(No Model.) 2 Sheets—Sheet 1.

M. A. KELLER.

AUTOMATIC SHELL EJECTOR FOR BREECH LOADING GUNS.

No. 488,316. Patented Dec. 20, 1892.

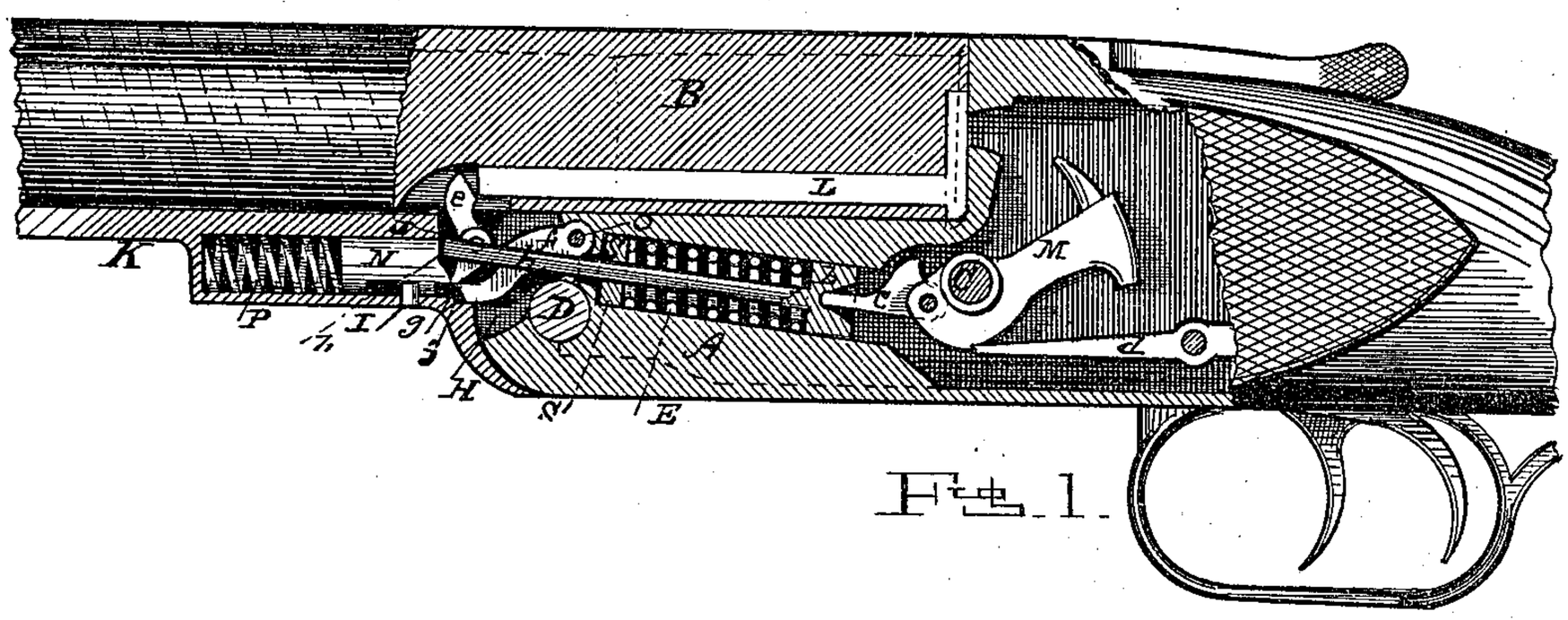

Fig. 1.

