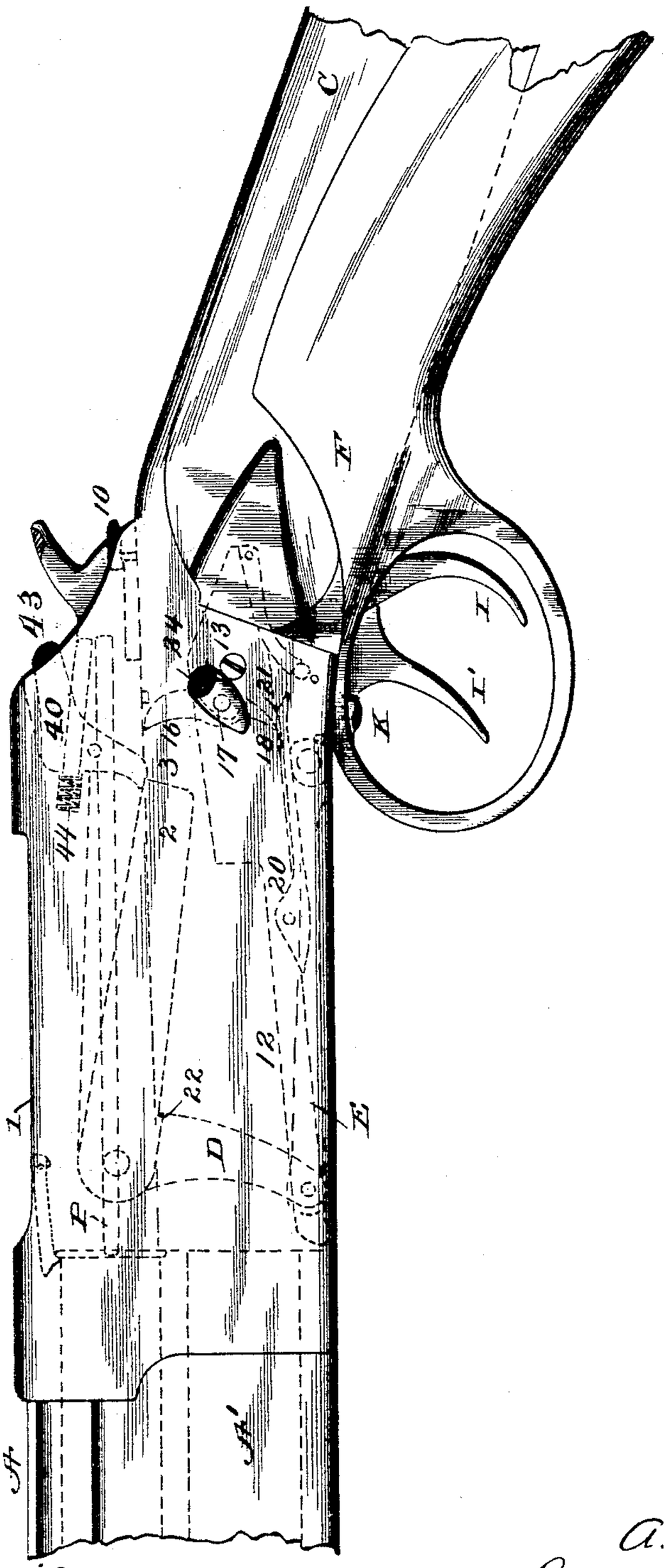
(No Model.) 2 Sheets—Sheet 1.

A. BURGESS.

INERTIA PIECE, RELEASING SECOND BARREL BY RECOIL OF FIRST.

