July 20, 1937. G. BRETTON 2,087,661

SPORTING GUN

Filed Nov. 1, 1934 2 Sheets-Sheet 1

Fig. 1

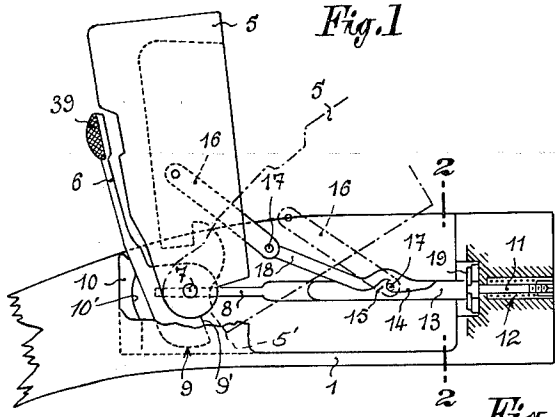


Fig. 2

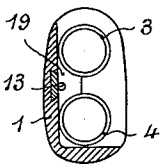


Fig. 4

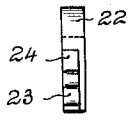


Fig. 3

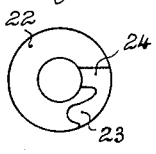


Fig. 5

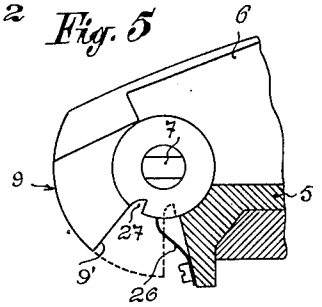


Fig. 7

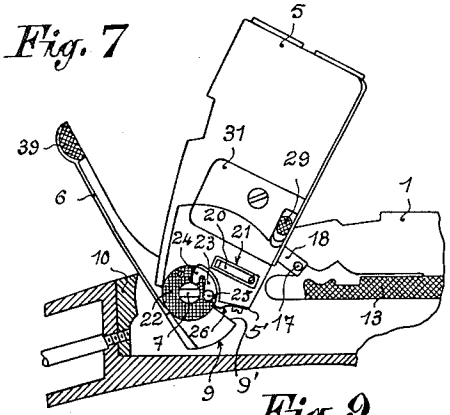


Fig. 6

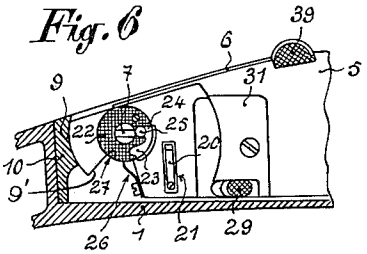


Fig. 8

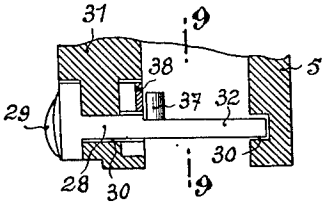
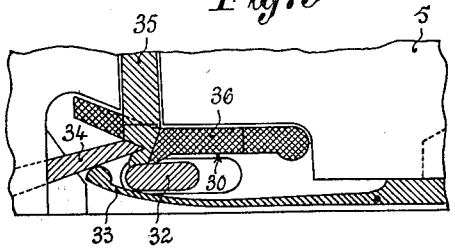