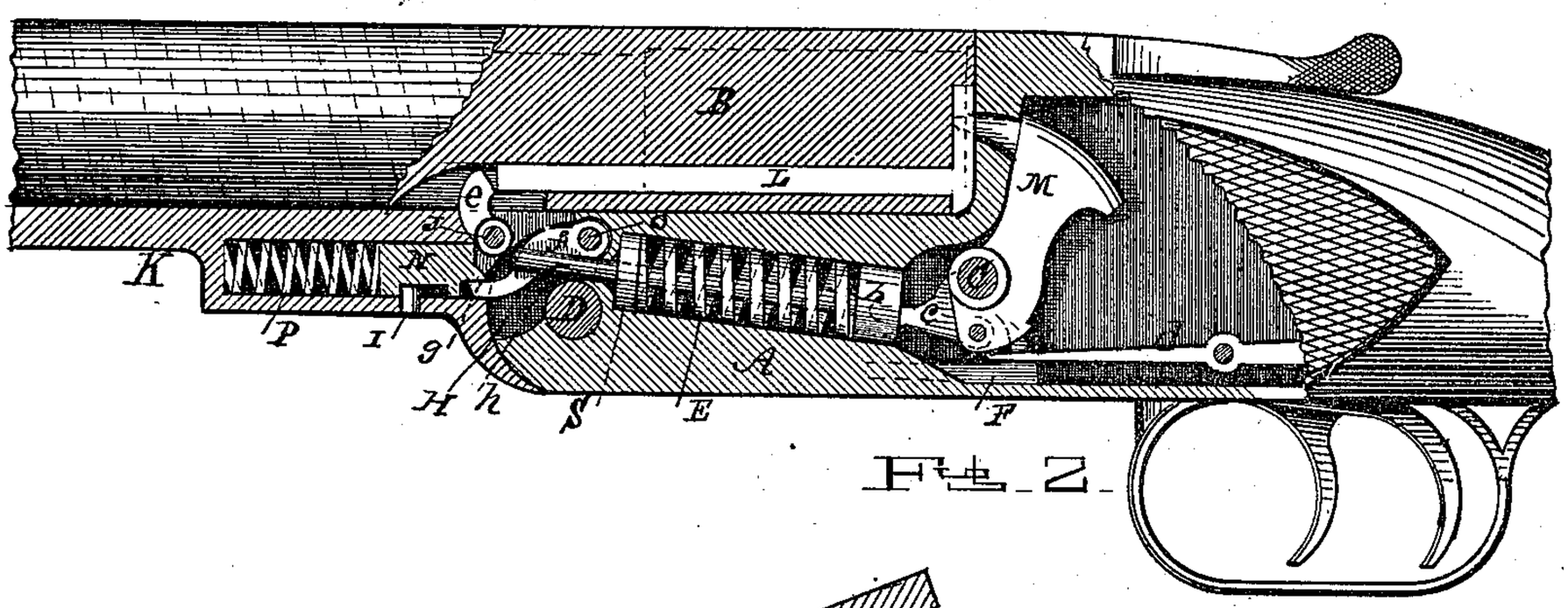

Fig. 2.

