(No Model.)

F. J. PENN & J. DEELEY, Sr.

BREECH BOLT.

No. 522,121. Patented June 26, 1894.

Fig. 1.

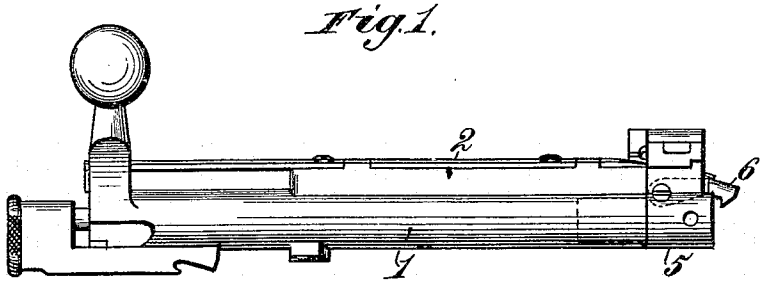


Fig. 2.

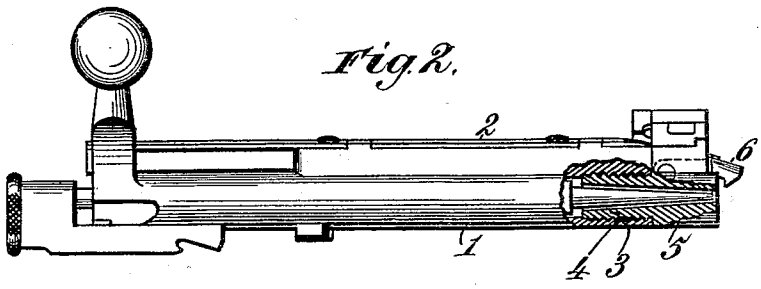
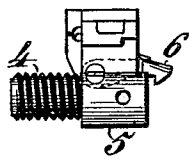


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

FREDERICK JAMES PENN AND JOHN DEELEY, SR., OF BIRMINGHAM, ENGLAND.

BREECH-BOLT.

SPECIFICATION forming part of Letters Patent No. 522,121, dated June 26, 1894.

Application filed May 15, 1893. Serial No. 474,318. (No model.) Patented in England November 25, 1890, No. 19,145, and in Belgium October 13, 1892, No. 101,723.

To all whom it may concern:

Be it known that we, FREDERICK JAMES PENN and JOHN DEELEY, Sr., subjects of the Queen of England, residing at Birmingham, England, have invented new and useful Improvements in Breech-Loading Small Arms, (for which we have obtained Letters Patent in Great Britain, No. 19,145, dated November 25, 1890, and in Belgium, No. 101,723, dated October 13, 1892,) of which the following is a specification.

This invention relates to magazine breech-loading small arms, in which the breech chamber is opened and closed by a sliding bolt having a head provided with an extractor hook.

The object of our invention is to provide new and improved means for loosely connecting the extractor-carrying head to the end of the sliding bolt, whereby the bolt can be rotated independent of the head, without accidental disconnection of the head and bolt, and the efficiency of the small arms be thereby increased.

To accomplish this object our invention consists essentially in the combination in a breech-loading small arm of a sliding bolt having a screw-threaded socket in its forward extremity, with a head provided with an extractor hook, and an externally screw-threaded shank adapted to screw into and out of the socket in the sliding bolt, the construction being such that when the bolt is turned in either direction for fastening or unfastening it, the screw-threaded socketed portion turns upon the screw-threaded shank of the head, but the partial rotation of the bolt will not disengage it from said head.

The invention is illustrated by the accompanying drawings, in which—

Figure 1 is a side elevation of the sliding bolt of a breech-loading small arm, provided with our invention. Fig. 2 is a similar view, showing the front end portion of the extractor-carrying head in section; and Fig. 3 is a detail side elevation of the extractor-carrying head.

