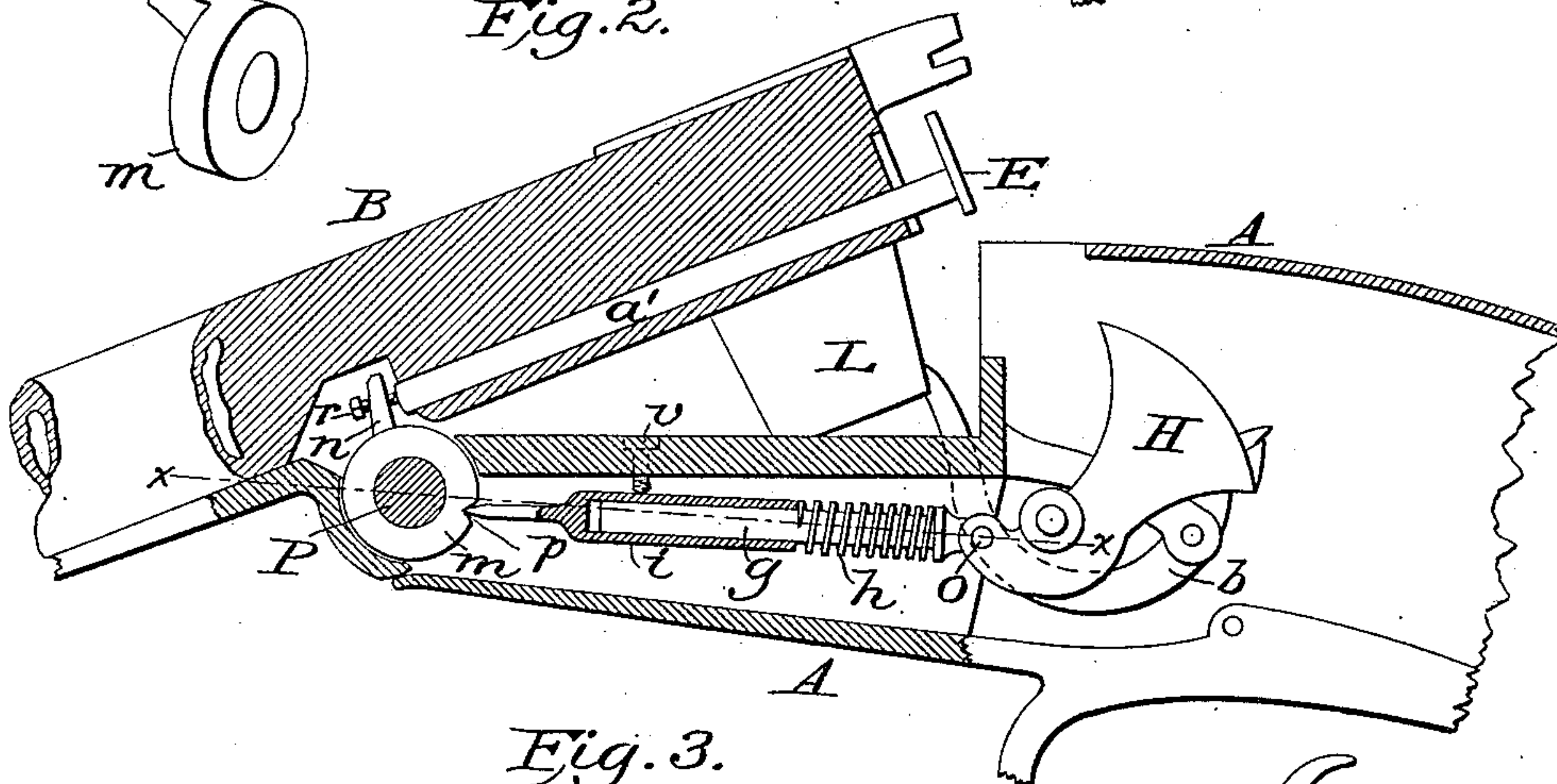


Fig. 3.