Fig. 9



GEORGES BRETTON
INVENTOR
BY Haseltine, Lake & Co.
ATTORNEYS

July 20, 1937. G. BRETTON 2,087,661

SPORTING GUN

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Fig.10

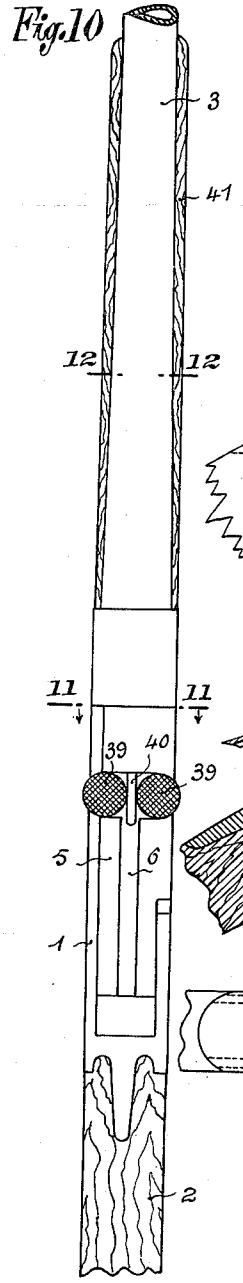


Fig.11

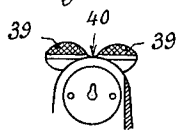


Fig.12

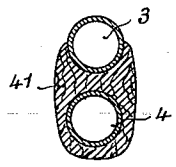


Fig.13

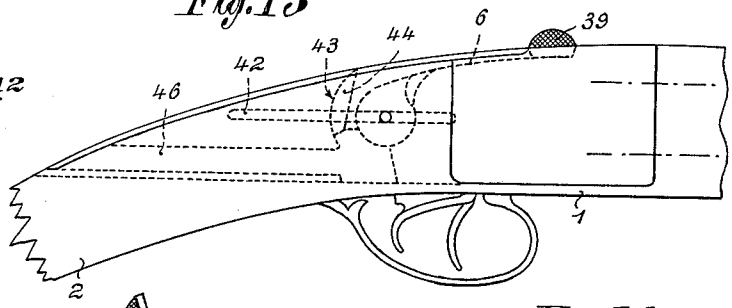


Fig.14

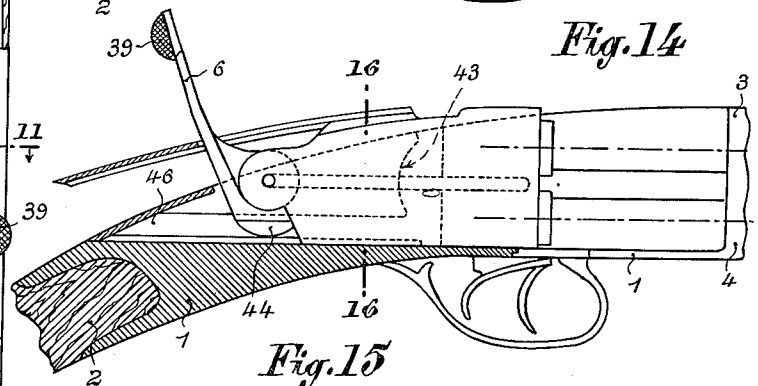


Fig.15

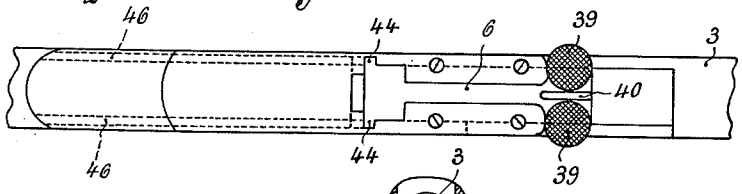
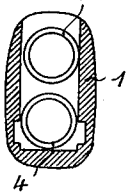


Fig.16



GEORGES BRETTON
INVENTOR
BY Haseltine, Lake & Co.
ATTORNEYS

Patented July 20, 1937 2,087,661

UNITED STATES PATENT OFFICE

2,087,661

SPORTING GUN

Georges Bretton, Saint-Etienne, France

Application November 1, 1934, Serial No. 750,964
In France November 4, 1933

11 Claims. (Cl. 42—26)

My invention refers to breech systems for guns, and more particularly for sporting guns.

To obviate the inconveniences of fixing the barrels of sporting guns on the breech frame by means of hooks or catches, a special breech system has been designed to which are connected the barrel or barrels which are to be fixed.

This breech system comprises a pivoting breech block actuated in such manner that during discharge or firing the reaction is produced by direct thrust from axis to axis (French Patent 694,897 of the 3rd May 1930, and additions to the said Patent No. 38,643 of the 10th June 1930, 41,913 of the 25th March 1932, and 42,761 of the 7th November 1932).

The present invention thus relates to certain improvements in guns comprising such a breech system, whether these guns have a single barrel or have several barrels superposed or arranged adjacently.