No. 520,559. Patented May 29, 1894.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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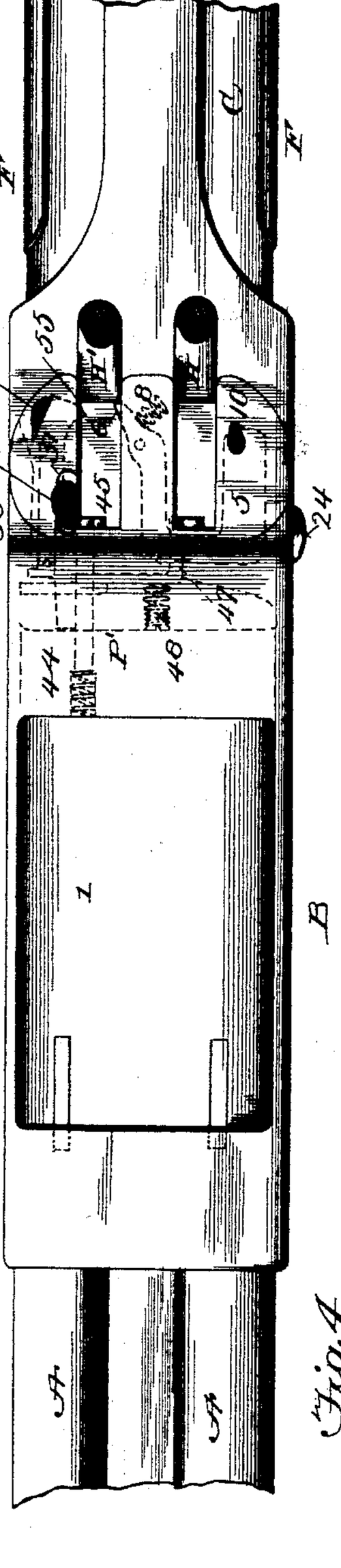

Fig. 2.

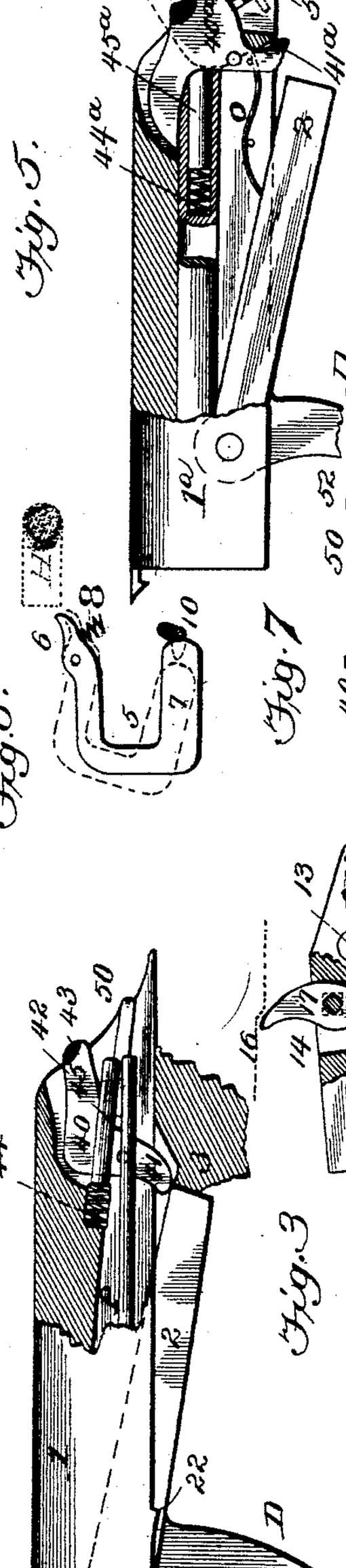

Fig. 5.

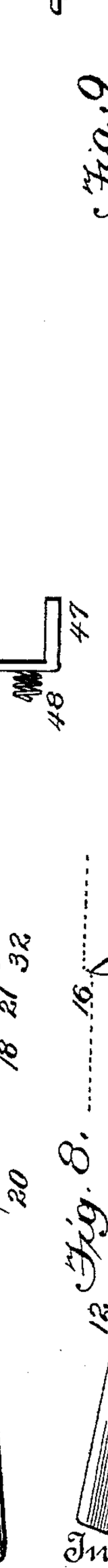

Fig. 9

Fig. 6.