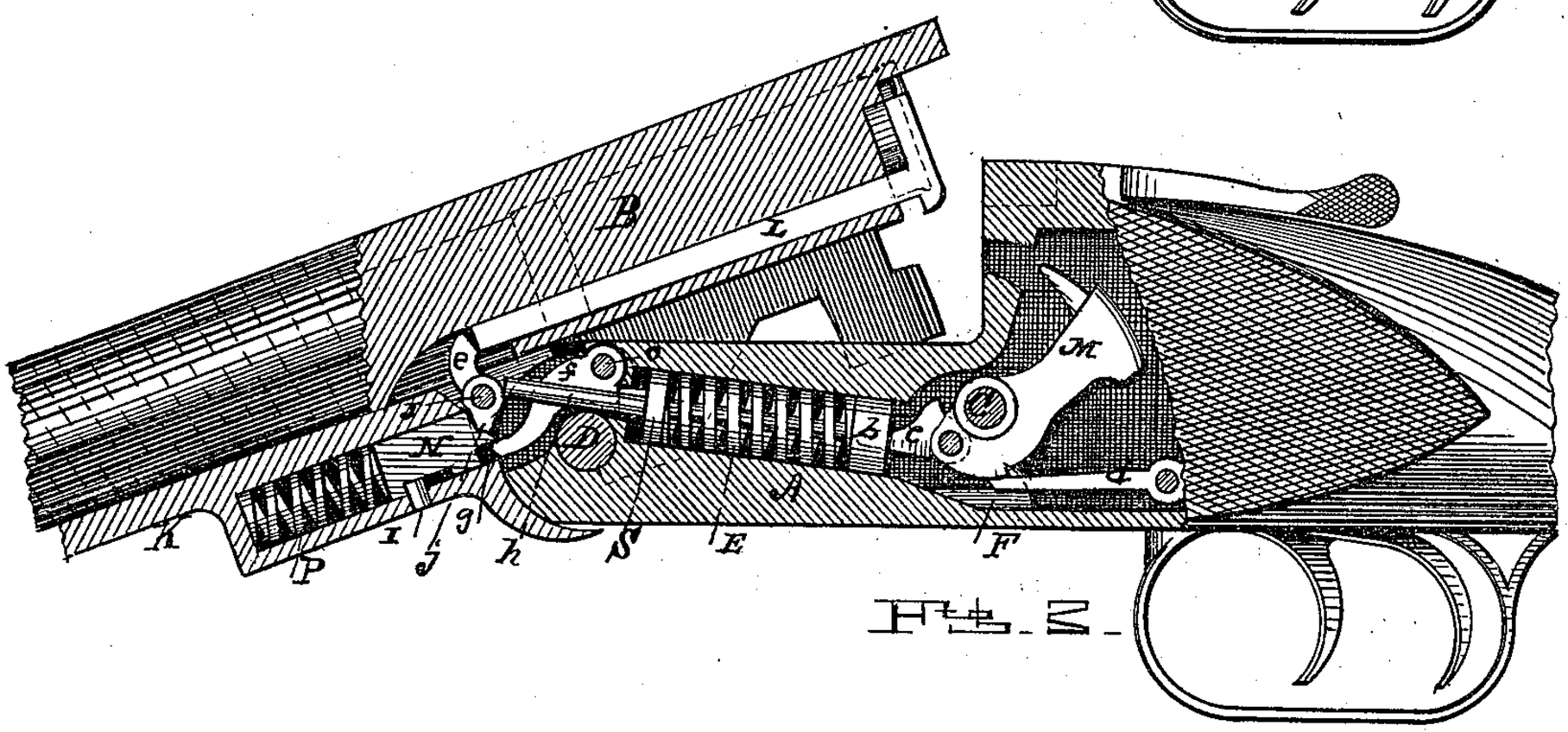

Fig. 3.

WITNESSES.

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(No Model.)

2 Sheets—Sheet 2.

M. A. KELLER.

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Fig. 4.