The main object of these improvements, and of the invention, which is more particularly but not exclusively applicable to guns with superposed barrels, is to improve the operation of the weapon and said improvements consist generally in the following features:—

A cartridge contracting device controlled by the manipulation of the closing breech block;

A system of spring braking of the said breech block in the open position to prevent it from falling owing to its own weight;

A system braking the manipulating lever key of the breech block;

A member restricting by means of a cam and pawl, the movement of the said breech block;

A safety for the system making simultaneously immovable the spring of the trigger levers, the said levers as well as the tumblers;

A particular form of the handle of the manipulating key of the breech block to permit the firer to more easily take aim;

A system of fixing the barrels by screwing on to the breech while leaving them absolutely free and independent without any connection between them; which furthermore ensures their individual interchangeability;

A front piece made of wood adapted to be easily and quickly placed in position;

The possibility of adapting a sliding closing block to the present breech system.

These improvements will be understood more fully by referring to the detailed description which follows and to the annexed drawings in which;

Figure 1 is a side view of a gun breech mechanism embodying the invention and shows the extracting device of said mechanism in various working positions;

Figure 2 is a cross-section on the line 2—2 of Figure 1;

Figures 3 and 4 are an elevation and side view respectively of a detail of a cam restricting the movement of the breech block of said breech mechanism;

Figure 5 is a detail of the braking arrangement of the control key of said mechanism;

Figures 6 and 7 are fragmentary sectional views of the mechanism intended to show the operation of the various parts thereof for the two extreme positions of the closing block;

Figure 8 is a view in cross-section of a safety device incorporated in the mechanism;

Figure 9 is a longitudinal section of the same taken on the line 9—9 of Figure 8 showing the blocking action of this safety device upon the parts which it makes immovable;

Figure 10 is in part a general top plan view of a gun equipped with a breech mechanism made according to the invention;

Figure 11 is a partial cross-section on the line 11—11 of Figure 10 showing the shape of the handle of the key;

Figure 12 is a transverse section on the line 12—12 of Figure 10 showing the gun barrels and also the forepiece in wood;

Figure 13 is a side view of a modification utilizing a sliding breech block;

Figure 14 is a similar view of the same with the near side removed to reveal the interior construction;

Figure 15 is a top plan view of the breech mechanism of Figure 13;

Figure 16 is a cross-section on the line 16—16 of Figure 14.

Throughout the views, the same reference numerals indicate like parts.

The present gun comprises a special breech box 1 fixed to the butt 2 into which are screwed the barrels 3 and 4. In this breech box or case is located a closing breech block 5 comprising the whole loading and percussion mechanism. This block pivots under the action of a lever key 6, about an axis 7 arranged in the extension of the firing axis and adapted to move parallel thereto in grooves 8 made in the surfaces of the breech box. The lever key 6 has a boss or cam 9 which has a shoulder 9' adapted to directly abut the heel 5' of pivoted breech block 5 in order to raise said block, and in addition forms an eccentric which in the closing position forces the breech block 5 in the direction of the barrels, taking its support at 10' on the rear part 10 of the breech box.

According to the invention, for the purpose of ejecting the cartridges, there is disposed in the breech box 1 an ejector rod 11 located between the two barrels 3 and 4. This rod, actuated by a spring 12, is provided with an ejecting plate 19 and is prolonged by a flat rod 13 cut into dove-tail shape and fitting in the box 1 (Figure

2) and is also provided with an inclined surface 14 and a nosepiece 15. There is hinged on the breech block 5 a connecting rod 16 provided with a detent 17 which slides in an inclined channel 18 cut out for this purpose on the surface of the box 1.

When the closing or breech block 5 is in position, the detent 17 of the connecting rod 16 is disposed on the inclined plane 14 and when the block is raised and this occupies the position shown dotted (Figure 1) it will be seen that this detent engages in the nosepiece 15 of the rod 13. Continuing the movement of the breech block 5, it is evident that the rod 13 will be brought back and that owing to this fact any cartridges contained in the barrels will positively be extracted.

