(No Model.)

P. MAUSER.

BOLT STOP WITH CARTRIDGE SHELL EJECTOR FOR BREECH LOADING GUNS.

No. 431,668. Patented July 8, 1890.

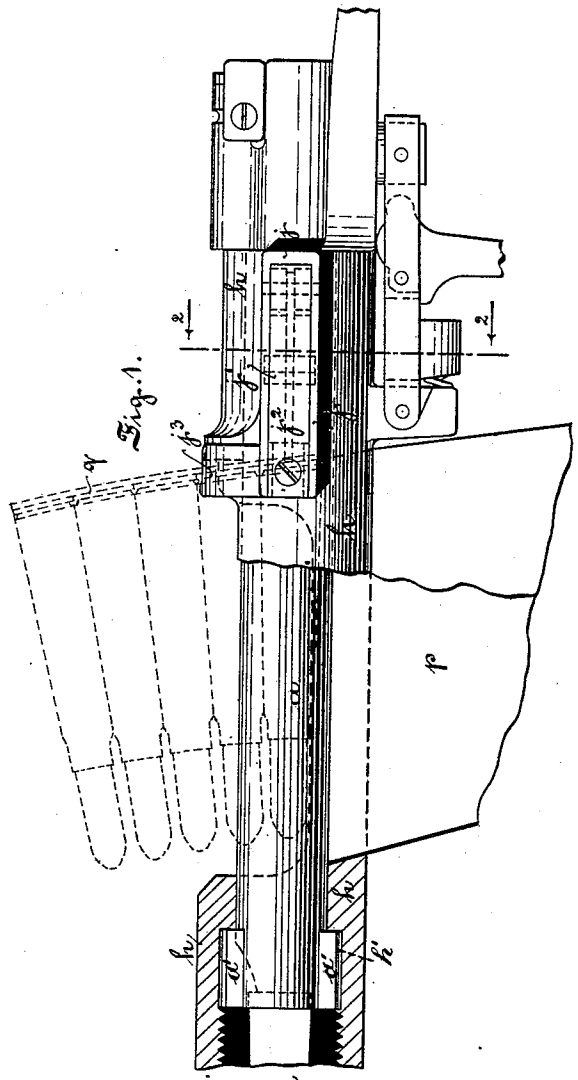


Fig. 1.

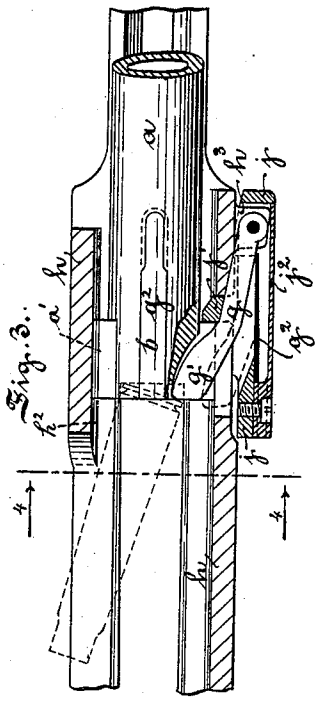


Fig. 3.

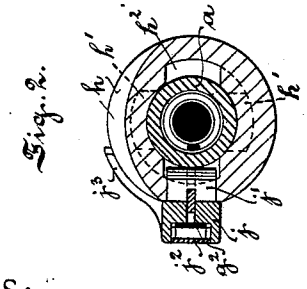


Fig. 2.

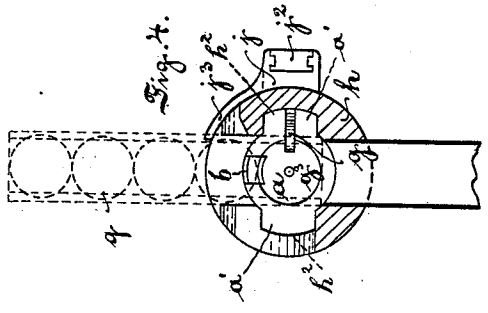


Fig. 4.

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UNITED STATES PATENT OFFICE.

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BOLT-STOP WITH CARTRIDGE-SHELL EJECTOR FOR BREECH-LOADING GUNS.

SPECIFICATION forming part of Letters Patent No. 431,668, dated July 8, 1890.

Application filed November 27, 1889. Serial No. 331,802. (No model.) Patented in Belgium May 25, 1889, No. 86,375; in Germany June 30, 1889, No. 50,306; in England November 12, 1889, No. 18,014; in Italy December 31, 1889, No. 26,450/137, and in Spain February 1, 1890, No. 10,226.

To all whom it may concern:

Be it known that I, PAUL MAUSER, a subject of the Emperor of Germany, residing in Oberndorf-on-the-Neckar, in the Kingdom of Würtemberg, Germany, have invented certain new and useful Improvements in Bolt-Stops with Cartridge-Shell Ejectors for Breech-Loading Bolt-Guns, of which the following is a specification.

This invention is the subject-matter of Letters Patent in Belgium, No. 86,375, dated May 25, 1889; in Germany, No. 50,306, dated June 30, 1889; in England, No. 18,014, dated November 12, 1889; in Italy, No. 26,450/137, dated December 31, 1889, and in Spain, No. 10,226, dated February 1, 1890.