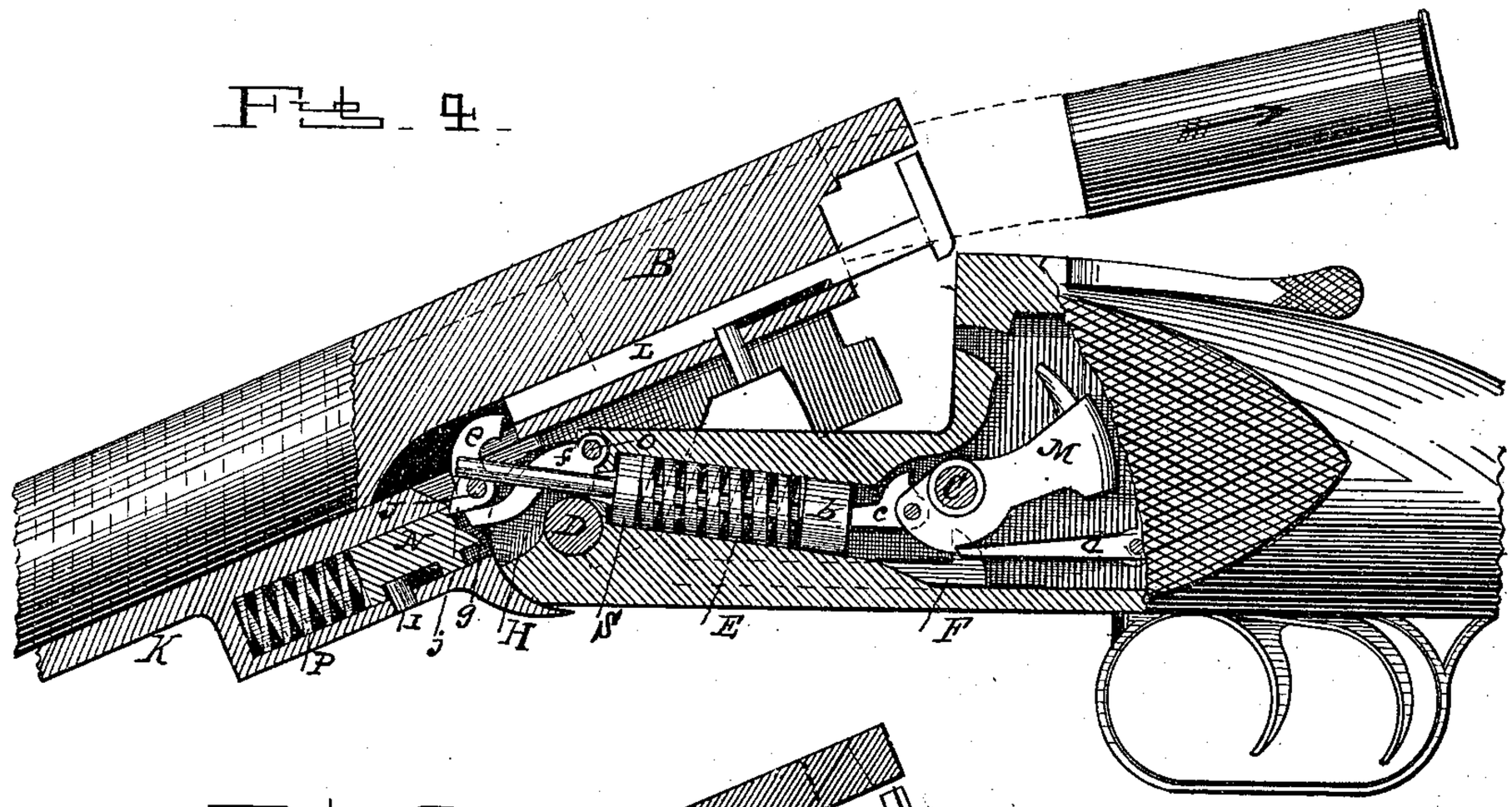


Fig. 5.