Fig. 7

Fig. 4

Fig. 3

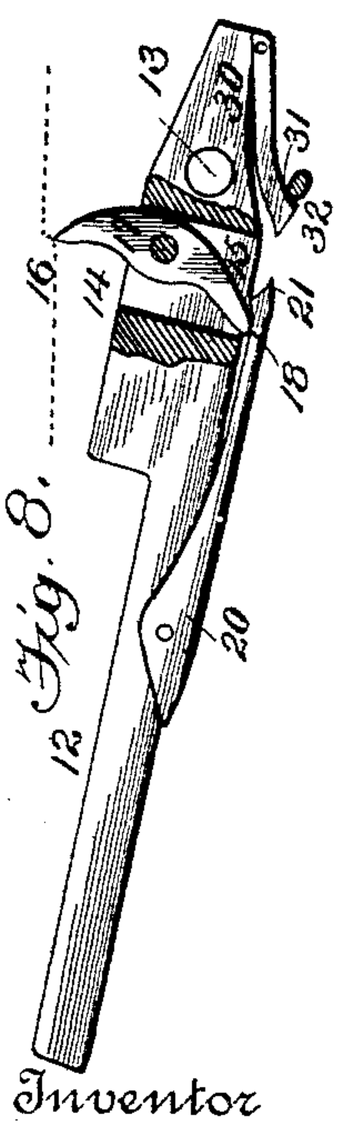

Fig. 8.

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UNITED STATES PATENT OFFICE.

ANDREW BURGESS, OF BUFFALO, NEW YORK.

INERTIA-PIECE, RELEASING SECOND BARREL BY RECOIL OF FIRST.

SPECIFICATION forming part of Letters Patent No. 520,559, dated May 29, 1894.

Application filed May 19, 1892. Serial No. 433,601. (No model.)

To all whom it may concern:

Be it known that I, ANDREW BURGESS, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Magazine-Guns and Methods of Firing, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to magazine guns, although applicable to some extent to other guns.

The object of the invention is to produce a double gun in which the second barrel may be fired by the shock of firing the first barrel; also to render one cartridge feeder inoperative when one barrel only is fired; also to lock the breech mechanism in such manner that it may be unlocked by the shock of firing; also to improve the cartridge feeding mechanism; also to improve various parts of a gun.

Figure 1 is a side elevation of the breech action of a gun, the main operating parts being indicated within the frame in dotted lines. Fig. 2 is a top plan, showing about the same portion of the gun as Fig. 1. Fig. 3 is a side elevation, partly broken away, of one carrier, showing the operating abutment, and the spring and connection for holding the carrier raised or depressed. Fig. 4 is a detail view of the bolt, partly in section, showing locking brace, and so much of the adjunctive mechanism as is necessary to show the connection of the inertia piece which locks the brace. Fig. 5 is a detail view of the bolt and some of its connections slightly modified and partly in section, showing the inertia piece in inoperative position. Fig. 6 is a detail of the supplementary sear. Fig. 7 is a detail plan of the inertia piece and its bolts and springs, and a foil. Fig. 8 is a detail of the carrier in raised position. Fig. 9 is a detail of a part shown in Fig. 5.

A A denote the barrels, B the frame, and C the stock, having the usual relation of these parts.

The bolt 1 is broad enough to close both barrels, (where two barrels are used,) and is held in closed position by a locking brace 2, which turns into the bolt to unlock, and opens out against an abutment 3 in the frame to lock the bolt in closed position, as in many guns of this class. The locking brace has an arm D connected by a link E to a movable sleeve F on the handle, as in several guns heretofore patented.