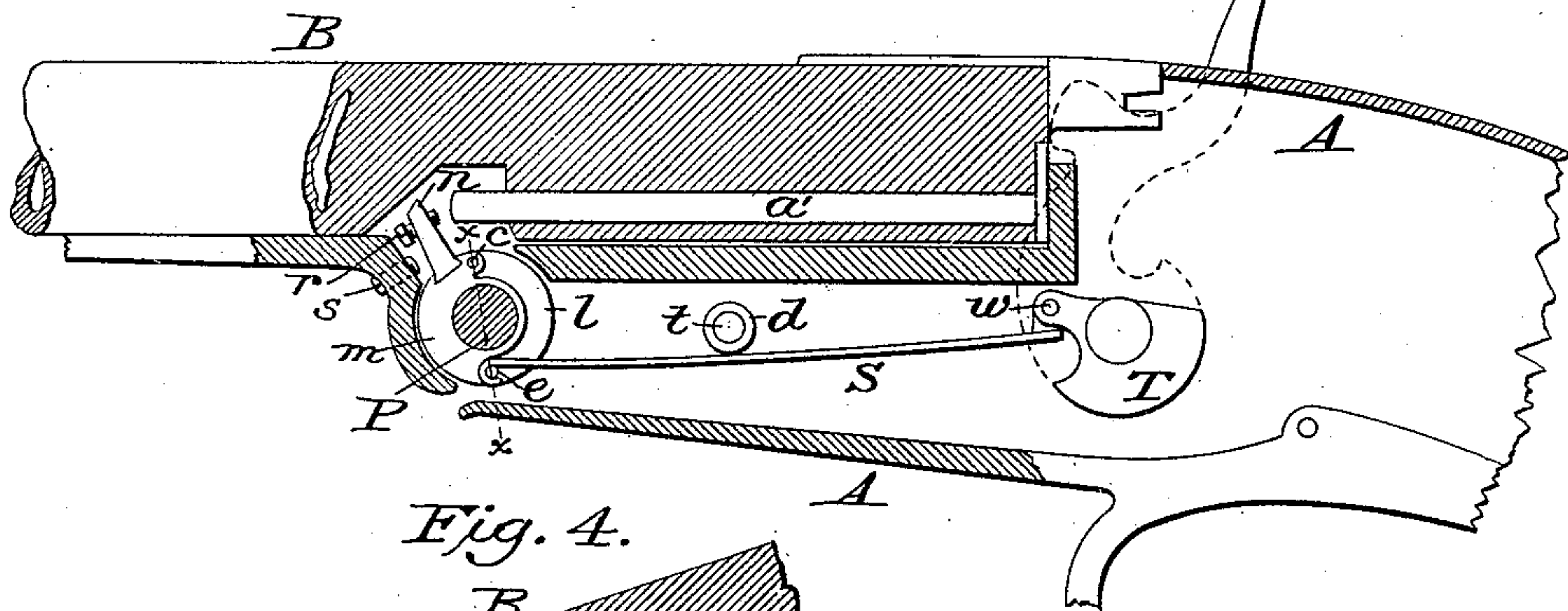
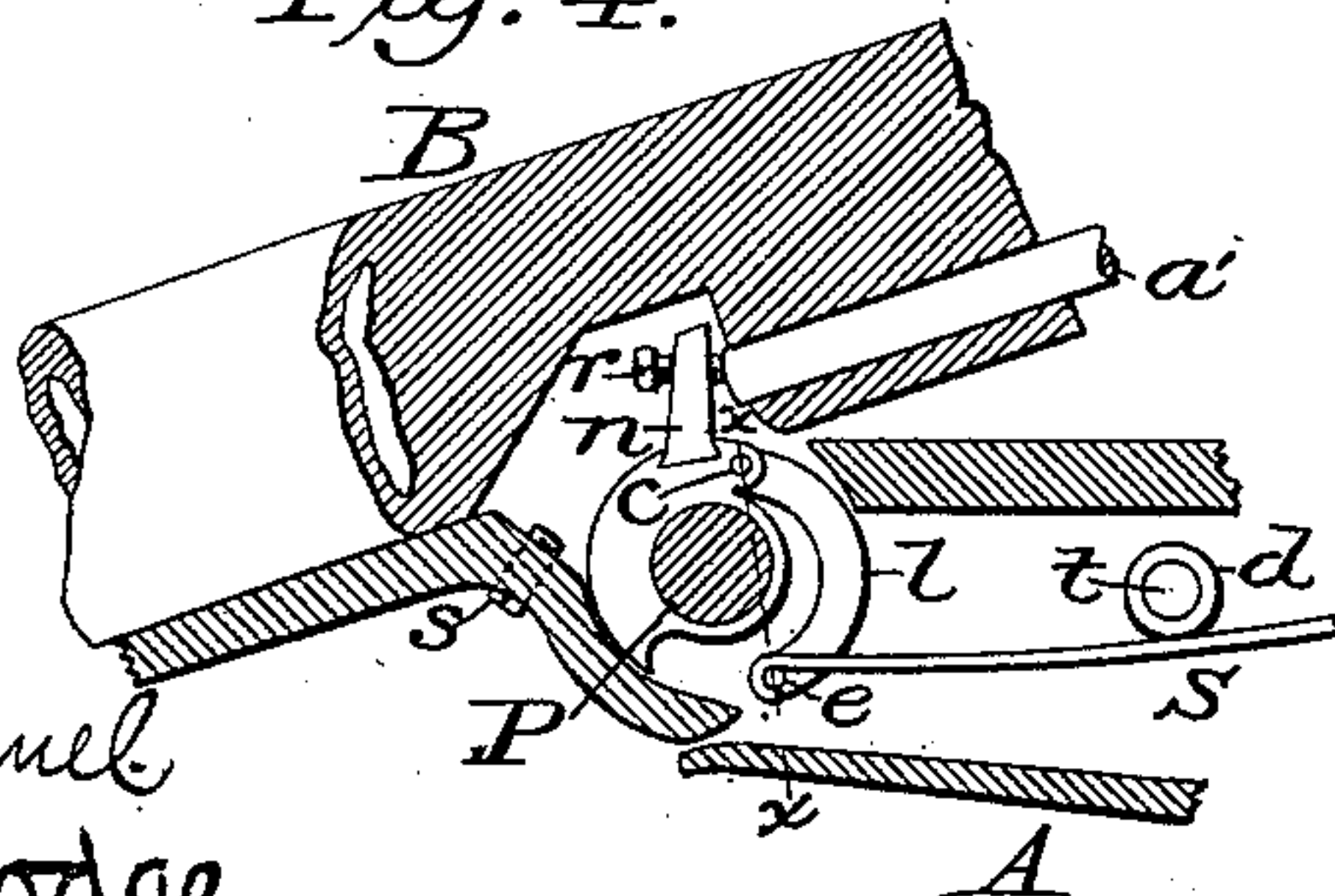