In order to enable those skilled in the art to make and use our invention, we will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the sliding bolt, which is adapted to rotate axially and move longitudinally in the usual manner; and is provided with the ordinary cover 2. The front end portion of the bolt is provided with a screw-threaded socket 3, into which is adapted to loosely screw the externally screw-threaded shank 4 of a head 5, which is provided with an extractor hook 6. The loose screw-threaded connection of the shank 4 with the socket 3 is such that the sliding bolt can be partially rotated for locking and unlocking, in opening and closing the breech chamber of the fire arm, without liability of disconnecting the bolt from the head. When the bolt is slid rearward, the cartridge case is extracted by the extractor hook 6 in the usual manner.

By the simple means described we are enabled to connect the sliding bolt with the extractor-carrying head without the employment of any loose fastening, while it is possible to rotate the sliding bolt for locking and unlocking it while the extractor-carrying head remains stationary as regards rotary motion. When the sliding bolt is in its fastened position, the bolt and the extractor-carrying head are practically solid with each other, and a very strong, durable, and efficient connection is provided which will not wear loose from the constant use of the fire arm.

We are aware of the patent to Hotchkiss No. 169,641, granted November 9, 1875, in which a loose extractor-carrying nose-piece is provided with a lug engaged in a transverse groove formed in a forward projecting portion of the breech-bolt, whereby the nose-piece may be made to slide with the bolt and yet be prevented from rotating therewith. We are also aware of the patent to Krnka, No. 475,061, May 17, 1892, in which the cartridge extractor is situated on a ring loosely surrounding a breech-bolt that is provided with a bolt head having a screw-threaded shank rigidly engaged in a screw-threaded socket of the bolt by means of a transversely arranged binding screw, in such manner that the bolt and bolt-head make their rotary movements simultaneously. The construction shown in these patents we do not claim and our invention is distinguished therefrom by being re-

stricted to a loose screw-threaded connection between the rotary breech-bolt and its non-rotary extractor carrying head, whereby the simplicity and efficiency of the fire-arm are increased and independent rotation of the bolt permitted without any risk of accidental disconnection of the extractor carrying head.

It is one of the advantages of our invention that by providing a loose screw-threaded connection between the sliding bolt 1 and the extractor-carrying head 5 there can be no binding of one part on the other, due to unequal expansion from overheating or other causes, such as would be liable to occur in a swivel connection or where a straight lug on one part is engaged in a transverse groove in the other part. With a screw-threaded socket in the end of the bolt engaging a screw-threaded shank on the extractor-carrying head the inclination of the screw-threads affords ample clearance to permit free rotation of the bolt independent of the extractor-carrying head, without any liability of the binding of one part on the other. The loose screw-threaded connection also affords opportunity for relative adjustment of the bolt and head to compensate for wear. In the act of extracting a shell the extractor-carrying head has a sliding movement with the bolt, but in locking and unlocking the breech chamber the necessary partial rotation of the bolt is not imparted to the loosely connected head, because the screw-threads of the bolt-socket will move easily on the externally threaded shank of the head while the latter is held from rotation by reason of its engagement with the breech. The loose screw-threaded connection between the locking-bolt and the extractor-carrying head permits a slight movement of the bolt to and from the head, in locking and unlocking, so that by reason of the inclination of the screw threads there can be no tendency to binding as is likely to occur between the straight shoulders of a swivel connection, especially after the gun has become heated.

Having thus described our invention, what we claim is—

In a breech loading small arm, the combination with a sliding and axially rotating bolt having its forward end provided with a screw-threaded socket, of an extractor-carrying head provided with an externally screw-threaded shank screwed loosely into the socket of the bolt and forming a loose screw-threaded connection therewith, whereby the bolt can be rotated independent of the head and without becoming disconnected therefrom, substantially as shown and described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

FREDERICK JAMES PENN.
JOHN DEELEY, SENR.

Witnesses:
GEORGE SHAW,
RICHARD SKERRETT.