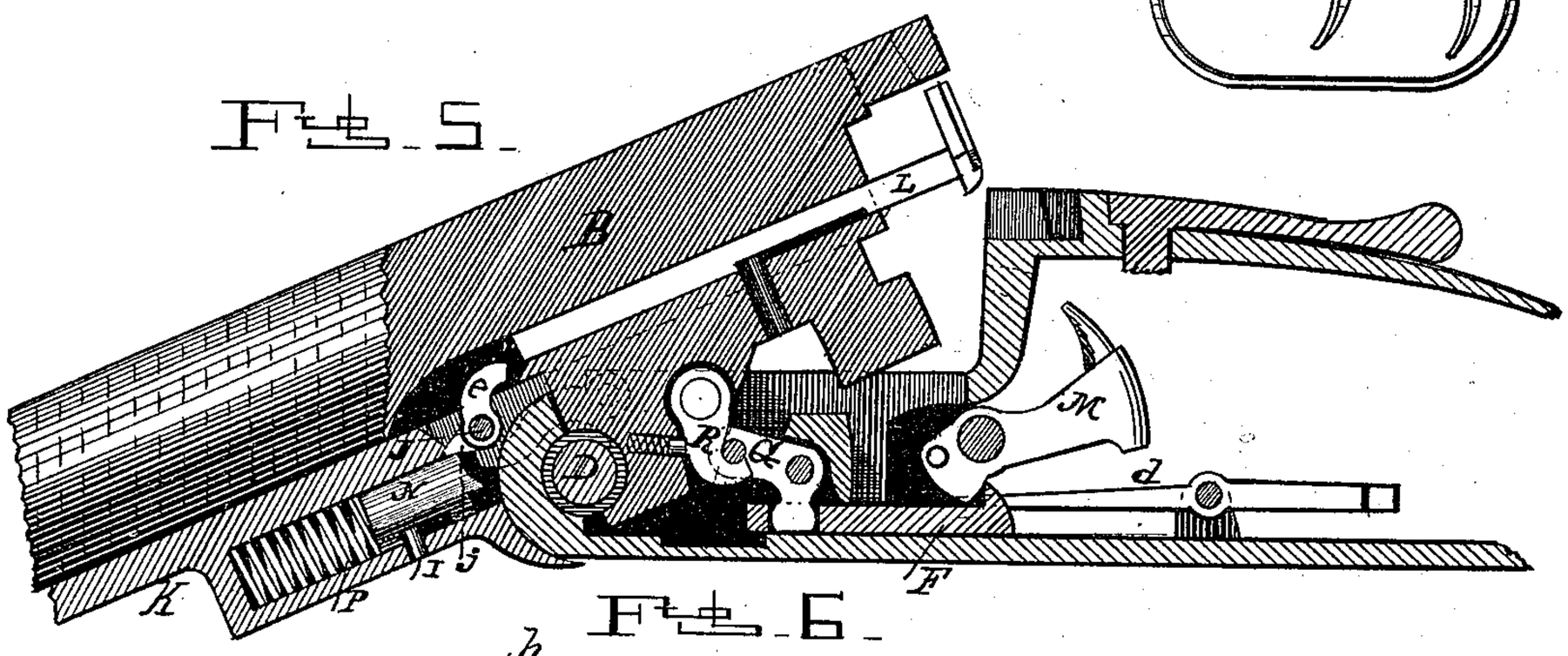


Fig. 6.

Fig. 7.

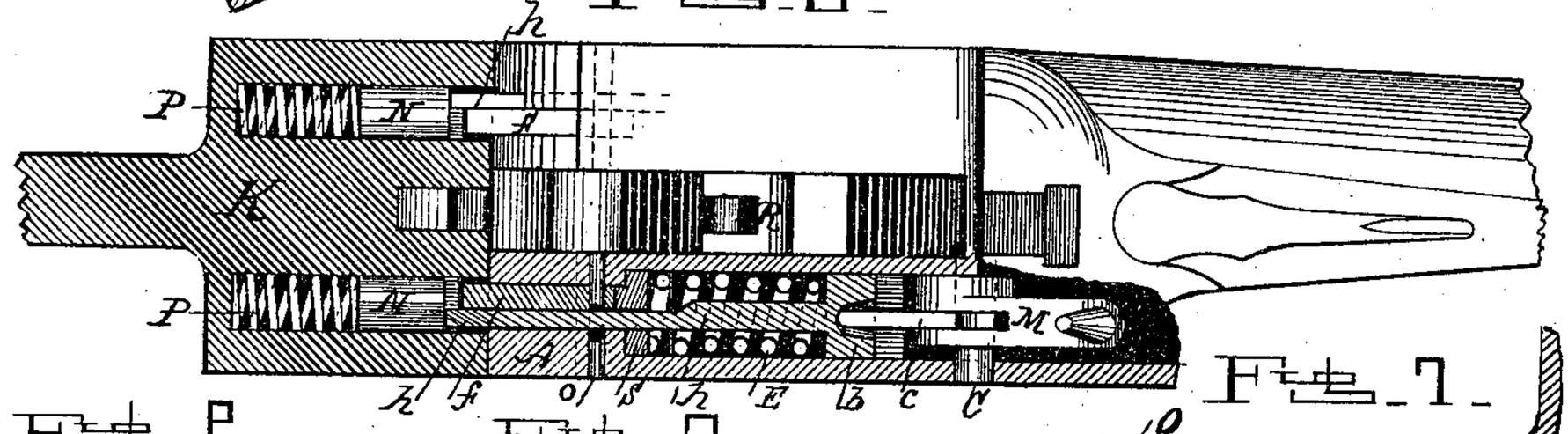


Fig. 8.

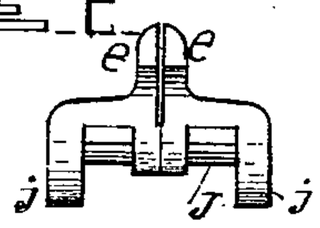
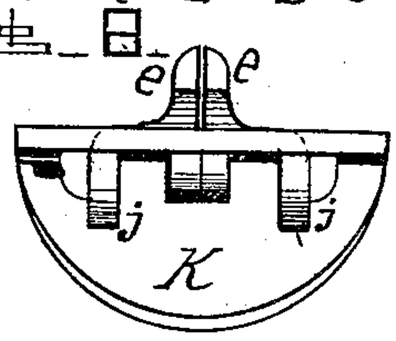
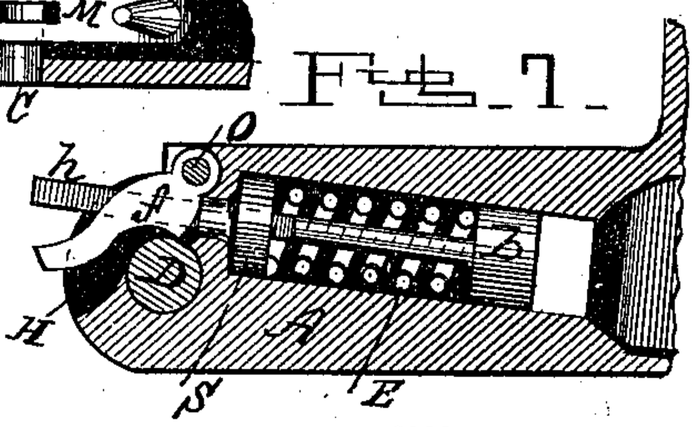