Fig. 4.



Witnesses.

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AUTOMATIC EJECTING MECHANISM FOR BREAKDOWN GUNS.

SPECIFICATION forming part of Letters Patent No. 485,313, dated November 1, 1892.

Application filed June 22, 1892. Serial No. 437,638. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. WITHINGTON, a citizen of the United States, residing at Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Breech-Loading Guns, of which the following is a specification.

My present invention relates to breech-loading guns; and the invention consists in a novel construction and arrangement of the devices for ejecting the cartridge-shells and the mainspring, whereby the latter is made to operate the former, and in means for adjusting the parts so that the ejector may be made to operate as an ordinary extractor when desired, all as hereinafter more fully set forth.

Figure 1 is a side elevation, partly in section, of that portion of a gun which contains the operating mechanism, showing the parts in the position they occupy when the barrels are closed. Fig. 2 is a similar view showing the position of the parts when the barrels are tipped or opened. Figs. 3 and 4 are corresponding views showing the application of a flat mainspring instead of a spiral one for the same purpose. Fig. 5 is a perspective view of the striker detached.

This invention may be considered as an improvement on the gun shown and described in Patent No. 467,217, issued to me January 19, 1892, though my present improvement may be applied to other styles of breakdown guns also.

In the drawings, A represents the frame, and B the barrels, of a double-barreled gun; and in Figs. 1 and 2 is shown the same style of hammer H, cocking-lever b, and spiral mainspring h as in the former patent; and as in this case the invention relates to the ejecting devices and the means for operating and adjusting them only it is unnecessary to describe the other parts of the gun in detail.

