

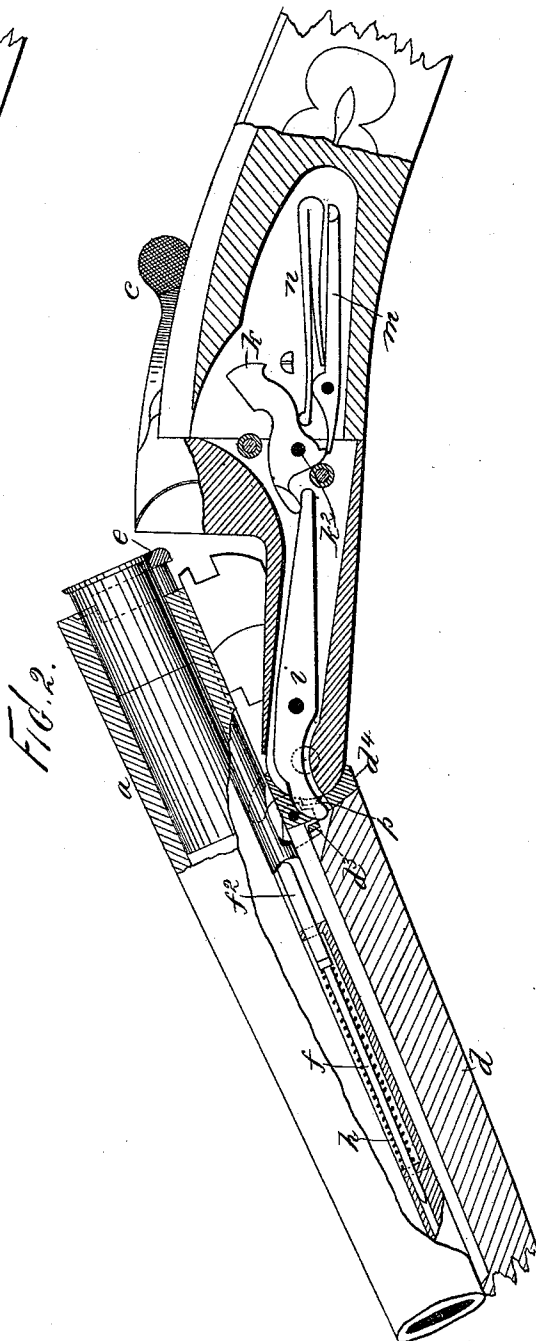
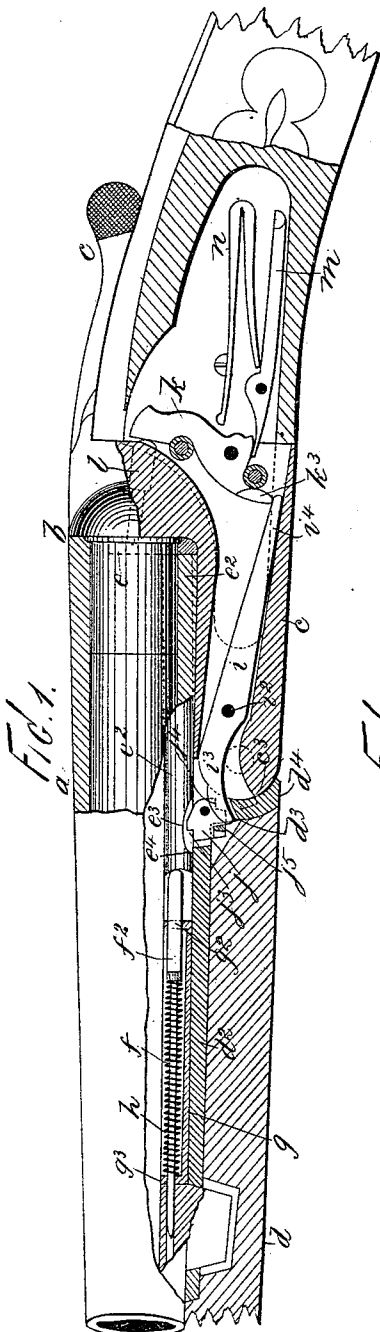
(No Model.)