Fig. 9.





WITNESSES.

J. R. Keller

M. E. Keller

INVENTOR.

M. A. Keller

UNITED STATES PATENT OFFICE.

MOSES A. KELLER, OF BATAVIA, NEW YORK.

AUTOMATIC SHELL-EJECTOR FOR BREECH-LOADING GUNS.

SPECIFICATION forming part of Letters Patent No. 488,316, dated December 20, 1892.

Application filed October 22, 1891. Renewed September 29, 1892. Serial No. 447,227. (No model.)

To all whom it may concern:

Be it known that I, MOSES A. KELLER, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented a new and useful Improvement in Automatic Shell-Ejectors for Breech-Loading Guns, of which the following is a specification.

My invention relates to improvements in automatic shell ejectors in which the main springs of the locks are employed for power to actuate the mechanism; and the objects of my improvement are, first, to provide an automatic shell ejector which will work independent of the cocking action of the locks so that the latter will always cock before the shells are knocked out, and without necessitating the opening of the gun any further than is necessary to allow the shell to pass, out over the frame, second in getting the full power of the main springs of the locks to operate on the ejector mechanism to force the shell out; and it consists in various other important features hereinafter pointed out, and which—I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure, 1, is a longitudinal sectional view through one of the locks, and my improvements, as the same would appear when the gun is closed and the parts in their normal position, and with the firing hammer in full cock. Fig., 2, is a similar view as Fig. 1, but with the firing hammers let down, or as the same would appear after the gun had been fired, and before the same was opened for reloading. Fig., 3, is a similar sectional view as the two preceding figures, but with the action partially opened, and the locks about half cocked. Fig., 4, is a similar sectional views as Fig. 3, but with the action brought to full cock, and the shells knocked out of the barrels. Fig., 5, is a longitudinal sectional view through the cocking action showing, the position of the parts, at the time the locks are brought to full cock. Fig., 6, is a top plan of the main frame with the fore-end and one side of the frame in section, and as the same would appear when the action is in its normal position at full cock. Fig. 7, is a sectional view of the forward end of the main frame carrying the main springs and parts of the ejector actuating mechanism, and Figs. 8, and 9, are detail views of the fore-end and ejector hammers.

Similar letters refer to similar parts throughout the several views, as will appear in the following specification.

The mechanism illustrated in the annexed drawings represents the well known Parker Bros. hammerless, double barreled shot gun, and my improvements, relate to automatic shell ejectors, in combination with the peculiar lock actions of this gun, or guns having a similar lock action using a coiled main spring, and mechanism compressing the main spring simultaneously from both ends, in the act of opening the gun for cocking and reloading, it after being fired thereby having the full force of the main springs to actuate the shell ejector mechanism, and without tilting the barrels any further than is necessary to allow the shells to pass out over the frame.

For the sake of convenience I will describe but one lock. While there are two represented in the drawings they are precisely the same, and this is due to the fact that the drawings represent a double gun, but each lock acts independent of the other, and the operation of the mechanism would be substantially the same in a single barrel gun.