In this as in my former patent I make use of a striker m, located at the point where the barrels are hinged to the frame, to impart to the extractor E a sudden movement as the barrels are tipped to eject the shells, this striker, as in my former patent, being operated by the mainspring. This striker I make in the form of a disk m, with an arm or projection n, arranged to come opposite the stem a' of the extractor, as shown in the several

figures, it being journaled on the hinge-pin P, as shown. In one edge of the disk m I cut a notch p, in which the flattened or knife-edge point of the sleeve i bears, as shown in Figs. 1 and 2, this sleeve being forced forward by the spiral mainspring h, which at its opposite end bears against a shoulder on the rod g, which is pivoted by a pin o to the lower end of the hammer, which in this case serves as a tumbler. This notch p I so locate that when the barrels are closed the notch will be just above the center of the axis of the striker m, as shown in Fig. 1, the line x x passing from the center of the pin o (which connects the bolt g and sleeve i with the hammer) through the center of the hinge-pin P, on which the striker is journaled, showing the line in which the force of the spring is exerted on the striker m when the notch is opposite the center of the axis. Of course the instant this notch or point of bearing is thrown off the center to either side (above or below in this case) the force exerted by the spring will force the striker around on its journal, and consequently move its arm n forward or backward, according as the notch or point of bearing is moved to one or the other side of the center of the axis. If above the center, then the arm n of the striker will be thrown back, as shown in Fig. 1, and if below the center, then the arm n will be thrown forward, as shown in Fig. 2. In Fig. 1 these parts, together with the hammer H, are all shown in the positions they will assume supposing the gun to have just been fired. If now the barrels be tipped or dropped, the hammer will be forced back by the cocking-lever b, which, as shown, has its front end connected to the lug L on the under side of the barrels, and as the hammer is thus moved its lower end, with the rear end of the bolt g and spring h, will be swung upward in the arc of a circle, and as it thus moves upward the sleeve i will come in contact with the point of screw v, set in the frame directly over it, as shown in Figs. 1 and 2, and as its rear end continues to move upward its front end, resting in the notch p, will be thrown down far enough to pass the center of the axis, and the instant it passes the center the spring, which at this instant is under its greatest tension, will instantly force the striker around the point of bearing, passing

below the center and causing the arm n to strike a sudden blow against the end of the extractor-stem a' , thus imparting to it a sudden movement sufficient to eject the shells, the parts then being in the position shown in Fig. 2. As the barrels are brought back to the closed position, the extractor E , coming in contact with the face of the breech-piece, is forced inward to its seat, the end of its stem a' bearing against the arm n and forcing it back, and thereby turning the striker and carrying the notch p or point of bearing upward past the center to the position shown in Fig. 1. From this description and illustration it will be apparent that the mechanical principle involved and by which the striker is made to operate and eject the shells consists in so arranging the parts as to cause the point of bearing through or by which the spring exerts its force on the striker to pass from one to the other side of the center of the axis of the striker and which may be done in a variety of ways. If, for instance, it be desired to apply this invention or mode of operation to a gun having a flat instead of a spiral mainspring, it may be done as illustrated in Figs. 3 and 4. In this case I pivot the rear end of the spring S to the tumbler T by a pin or joint w , located so that in cocking the hammer this joint will swing upward and backward, thereby drawing the spring slightly backward in cocking the hammer. The spring bears about midway of its length against a stud or pin t , on which I place a roller d , as shown in Figs. 3 and 4, to facilitate the endwise movement of the spring. At its front end the spring is pivoted to a curved link l , the upper end of which is pivoted to the striker m , the edge of the latter being cut away on the side adjoining the link to afford room for the latter, though this is not a necessity. The length of the curved link l is such that when the parts are in the position shown in Fig. 3 and which represents the barrels closed the same as in Fig. 1, a line xx drawn through the center of the joints c e will pass a little to one side of the center of the axis, thus showing that the force of the spring is at that time exerted on that side of the center, thereby tending to force the arm n of the striker over and hold it in the position shown in Fig. 3. When the barrels are tipped and the hammer cocked, (whether automatically or by hand,) the spring is drawn back, and the instant the joint e passes the center of the axis it operates through link l to pull the striker over to the position shown in Fig. 4, thereby causing it to impart to the extractor a sudden movement, the same as above described, the only difference being that in this instance the spring exerts its force on the striker by a pull and in the former by a push. In both the line of force of the spring on the striker is caused to move from one to the other side of the center of the axis of the striker. This form is especially adapted to applying my invention to guns of the old style, in which

the hammers are cocked by hand, such a hammer being shown in dotted lines in Fig. 3; but it is obvious that the flat spring may be used with hammers arranged to be cocked automatically by the tipping of the barrels, and whether concealed hammers be used or not, the mode of operation of the striker being the same in all cases.