2 Sheets—Sheet 1.

T. WOODWARD.
BREAKDOWN GUN.

No. 481,290.

Patented Aug. 23, 1892.



WITNESSES:

John Buckler,
Frank J. Lincham.

INVENTOR

Thomas Woodward
BY
James A. Whitney
ATTORNEY

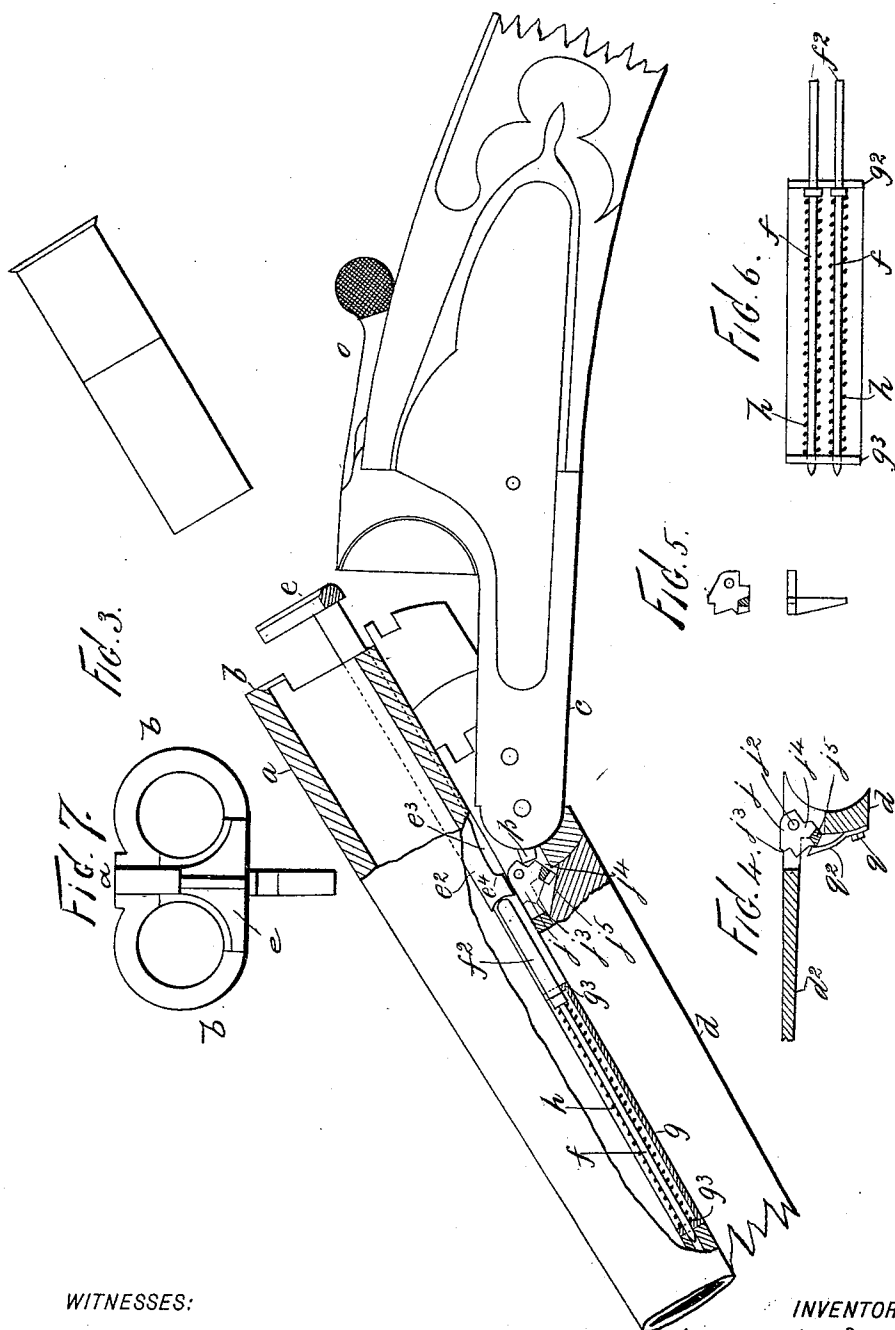
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UNITED STATES PATENT OFFICE.