E represents the main spring, *b*, the main cocking plunger of the lock, and S the supplemental plunger or compressing disk of the ejector mechanism, these three members are loosely fitted into a hole drilled in the frame A, forward of the firing hammer M. The compressing plunger *b*, is provided with a long rod *h*, extending through the spring E, and through a hole in the disk S, and a hole in the end of the frame, into the slot H, as plainly shown in all the drawings except 5, 8 and 9, a cam lever F, is fitted into the slot H, and journaled upon a pin *o*, and is free to vibrate up and down in the slot, during the operation with the opening and closing of the gun for reloading, the compressing disk S, has a short stem projecting into the slot H, and bearing against the cam portion of the lever F, as shown in Fig. 7. The hammer M, is journaled upon the pin C, which is secured in the frame A, pivoted to the lower end of the said hammer is a small pushing lever *c*, and which enters the hollow of the plunger *b*, and holds said plunger up against the spring E, and

through which the spring communicates its power to the hammer. Referring to Fig. 1., we have the whole action in its usual position ready for firing. The ejector actuating hammer is journaled in the fore-end K, upon a pin J, and is provided with a short arm *j*, that engages with the lever F. A sliding sear N is also fitted into the fore-end K, and provided with a spring P, a pin I, limits its forward movement and retains it in its place. Now when the action is in the position shown in Fig. 1, the rod *h*, is pushed out beyond the frame A, and up against the sear N, and forces the latter against the resistance of the spring P, and holds the sear N, out of action with the lever F, and as long as the hammer M, is at full cock as is shown in Fig. 1, the gun can be opened and closed without having the loaded shell knocked out, of the gun, but when the gun is fired or hammer let down as shown in Fig. 2, the rod *h*, recedes from the sear N, and the spring P, forces the sear forward which catches over the end of the lever as represented by *g*, in Fig. 2. Now when the gun is opened and the barrels B, which are hinged upon the pin D, begin to tilt, the lever F, is carried down in the slot and by this action forces the disk S, back against the spring E, until the breech end of the barrels is high enough to allow the shells to pass out over the frame A, this position is shown in Fig. 3, and a little later in Fig. 4, the lever F being pivoted at a point eccentric to the hinge pin D, it becomes shorter as the barrels continue to tilt, until it slips off the sear N, and strikes the short arm *j*, of the ejector hammer *t*, and forces the latter against the rod of the shell ejector L, in the manner shown in Fig. 4, and the shell is thus knocked out of the barrel, simultaneously with the opening of the gun, the cocking of the hammers M, takes place, which is attained through the lever R, cocking crank G, and the slide F, the latter hooks over a heel formed at the lower end of the hammer M, the crank G, is pivoted in the frame A, its lower end engages a mortise in the slide F, and its upper end is provided with a pin that hooks into the lever R, that is pivoted into the main lug of the barrels all plainly shown in Fig. 5, it will be seen by this construction, that the short lever *c* pivoted to the hammer M, forces the plunger *b*, against the main spring E, and compresses the latter in the act of opening the gun after the hammer M, had been snapped or let down, and the same time the rod, *h*, is pushed out. And as the gun is again closed, the rod *h*, comes in collision with the sear N, and holds the same back in the position shown in Fig. 1, the sear *d*, holds the hammer M, cocked until relieved by a pull on the trigger.

It will be seen by reference to Fig. 3, that the main spring E, is compressed simultaneously from both ends, by the disk S, and the plunger *b*, in the act of opening the gun after firing, and the spring gains its greatest force at the moment the lever F, slips off the sear N, and thus forces the lever F upon the arm *j*, of the ejector hammer *e*, until the disk S, is forced home, as shown in Figs. 4, and 6. It will be seen by this arrangement and construction, the cocking of the hammers M, and leaving them under the full power of the spring is not interfered with by the working of the ejector mechanism, through the power of the main spring, nor necessitate the tilting of the barrels further after the shells have been knocked out, in order to cock the firing hammers, as the cocking of the hammers M, and the knocking out the shells are simultaneous as the barrels reach the limit of tilt, at the point shown in Fig. 4, or the timing of the parts is such that the hammers, M, cock a little prior to the knocking out the shells, thus making sure that the hammers are cocked, and ready for closing them when loaded.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent, is,

1. In a breech loading gun in which the barrels are hinged to the frame, the combination of the shell ejectors fitted to the barrels, hammers actuating said shell ejectors pivoted in the fore-end or forward of the hinge upon which the barrels swing, vibrating levers pivoted in the frame at the hinge end with their pivot located at a point between the barrels and the center of the hinge upon which the barrels swing, mechanism connecting said levers with the main springs, said levers being adapted to actuate the ejector actuating hammers, sliding sears mounted in the fore-end and provided with springs, and adapted to engage with the vibrating levers and depress said levers against the resistance of the main springs when the barrels are tilted after the gun has been fired, reciprocating rods operating in conjunction with the main springs and firing hammers, and adapted to operate in conjunction with the sears in the fore-end whereby the automatic action of the ejector actuating mechanism is controlled, all substantially as shown and described.