It is obvious that the front end of the sleeve i (shown in Figs. 1 and 2) may be pivoted to the striker m ; but I prefer the plan shown, as it is simpler to construct, and by making the bearing-point of the sleeve flat or knife-edged the friction is reduced to the utmost limit.

I prefer to use a separate extractor for each barrel, each provided with its own striker, so that each shall be operated by the spring of the lock on that side, though it is obvious that a double extractor may be operated in the same manner and by the same means.

Thus far I have described my invention arranged to eject the shells—that is, to throw them entirely out of the barrels, as is desirable when the common paper shells are used. When brass shells are used, or any kind that it is desired to save and reload, it is preferable that they be not ejected, but only moved so that they can be taken out by hand. This is accomplished by simply providing means for limiting the movement of the striker so that when the barrels are closed the point of bearing or line of force of the spring will not be moved past the center of the axis. This may be done in many ways, the simplest being to use set-screws s , arranged in rear of the arms n , as shown in Figs. 3 and 4. By turning these screws the proper distance the arm n of the striker will come in contact with them just before the point of bearing or line of force passes the center, in which case the arm n will not be thrown over away from the end of stem a' , but will continue to bear against it when the barrels are closed, and consequently as the barrels commence to tip the extractor will begin to move and will continue to move gradually, the same as the extractor of an ordinary gun. In that case of course the shells will be moved only to the extent that the extractor is moved, thus leaving the shells hanging loosely in the barrels, from whence they will be removed by the hand and preserved. When the spiral spring is used, as in Figs. 1 and 2, this adjustment can be effected by means of the screw v , it only being necessary to set it down far enough to prevent the bearing-point from rising above the center of the axis, in which case the extractor will operate as last above described.

For the purpose of adjusting the strikers so that the point of bearing will pass more or less to the one or the other side of the center of the axis, I provide the arms n with a set-screw r , as shown in each figure. By turning this screw in or out the striker can be adjusted as may be desired. By making these screws longer and making the extractor-stem a' cor-

respondingly shorter, it is possible to adjust the strikers by them, so that the point of bearing will not pass the center when the barrels are closed, and thus dispense with the screws 5 s; but I prefer to use both, as by so doing the means of adjustment are increased and the screws can be made shorter and be less liable to become bent or injured.

By these improvements I greatly simplify 10 and cheapen the construction of my gun, dispense with several of the parts and their joints, render the whole more simple and compact, and enable the extracting devices to be so adjusted as to operate either as an ejector 15 or as an ordinary extractor at will, and also enable the improvement to be applied to various styles of guns.

Having thus described my invention, what I claim is—

20 1. In a tip-barrel gun, the combination of a sliding extractor, a pivoted striker arranged to operate said extractor, and a mainspring arranged to operate the hammer and also exert its force first on one and then on the op-

posite side of the center of the pivot or axis 25 of the striker by the cocking of the hammer and the tipping movement of the barrels, substantially as shown and described.

2. The pivoted striker *m*, provided with an arm or projection having a set-screw *r* ar- 30 ranged to operate in connection with the stem of the sliding extractor for adjusting the movements of the striker, substantially as shown and described.

3. In combination with a sliding extractor 35 and a pivoted striker, with means, substantially such as described, for operating the same, a set-screw arranged to operate as a stop to limit the movement of the striker when adjusted for that purpose, whereby the 40 ejecting devices may at will be made to operate as an ordinary extractor, as set forth.

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

CHARLES B. WITHINGTON.

Witnesses:

JOHN CUNNINGHAM,
MAUDE L. YOUNG.