The detent 17 then slips from the nosepiece 15 and engages in the inclined channel 18; at this moment, the rod 13, being no longer retained, is returned under the action of the spring 12 and the ejector rod 11 with the whole ejecting device is restored to its initial position.

On the other hand, there is fixed on the breech block 5 a small spring blade 20 (Figures 6 and 7) which is slightly curved and is located in a groove 21 in such manner that when at rest it forms a slight projection.

This spring thus rubs against the inner surface of the box 1 and, by creating a slight resistance to the movement of the breech block 5, prevents it when it is in the open position from closing automatically under its own weight.

This spring acts preferably on the right-hand surface of the breech box so that the thrust which it exerts on the breech block 5 against the left-hand surface serves at the same time as a guide and support for the pulling piece of the ejector. This spring may also occupy any other position on the breech block 5 and may even be fitted on the inner face of the breech box.

On the breech block there is also fixed by screwing, soldering, or the like, concentrically to its pivoting axis 7, and movable in the grooves 8 of the breech box 1, a cam 22 having an inclined surface with a circular notch 23 and a rectangular notch 24 (Figures 3 and 4).

This cam cooperates with a pawl 25 fixed on the breech box 1 and held in the inclined surface of the cam.

In the closed position (Figure 6), the pawl 25 engaged in the rectangular notch 24, opposes, at the moment of lifting the lever key 6, the pivoting of breech block 5 (Figure 6) until it has moved directly backward to a sufficient extent to become disengaged from the barrels, this return movement being permitted owing to the exterior eccentric form of the boss 9 of the said lever key. At this moment, following the backward movement of the block, the pawl 25 is opposite the circular recess 23 of the cam 22 and the breech block can then swing upon its pivot (Figure 7).

The same principles apply during closing, the block being first obliged to drop in order to come into proper position in the breech box 1, before moving directly forward in the direction of the barrels.

This pawl 25, preferably constituted by a screw, threaded at the end at the portion which is engaged in the cam, is on the other hand effective to restrict the forward movement of the breech block and to give it a point of support for its action on the ejector.

Furthermore, there is fixed on the rear part of the closing or breech block 5 a spring blade 26 which rubs on the periphery of the boss of the lever key 6 in which boss there is provided a groove or channel 27 into which the end of the said spring bent into the form of a hook is adapted to project (Figure 5).

Thus, when the lever key 6 is in the extreme open position, the hook of the spring 26 is engaged in the channel 27 and thus retains the said lever key in this position, permitting the breech block 5 to regain its closed position in the breech box 1 and, then only, after passing the stiff point, to permit the said lever key to ensure its blocking function.

In this way, without it being necessary for special precautions to be taken, the proper succession in due order of these two movements is ensured by one and the same operation.

For the safety device (Figures 8 and 9), a part 28 of T-shape and controlled from the outside of the breech block by a milled button 29, is arranged to slide in grooves 30 which, being made respectively in the lower part of the cover plate 31 and the left-hand face of the closing block, serve as guide means therefor.

Thus the principal limb 32 of this piece 28, when disposed in the position shown in Figure 9, locks both the springs 33 of the levers of the triggers 34 and also the control connecting rod 35 of the upper tumbler and of the lower tumbler 36.

A projection 37 of piece 28 acts on a spring 38 and determines the two positions thereof.

As shown by Figures 10 and 11, the manipulating handle of the lever key 6 which fits into the block 5 has two ears 39 separated by a groove 40 located in the firing axis which makes it possible while taking aim to utilize this lever key head as a notch of the back sight.

On the other hand, in order to preserve to each of the barrels 3 and 4 its entire precision of manufacture and to avoid the deformations due to the assembling of the barrels by brazing or otherwise, the barrels are left free, and without any connection. The centerings provided in the breech blocks 1 alone maintain the direction of said barrels.

The forepiece 41 of wood is designed in such manner that its attachment to the gun is simple and rapid. The wood is bored to permit the passage of the lower barrel 4 and to thus surround this completely. The upper barrel 3 is only partly thus enveloped (Figure 12). It is therefore necessary to fit this forepiece over the free extremity of the barrels. To fix it in position, it is sufficient to provide a system of attachment by springs of any known type.