The two hammers H, H′, occupy the usual positions in the frame, behind the respective firing pins. Each hammer has the usual spring, sear, and trigger connections common in fire-arms. A supplementary sear, 5, is pivoted in the bolt, so that its nose 6 extends in front of the hammer H′ when said hammer is in its cocked position. The end 7 of this supplementary sear is much longer and heavier than the projecting end 6. For convenience in application to the gun the supplementary sear may be made of U form, as shown, but other forms would answer the same purpose. A spring, 8, normally presses the point 6 of the supplementary sear in front of the hammer H′. A turning catch, cam, or button 10 engaging the sear, may lock it so that the supplementary sear is held out of engaging position with the hammer. Now, assuming both barrels of the gun to be loaded, and both hammers in the position shown in Fig. 2, if both triggers be pulled the hammer H′ will be held from falling by the end 6 of the supplementary sear. But as soon as the gun fires, the recoil, or the shock, or the vibration, moves the bolt and then the main part of the gun suddenly. The weighted end 7 of the supplementary sear is held by inertia, and thus this sear swings on its pivot, the nose 6 is turned away from the front of the hammer, H′, and the hammer H′ then falls and fires its barrel. The trigger I is supposed to hold or release hammer H, and trigger I′ performs a similar office to hammer H′. The trigger I′ may be held back in inoperative position by a detent K, and then the falling of hammer H′ will be controlled entirely by the supplementary sear 5, so that the second hammer will fall directly after the first barrel is fired. The detent 10, having a bearing surface in position to swing the supplementary sear 5 out of position to act as a stop for the hammer, may be used to render the supplementary sear inert, so that

the hammers may be left entirely under control of the respective triggers as in ordinary double guns.

I have heretofore patented a device in which the falling of one hammer releases the second. Should the first cartridge hang fire, both may explode at once, to the great discomfort or danger of the gunner. By causing the second hammer to be released by the shock of firing the first barrel, the second explosion must follow the first at about the desired interval of time.

While I prefer to arrange the supplementary sear in the bolt as shown, to receive the first shock of the discharge on the bolt, as well as the recoil of the gun, it is obvious that the recoil may operate it, if said sear be attached to any other part of the gun.

Each barrel A and magazine A′ has a carrier 12, and both carriers are supported on pivots, as 13, as usual in this class of guns. At least one of the carriers has a dog 14 pivoted therein, and preferably in a mortise 15 near the supporting pivot. This dog is rigid with its pivot 17 and has a nose 16 which projects above the body of the carrier, and an arm 18 below said pivot. The lower end of arm 18 is rounded or inclined in both directions. A spring 20, attached to the carrier, bears against said arm 18. The spring has an inclined projection 21 in proximity to said arm, and the arm may be held (by the force of the spring) in either its forward or backward position, whichever way it is turned. When the arm 18 is turned forward, the nose 16 of the dog is in its most elevated position, and in that position a projection 22 on the bolt will engage the nose 16, when the bolt is nearly to the extreme of its backward movement, and such engagement will cause the carrier to rock on its pivot 13, and the front end will raise a cartridge if one be on the carrier. But if the nose 16 of dog 14 be turned forward, said nose will not project high enough to be engaged by the projection 22 of the bolt, and the backward movement of the bolt will then not raise the carrier. The pivot or shaft 17 of the dog 14 projects through a slot in the side of the frame, and the outer end of said pivot has a button 24, which may be turned by hand to place the dog 14 in either its operative or inoperative position. The button 24 also covers the slot in the frame through which the pivot or shaft 17 projects. Should both carriers be provided with dogs 14, the pivots of these dogs will project at opposite sides of the frame. The same result of rendering the dogs inoperative may be reached without the projection outside the frame, by opening the breech and moving the dog 14 into operative or inoperative position by hand. When the carrier is either up or down it is desirable that it be retained with some little force, so that it will hold the cartridge until other mechanism takes control thereof. To effect this purpose, a spring 30 is attached to the carrier, and has a projection 31 near its free end. This projection 31 engages a pin or abutment 32 in the frame, and rides over said abutment as the carrier is swung on its pivot 13. The projection 31 engaging the abutment causes the spring to hold the carrier either up or down, according to the side of the abutment with which it engages.