THOMAS WOODWARD, OF DERBY, ENGLAND.

BREAKDOWN GUN.

SPECIFICATION forming part of Letters Patent No. 481,290, dated August 23, 1892.

Application filed September 19, 1891. Serial No. 406,523. (No model.) Patented in England March 26, 1889, No. 5,159.

To all whom it may concern:

Be it known that I, THOMAS WOODWARD, formerly of Birmingham, England, but now of Derby, England, have invented certain new and useful Improvements in Breech-Loading Firearms, (for which I have obtained British Letters Patent No. 5,159, dated March 26, 1889;) and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side view and longitudinal sectional view of a firearm embracing my said invention, showing the parts in their relative positions after firing, but with the breech closed. Fig. 2 is a like view of the same, but showing the position of the parts when the breech is substantially open, but prior to the final ejection of the cartridge-shell. Fig. 3 is a like view of the same, showing the position of the parts immediately after the ejection of the cartridge-shell. Fig. 4 is a transverse sectional view of the fore-end iron and catch hereinafter described. Figs. 5, 6, and 7 are detail views further illustrating certain parts of the mechanism embraced in the aforesaid Figs. 1 to 3, inclusive.

This invention is more particularly designed for use in double-barreled shotguns; but it may also be employed in other firearms, whether single or double barreled, of the general type represented in the drawings, Figs. 1 to 3, inclusive—that is to say, in small arms in which the barrel or barrels has a pivoted or break-off action with reference to the breech-body and in which the breech is opened by swinging the rear end of the barrel or barrels clear of the breech-body.

In the drawings, *a a* are the barrels, *b* the break-off, and *d* the fore-end. The ejector is made double, each part comprising an ejector for one of the barrels and indicated by the reference-letter *e*, and also a rod *e*². The relation of the two ejectors *e e* to each other and to the two barrels of a double-barreled firearm is shown in Fig. 4. The rods *e*² of the two ejectors lie side by side within a groove or receptacle provided longitudinally in the under side of the metal or rib between the barrels.

Behind each of the rods *e*² *e*² is an ejector-striker *f*, the rear end *f*² of which should be flattened where it rests against the front end

of the longitudinally-coincident rod *e*². The said rear end of each ejector-striker works through and is guided by an opening *g*² of a covering-plate *g*, while its front extremity works through an opening *g*² in the inwardly-turned front end of said covering-plate, each ejector-striker being thus incased within the inclosing surfaces of the groove or receptacle and the covering-plate *g*. This covering-plate serves to close the under side of the groove or receptacle, which, situated behind the rods *e*² *e*² of the ejectors *e e*, receive the ejector-strikers.

A shoulder is formed at the junction of flattened rear end *f*² with the cylindrical front portion of each ejector-striker, and between said shoulder and the upturned front end of the covering-plate is a spiral spring *h*, said spring encircling said part of the ejector-striker and exerting its pressure to force the latter backward against the contiguous end of the ejector-rod *e*² behind it. The arrangement of the parts just mentioned is more fully shown in Fig. 7.

Each ejector-rod operates in conjunction with one of the hammers and with a system of mechanism placed within the breech-body and interposed between the ejector-rod and the hammer in the manner substantially as follows: A lever *i* is fulcrumed at *i*², said lever having a short arm *i*³ and a long arm *i*⁴. The short arm *i*³ takes into a slot or hole *d*³ of the pivotal part *d*⁴ of the fore-end iron *d*² and acts against a pivoted sear or catch *j*, which is pivoted at *j*² and has shoulders *j*³ and *j*⁴, and also an outward and laterally-projecting horn *j*⁵. Each rod *e*² has a slot or recess *e*³ and a shoulder *e*⁴, the former having a length equal to the designed traverse of the ejectors, and each shoulder *e*⁴ constituting a stop, which operates in conjunction with the sear *j*² and lever *e*, as hereinafter explained. The ejectors receive a primary movement during the opening of the breech by means of swings or arms *c*², pivoted to the breech-body *c* in the usual or in any suitable manner. This part of the operation of the ejectors being old and well known calls for no special description here.