It is also possible on a breech box of the described type to adapt thereto a sliding closing or breech block. Figures 13 to 16 show diagrammatically an embodiment of a superposed barrel gun provided with such a system. It is obvious that this device can also be employed on guns with barrels placed side by side or on a single barrelled gun.

The closing or breech block 5 is guided in the breech box 1 by a guide tongue 42 machined for this purpose in the breech.

The cam lever key 6 then bears during closing on two inclined surfaces 43 provided or fitted for this purpose on the breech box. In raising the cam lever key 6, the inclined surfaces 44 of this member slip from their supports 43 on the breech box and engage in guide grooves 45 of the said box. The breech block 5 can thus recoil under

the action of the cam lever key 6 until the final extraction of the cartridges.

It will be seen that by this device the breech block becomes a sliding one and that the principle of reaction of the firing from axis to axis, is maintained.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon a transverse axis and adapted to move said breech block and forming manual control means for said block, there being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate and means tending to return said extracting and ejecting rod to, and retain the same in idle position, a projection on said extracting and ejecting rod, a connecting rod having one end pivotally connected to said breech block and a detent disposed upon the other end thereof engaging the projection on said extracting and ejecting rod when the breech block is in closed position and drawing the extracting and ejecting rod and extracting and ejecting plate rearwardly to eject cartridges from the barrels during raising of the breech block toward open position, and means for disengaging the detent upon said connecting rod from said projection on said extracting and ejecting rod and thereby allowing the free and unobstructed return of the extracting and ejecting rod and extracting and ejecting plate to idle position when the breech block is raised to a predetermined open position.

2. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon a transverse axis and adapted to move said breech block and forming manual control means for said block, there being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate and means tending to return said extracting and ejecting rod to, and retain the same in idle position, a projection on said extracting and ejecting rod, a connecting rod having one end pivotally connected to said breech block and a detent disposed upon the other end thereof engaging the projection on said extracting and ejecting rod when the breech block is in closed position and drawing the extracting and ejecting rod and extracting and ejecting plate rearwardly to eject cartridges from the barrels during raising of the breech toward open position, and an inclined cam portion disposed in said breech box against which the detent on said connecting rod is adapted to slide in order to disengage said detent from said projection on said extracting and ejecting rod and thereby allowing the free and unobstructed return of the extracting and ejecting rod and extracting and ejecting plate to idle position when the breech block is raised to a predetermined open position.

3. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon a transverse axis and adapted to move said breech block and forming manual control means for said block, there being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate, a projection on said extracting and ejecting rod, a connecting rod having one end pivotally connected to said breech block and a detent disposed upon the other end thereof engaging the projection on said extracting and ejecting rod when the breech block is in closed position and drawing the extracting and ejecting rod and extracting and ejecting plate rearwardly to eject cartridges from the barrels during raising of the breech block toward open position, means for disengaging the detent upon said connecting rod from said projection on said extracting and ejecting rod and thereby allowing the free and unobstructed return of the extracting and ejecting rod and extracting and ejecting plate to idle position when the breech block is raised to a predetermined open position, a brake portion rigid with said breech box, and a friction spring interposed between the breech block and said brake portion for braking the swinging movement of said breech block.

4. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon the same pivotal axis as the breech block and having a hub formed with a notch and an eccentric cam portion upon said lever key adapted to engage against a portion of the breech box and cause forward sliding movement and displacement of the breech block through the pivot thereof into closed position for firing when said lever key is lowered into forward position, a spring secured to the breech block bearing on said hub and entering the notch thereof so as to interconnect the key lever and closing block when said key lever has been manually raised a predetermined distance, there being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate, and means interposed between said breech block and said extracting and ejecting rod and transmitting movement from the breech block during raising of the same to said extracting and ejecting rod in order to cause the same to slide in said breech box and extract and eject cartridges from the barrels.

5. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon a transverse axis and adapted to move said breech block and forming manual control means for said block, there

being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate, a disk mounted concentrically with respect to the pivotal mounting of said breech box and formed with a cam shaped slot, a pin carried upon the inside of said breech box engaging in said cam shaped slot and thereby serving to guide said breech block in forward and rearward movement and determine the proper sequence of the swinging and sliding movement thereof, and means interposed between said breech block and said extracting and ejecting rod and transmitting movement from the breech block during raising of the same to said extracting and ejecting rod in order to cause the same to slide in said breech box and extract and eject cartridges from the barrels.

6. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon the same pivotal axis as the breech block and having an eccentric portion adapted to engage against a portion of the breech box and cause forward sliding movement and displacement of the breech block through the pivot thereof into closed position for firing when said lever key is lowered into forward position, an extracting and ejecting rod movably associated with the gun, a disc secured to the breech block concentrically with the pivotal axis thereof and formed with a cam shaped slot, a pin carried upon the inside of said breech box engaging in said cam shaped slot, there being notches in said cam shaped slot cooperating with said pin so that said slot and notches together with said pin will guide the breech block in forward and rearward sliding movements and determine the proper sequence of said sliding movements and swinging of said breech block, and means interposed between said breech block and said extracting and ejecting rod and transmitting movement from the breech block during raising of the same to said extracting and ejecting rod in order to cause the same to slide in said breech box and extract and eject cartridges from the barrels.

7. A sporting gun according to claim 1, having a plurality of gun barrels directly screwed into the breech box and the extracting and ejecting plate is effective to extract and eject cartridges from all of the barrels simultaneously.

8. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to the forward portion thereof, the combination of a breech block mounted first to slide rearwardly and be displaced a distance in said breech box and then to swing upwardly and rearwardly about a transverse pivot, a manually operated lever key also mounted to swing upwardly and rearwardly upon a transverse axis and adapted simultaneously to move said breech block rearwardly and displace the same a predetermined distance and then swing said breech block rearwardly upward and forming manual control means for said block, there being an extracting and ejecting means slidably mounted in said breech box and having resilient means tending to hold said extracting and ejecting means forward in initially operative position so that the same will engage inserted into the gun barrels, operating means interposed between said breech block and said extracting and ejecting means and transmitting movement from the breech block during raising of the same to said extracting and ejecting means in order to cause the same to slide in said breech box and extract and eject cartridges from the barrels, and means for interrupting the transmission of movement from said breech block to said extracting and ejecting means in order to allow the same to return to initial position.

9. A sporting gun according to claim 1, having a recoil stop including a shaped member and a cam member rigidly associated with the lever key so as to move therewith, and a cam portion in said breech box, the breech block engaging against the lower portion of said shaped member and in the firing positions under the effect of the recoil, causing a forward pivoting of the lever key and consequent effective and automatic closure of the breech block in its operative position with the cam member resting with its extremity against the cam portion in said breech box and serving to effectively stop the recoil.

10. In a sporting gun having a breech box adapted to have a gun stock rigidly attached to the same and one or more barrels rigidly secured to a portion thereof which completely and peripherally surrounds the base of the explosion chamber of each barrel, the combination of a breech block mounted to swing upwardly and rearwardly about a transverse pivot and also to slide rearwardly in said breech box, a manually operated lever key also mounted to swing upwardly and rearwardly upon the same pivotal axis as the breech block and having a hub formed with a notch and an eccentric cam portion upon said lever key adapted to engage against a portion of the breech box and cause forward sliding movement and displacement of the breech block through the pivot thereof into closed position for firing when said lever key is lowered into forward position, a spring secured to the breech block bearing on said hub and entering the notch thereof so as to interconnect the key lever and closing block when said key lever has been manually raised a predetermined distance, there being an extracting and ejecting rod slidably mounted in said breech box and carrying an extracting and ejecting plate, and means interposed between said breech block and said extracting and ejecting rod and transmitting movement from the breech block during raising of the same to said extracting and ejecting rod in order to cause the same to slide in said breech box and extract and eject cartridges from the barrels.

11. A sporting gun according to claim 1, having a plurality of gun barrels directly screwed into the breech box and the extracting and ejecting plate is effective to extract and eject cartridges from all of the barrels simultaneously, and a notched member having a notched portion arranged in the breech box at the base of the barrels, the breech block having a portion entering said notched portion and together therewith serving as an additional locking means retaining the barrels fixed when the breech block is lowered into firing position.

GEORGES BRETTON.