2. In a breech loading gun in which the barrels are hinged upon the frame, the combination, with the shell ejectors and the ejector actuating hammers, of the vibrating levers pivoted in the frame with their pivot at a point away from the center of the hinge upon which the barrels swing, whereby said levers have an eccentric movement to the axis or hinge center on which the barrels swing, but to vibrate in the same vertical plane as the barrels, the sliding sears in the fore-end or located forward of the hinge of the barrels and adapted to engage with said vibrating levers, springs holding said sears in contact with the levers, means whereby said levers are caused to slip off the sears automatically as the barrels reach their limit of tilt and cause the levers to force the ejector actuating hammers against the shell ejectors, as and for the purpose set forth.

3. In a breech loading gun, in which the barrels are hinged upon the frame, the combination with the shell ejectors and the main frame, of the ejector actuating hammers pivoted in the fore-end or forward of the hinge upon which the barrels swing, levers pivoted in said frame, having their pivot located at a point distant from the center of the hinge upon which the barrels swing, and having a vibrating motion in the same vertical plane as the barrels and adapted to engage with the ejector actuating hammers, the intermediate mechanism connecting said levers with the main springs, whereby they receive their power for actuating the ejector actuating hammers, the sears in the fore-end provided with springs and adapted to engage and disengage with the levers, as described, reciprocating rods connected with and operated positively by the main cocking plungers, and adapted to operate in conjunction with said sears, and control the action of the same, substantially as and for the purpose described.

4. In a breech loading gun in which the barrels are hinged upon the frame, the combination, with the shell ejectors, and the main springs, of the ejector actuating hammers pivoted in the fore-end vibrating levers pivoted in said frame, and having the same vertical vibrating motion as the barrels, and adapted to engage with the ejector actuating hammers, and cause them to operate said hammers as described, movable disks connecting said levers with the main springs, sears in the fore-end and adapted to engage and disengage with said levers as described, rods connected with and operated positively by the reciprocating cocking plungers and adapted to operate in conjunction with said sears and hold the same out of engagement with the vibrating levers, and against the resistance of the sear springs while the gun or firing hammers are cocked, and to recede from said sears when the firing hammers are snapped, or the gun fired and allow said sears to engage with the vibrating levers and cause said levers to compress the main springs, and operate the ejector actuating hammers when the gun is opened, as set forth.

5. The plungers *b*, alternately reciprocated by the hammers M, and the main springs E, and provided with the rods *h*, and connecting with or operating in conjunction with the sears N, and controls the automatic action of the ejector mechanism.

6. The vibrating levers F, pivoted in the frame A, at the opposite end of the main springs, as the plungers *b*, the intermediate movable disk S, adapted to connect the levers F, with the main springs E, and cause said levers to operate as and for the purpose set forth.

7. The ejector actuating hammers *e*, having the downwardly projecting arm or stud *j*, and adapted to engage with the levers F, as and for the purpose set forth.

8. The combination with the main frame, the main springs, and the fore-end, of the ejector hammers pivoted in said fore-end, the levers for actuating the ejector hammers pivoted in the main frame, the sears for holding said levers against the resistance of the main springs when the gun is opened, said levers being adapted to slip off the sears and strike the ejector hammers when the locks have been snapped, or hammers let down, the rods on the cocking plungers of the main hammers extending through the main springs and the end of the frame and operating in conjunction with the sears and hold the same out of action with the levers that actuate the ejector hammers so that said levers can not compress the main springs, when gun is opened, while the firing hammers remain cocked and thereby prevent the ejector hammers operating or striking the shell ejectors, all substantially as shown and described.

M. A. KELLER.

Witnesses:
J. R. KELLER,
I. M. KELLER.