The locking brace 2 operates in the manner common in this class of guns. I retain the locking brace in locked position by means of the inertia piece 40, so that the breech cannot be unlocked until after it is fired (save as hereinafter explained) but the inertia piece is detached by the shock of recoil to release the locking brace. The inertia piece 40 is pivoted in the bolt. Its point 41, below the pivot, is in position so that it may swing over the extreme rear end of the locking brace 2, and fasten said brace (see Fig. 4). When the inertia piece is in this position, of course the bolt, handle, and operative connections are also locked thereby. The upper end 42 of the inertia piece 40 is much heavier than the point 41. When the brace is locked, as in Fig. 4, and the gun is fired, the shock of firing throws the bolt or gun back, and the inertia piece swings on its pivot, the heavy end moving (relatively) forward, and so releasing the locking brace. The inertia piece 40 has a projecting thumb piece 43, by which it may be turned to unlock by hand, when desirable. The inertia piece 40 is forced into locking engagement with the locking brace, normally, by the spring 44 acting on the piece 40 through the bearing piece or bolt 45, (Figs. 2 and 4) or in other suitable manner. The spring 44 is strong enough to hold the inertia piece against ordinary shocks or shaking, as in opening and closing the breech, and may also hold it against the shock of firing; but the spring will be compressed by the blow of a hammer, which leaves the inertia piece free to unlock. The bolt 45 projects at one side of the inertia piece, into the path of the hammer H′ while moving toward firing pin P, consequently the falling of the hammer will drive in the bolt 45, and compress the spring 44, thus leaving the inertia piece free to operate when the hammer is down.

When the inertia piece is used with a double gun, as in Figs. 1, 2, and 4, a second movable bolt 47 is placed in the breech bolt in front of the hammer H. This bolt 47 is pressed to holding position by the spring 48, (Figs. 2 and 7) as has been described of the bolt 45. As both bolts 45 and 47 bear against the inertia piece 40, and either one will force it into position to fasten the locking brace when the breech bolt is closed, it follows that both hammers must fall and both bolts be driven in before the inertia piece can operate. If only one barrel is fired, the inertia piece must be moved by hand to release the locking brace, unless the other hammer shall also be in its

down position. A foil piece 50 is placed in the bolt, and has a shoulder 51 in position to engage the inertia piece and hold it so it cannot swing into position to fasten the locking brace. This foil piece has a handle or finger piece 52, by which it may be turned, and is held by friction.

In Fig. 5 I illustrate a slight modification, by which the inertia piece 40ª is adapted for use with a bolt for a single gun. The bolt 45ª is pressed out by the spring 44ª, against the inertia piece, above the pivot thereof.

In any construction, a friction spring *o* may be applied to the bolt, to bear on and retain the inertia piece in the position to which it has been moved.

The foil piece 50ª may be pivoted in the lower part of the bolt, so as to hold the inertia piece in inoperative position when swung to do so. The foil in any case will preferably have a projection (55 or 55ª) which extends into the path of the hammer, and the hammer knocks the foil out of operative position when it falls.

I have illustrated a common form of locking brace applied to the bolt, it being understood that there are many equivalent mechanisms therefor, now well known in the art. The holding of the bolt in locked position by an inertia piece, and unlocking by the shock of firing, I believe to be new in a broad sense.

The locking brace is not a necessary element, as a breech piece locking in the other manner is considered the equivalent for this purpose.

The absolute safety of a breech mechanism which is positively locked until after firing takes place, and is then unlocked by the explosion of the charge, renders this invention advantageous in many forms of breech loading guns.

I claim—

1. In a double gun, the frame, barrels, and operative connections, a double breech piece and a supplementary sear projecting in front of one of the cocked hammers, and removable from said position by the shock of firing, so that the second barrel may be fired by the shock of firing the first, substantially as described.

2. In a double gun, the frame, barrels, and operative connections, a hammer and trigger mechanism for each barrel, means for locking one of the triggers, and a supplementary sear projecting into position to prevent the falling of the hammer to which said trigger is connected, and movable by the shock of firing the other barrel.

3. The combination with one of the hammers of a double gun, of an inertia piece holding said hammer in cocked position, said inertia piece being actuated by the recoil (when the first barrel is fired in usual manner) to release the second hammer and fire the second barrel, substantially as described.

4. The combination with one of the hammers of a double gun, of a pivoted sear having one weighted end, and the other end projecting into position in front of the said hammer, whereby the shock of firing the other barrel will release said hammer.