The lock mechanism comprises a hammer *K*, pivoted, as at *K*², and provided with a lip or ledge *K*³, projected from its breast and

lower part and so arranged as to act upon the upper side of the rear end i^4 of the lever i . The lock mechanism also includes the capstriker or firing-pin l , the sear m , the main spring n , and the lever O , a suitable trigger a' being of course arranged in connection with the latter. It is of course to be understood that the said lock mechanism is to be in duplicate, one lock mechanism for each barrel.

In the use and operation of the arm, the breech being closed the fall of a hammer brings the parts into the relative positions shown in Fig. 1, causing the lip or ledge k^3 to act upon the upper side of the rear end i^4 of the lever i , forcing the same downward and proportionally raising the front arm i^3 of said lever, whereupon the extremity of the latter comes against the horn j^5 of the adjacent sear j , and lifting the same causes said sear to rise until it comes within the slot or recess e^3 in the coincident ejector-rod e^2 and at the requisite distance behind the shoulder e^4 thereof. It is to be understood that when the breech is closed the springs h h are compressed as the ejectors and their legs are forced backward by the contact of the ejectors with the front or face of the breech-body.

The opening of the breech by turning the rear ends of the barrels away from the breech-body cocks each hammer by reason of the downward pressure exerted upon the front arm of the lever i by the movement of the fore-end iron, the said front end of said lever, as hereinbefore set forth, being passed into the slot or hole d^3 in said fore-end iron. As the rear ends of the barrels are brought sufficiently clear from the breech-body, the ejectors are thrust outward by the movement of the barrels in the usual manner to initiate the ejection of the shells, this being done through the action of the swings or arms, as hereinbefore indicated. When this is done, the relatively-backward movement of the ejector-rods has brought the shoulder e^4 of the slot or recess e^3 of each ejector-rod against the shoulder j^3 of the sear j . The sears are thus caused to hold the ejector-legs, the ejectors, and the ejector-strikers against the pressure of the springs h h , and consequently for the time prevent any farther rearward or ejecting movement, notwithstanding a farther outward movement of the rear ends of the barrels away from the face of the breech-body. This is the position of the parts, as represented in Fig. 2. The continued opening movement of the barrels causes the shoulder j^4 of each sear j to strike a suitable projecting fixed stop p , which extends out from the pivotal or joint portion c^3 of the breech-body c . This turns the sears downward, bringing their shoulders j^3 away from the shoulders e^4 of the ejector-rods and thereby releasing the latter, whereupon the springs h h give a sudden backward impetus to the ejector-strikers, so that the impact of the latter upon the forward end of the ejector-rods drives the latter backward with a sudden and

accelerated impulse, which causes the ejectors to fling the shells backward out of the barrels and clear away from the same. It will be observed that if the stop p were absent the sears j j would not be brought away from the shoulders e^4 of the ejector-rods, and in such case the ejection of the shells would be limited to what I have termed their "primary" ejection by the swings or arms in the usual way. In some cases this may be desired where the sportsman wishes to preserve the shells for reloading and therefore does not care to seek them upon the ground, as is necessary where forcibly ejected to a distance, as is ordinarily preferred. To provide for this, I make the stop p removable or adjustable, which may be done by fitting it with a screw-thread which screws into a suitable socket in the front end of the breech-body, so that it may be either removed or screwed inward to a shorter projecting length to proportionally and predeterminedly diminish the movement of the ejector-rod and reduce the force with which the shell is ejected or, when desired, until its outer end is flush with the adjacent surface of the breech-body, in which case the stop will of course cease to act upon the ejector-rod, with the same result as if the stop were bodily removed from the structure.