5. The combination of the frame and operative connections, the two hammers in the frame, the bolt and means for reciprocating it, and a supplementary sear pivoted in the bolt and having one end projecting in front of one of the hammers, and the other end weighted to cause the sear to swing under the shock of firing.

6. In a magazine gun, the combination of the frame, barrel, and adjunctive connections, a reciprocating bolt, and a carrier having a pivoted dog therein, and a spring bearing on the dog to hold it in either of two adjusted positions, so that the dog may be engaged by the bolt in its movement, or not, as desired.

7. In a magazine gun, the combination of the frame, barrel, and adjunctive connections, the reciprocating bolt having suitable abutments, and the pivoted cartridge carrier having a movable dog pivoted therein, and a finger piece connected to the dog and extending through a hole in the frame, substantially as described.

8. The combination with the carrier of a spring attached thereto, having inclines, an abutment against which said spring bears on either side to hold the carrier either up or down as described, and operative adjunctive connections, substantially as set forth.

9. In a gun, the combination of the frame and operative connections, the reciprocating bolt, the locking brace engaging said bolt and an abutment in the frame, and an inertia piece hung in the bolt and engaging said brace to fasten the same, until moved by the shock of firing, substantially as described.

10. The combination, in a gun, of the frame and adjunctive connections, the breech piece, and an inertia piece carried by the gun and acting on the breech piece to fasten the same, and to be released by the shock of firing, substantially as described.

11. The frame and breech piece housed therein, an abutment in the frame against which said breech piece is locked, means for locking said breech piece against the abutment, and an inertia piece connected to the breech piece, propelled by a spring to hold the locking parts in locked position and by the shock of firing to release the same, all in combination.

12. The frame and connections, the reciprocating bolt and locking brace pivoted thereto, and the inertia piece pivoted in the bolt near the free end of the locking brace and in position to engage the same, substantially as described.

13. The frame and connections, the bolt and means for locking the same, the inertia piece pivotally connected to the bolt, and a spring operating on the inertia piece to hold it as

against ordinary shocks, all combined substantially as described.

14. The combination with the bolt and its operative connections, of an inertia piece hung in the bolt, a spring piece engaging said inertia piece and having a projection in the path of movement of the hammer, all substantially as described.

15. The bolt and operative connections, the inertia piece hung in the bolt and acting as a fastening to the locking mechanism thereof, the spring piece bearing on the inertia piece and having a projection in the path of movement of the hammer, and a foil in position to hold the inertia piece inoperative.

16. The bolt and its operative connections, the inertia piece connected to the bolt and engaging the locking mechanism substantially as described, and a foil engaging the inertia piece to hold it out of operation, all combined substantially as described.

17. The bolt and its operative connections, the inertia piece hung to the bolt, the foil in position to engage the inertia piece and hold it out of operative position, said foil having a projection in the path of movement of the hammer, all in combination.

18. The bolt and its operative connections, the inertia piece hung in the bolt, the spring bearing on the inertia piece and having a projection in the path of movement of the hammer, and the foil in position to hold the inertia piece out of operative position and having a projection in the path of movement of the hammer, all combined substantially as described.

19. In a double gun the bolt and its operative connections, the inertia piece carried by the bolt, and a spring piece in the path of movement of each hammer, both engaging the inertia piece, whereby both bearing springs must be compressed by the hammers before the inertia piece can be operated by the shock of firing.

20. The combination with the double gun having separate hammers, of a supplementary sear as a detent to the second hammer and having one end heavy to operate by the shock of firing to release the hammer, and a detent in position to engage said supplementary sear and hold it inoperative, substantially as described.

21. The frame and operative connections, the reciprocating breech piece and a sliding handle connected thereto, means for locking the breech piece in closed position, and an inertia piece mounted in the gun and engaging the locking means to hold the same, but actuated to release the locking mechanism by the shock of firing, all combined substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW BURGESS.

Witnesses:
W. A. BARTLETT,
D. M. BARTLETT.