The sear j (see Fig. 4) has provided in due relation with it a spring q , the free end q^2 of which is V-shaped. When the sear is lowered away from the ejector-leg, as described, the free V-shaped end rests upon the top of the horn j^5 of the sear. When in its other position, said part of the said spring rests against the front of said horn. By this means the sear is retained by an elastic pressure in each of its two positions without interference with its proper movements and functions with reference to the ejector-rod.

It is of course to be understood that any ordinary or suitable means may be used for locking the barrels in their closed position; also, that the several combinations of parts herein described may be used singly in single-barreled breech-loading guns of the class specified, as well as in duplicate in double-barreled guns, as herein described.

I am aware that sears or catches have been used in connection with the rods of the ejecting mechanism of firearms, and also that cocking-levers have been arranged with their ends passed directly through the fore-end iron; also, that ejector-strikers have been arranged to work at the front ends of ejector-rods, and that such ejector-strikers have been surrounded by coiled springs. Such devices separately therefore I do not claim; but,

Having hereinbefore described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod e^2 , constructed with a shoulder e^4 , of a sear j , constructed with a shoulder j^3 , and a fixed removable stop p , arranged to withdraw should-

der j^4 of the sear from shoulder e^4 of the ejector-rod to release the latter for the sudden ejection of the cartridge-shells, and capable of detachment to permit, as an alternative, the limited extraction of said shells when desired, all substantially as and for the purpose herein set forth.

2. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod e^2 , constructed with a shoulder e^4 , of a sear j , constructed with a shoulder j^4 , and a fixed stop p , arranged to withdraw shoulder j^4 of the sear from shoulder e^4 of the ejector, and adjustable to insure the movement of the ejector to a predetermined degree, substantially as and for the purpose herein set forth.

3. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod e^2 , constructed with a shoulder e^4 , of a sear j , constructed with a shoulder j^4 , and a fixed stop p , constructed and arranged to be adjusted with reference to and removed from the ejector-mechanism, all substantially as and for the purpose herein set forth.

4. In a breech-loading firearm of the class mentioned, the combination, with an ejector-rod e^2 , constructed with a shoulder e^4 , and a sear j , constructed with a shoulder j^4 , of an incased ejector-striker f , substantially as and for the purpose herein set forth.

5. In a breech-loading firearm of the class mentioned, the combination, with the hammer mechanism, of an ejector-rod e^2 , constructed with shoulder e^4 , of the sear j , constructed with the shoulder j^4 , the parts being constructed

and arranged to cause the shoulder j^4 to act upon the shoulder e^4 only after the hammer has been raised or raised and lowered, substantially as and for the purpose herein set forth.

6. In a breech-loading firearm of the class mentioned, the combination of a sear j , constructed with a horn j^5 and a shoulder j^4 , a lever i , a hammer K , having a lip or edge K^3 , an ejector-rod e^2 , having a shoulder e^4 , and the pivoted levers c^2 , the whole constructed and arranged to enable the lever to engage with the horn j^5 to bring shoulder j^4 into position to engage shoulder e^4 when the ejector-rod is pushed rearward by the pivoted levers, all substantially as and for the purpose herein set forth.

7. In a breech-loading firearm of the class mentioned, a hammer having a lip or ledge K^3 , an ejector-rod e^2 , constructed with shoulder e^4 , and a sear j , constructed with the horn j^5 and shoulder j^4 , arranged to cause the shoulder j^4 to act upon the shoulder e^4 only after the hammer has been raised or raised and lowered, in combination with a lever i and pivoted levers c^2 , arranged to enable said lever i to engage with the horn j^5 to bring the shoulder j^4 into position to engage shoulder e^4 when the ejector-rod is pushed rearward by the pivoted levers, all substantially as and for the purpose herein set forth.

THOMAS WOODWARD.

Witnesses:

GEORGE ALFRED BAGULEY,
HENRY JAMES WHITEHOUSE.