This invention provides an improved bolt-stopping device for breech-loading fire-arms of the class known as "bolt-guns." With the bolt-stop is combined a shell-ejector, and in case the gun is provided with cartridges by means of my improved cartridge-frame patented to me by United States Patent No. 402,605, dated May 7, 1889, the bolt-stopping device is provided also with a spring-catch for holding this frame during the insertion of the cartridges.

The main parts of the invention—namely, the bolt-stop and the ejector—can be applied to existing breech-loading bolt-guns of the Mauser system, and they are also applicable to other systems of breech-loading bolt-guns and to single-loaders and repeaters.

In the accompanying drawings the invention is shown as applied to a gun, the bolt of which is formed on its front end with two recoil projections, which, when the bolt is in place for firing, enter into recesses formed in the breech-case, and to the breech-case of which is applied at the under side a small cartridge-magazine, from which the cartridges rise into the breech-case through an opening in its bottom.

Figure 1 is a side view of the breech portion of the gun, partly broken away and in vertical mid-section. Fig. 2 is a vertical cross-section on the line 2 2 in Fig. 1. Fig. 3 is a plan or top view, partly in horizontal section, in the plane of the axis of the bolt. Fig. 4 is a vertical cross-section on the line 4 4 in Fig. 3.

The breech-case is designated by h and the bolt by a. In Fig. 1 the bolt is shown pressed forward in position for firing, while in Fig. 3 it is shown drawn fully back. The bolt is formed at its front portion with recoil projections a' a' on its opposite sides, which, when the bolt is in the firing position, are turned so that they enter recesses h' h', as shown in Fig. 1, and as indicated by the dotted lines in Fig. 2. When the bolt is oscillated and drawn back, these recoil projections move through grooves h^2 in the breech-case. The bolt is also provided with the usual ejector-claw b, having a hooked end for engaging the base of the cartridge-shell.

On the left side of the breech-case h is formed a lug h^3, to which is pivoted the bolt-stop j, which consists of an arm having a tooth or nose j', which projects through a slot or opening in the side of the breech-case, and stands in the path of one of the recoil projections a' of the bolt, so that as the latter is drawn back and this projection strikes the tooth j' the bolt is stopped. The bolt-stop j is constructed in the form of a frame, which fits over and incloses the lug h^3, being pivoted thereto by a vertical pin passed down through the frame and lug. The outer side of the frame is closed by a spring j^2, in the form of a flat plate fastened to the outer end of the arm j, and pressing at its free end against the lug h^3, so that it acts to press the arm j normally close against the breech-case, and with its stop-tooth j' in position to prevent the withdrawal of the bolt. By rocking the arm j outwardly, however, against the tension of this spring the tooth j' may be carried out of the way of the recoil projection a' to permit the bolt to be drawn out of the gun. By constructing the stop-arm j as a frame with its plate-spring j^2 it is constituted a box closed on the outer side and housing the lug h^3 and the ejector and its spring and concealing the slot or opening inside of the breech-case.

The ejector consists of a flat plate g, preferably of steel, the pivotal end of which is mounted in a slot in the lug h^3, where it turns on the same pivot-pin as the bolt-stop j. The front portion or beak g' of this plate enters

through a slot or opening in the breech-case and projects into the latter, bearing against the side of the bolt *a* when it is moved forward, being lightly pressed against the bolt by a spring g^2, arranged inside the box-shaped arm of the bolt-stop *j*. When the bolt is drawn back, the beak *g'* of the ejector enters a slot or deep groove g^3, formed in its side at its front end, so that just before the bolt reaches the end of its backward movement the beak, by entering this slot, comes behind the base of the cartridge-shell, stopping at once its farther back motion, while the coil of the extractor *b* draws the shell back a little farther until the bolt *a* is stopped by the bolt-stop *j*. The effect of these movements is to eject the shell by throwing it toward the right, as shown by dotted lines in Fig. 3.

The front portion of the bolt-stop *j* extends upward as a vertical projection or arm j^3, which is curved inwardly concentrically with the rounded back portion of the breech-case *h*. The upper end of this arm projects slightly into the vertical plane of the opening in the top of the breech-case for the insertion of the cartridges when filling the cartridge-magazine, as is clearly shown in Fig. 4. By reason of this projection this end bears against the cartridge-frame *q*, which is shown in dotted lines in Figs. 1 and 4, when the latter is inserted into the loading-space of the breech-case, so that the arm j^3 directs the frame into its proper place and holds it there until the cartridges have been pressed down into the magazine *p*, after which the frame *q* is easily removed. This frame *q* is the same as that shown in my patent, No. 402,605, hereinbefore referred to.

By swinging out the bolt-stop *j* toward the left not only is the stop-tooth *j'* carried out of the way of the recoil-shoulder *a'* but the ejector *g* is also held out of reach of the bolt, and the bolt can then be removed entirely from the breech-case. In replacing the bolt it can be pushed back to place without manipulating the bolt-stop, since the parts pass easily over the yielding oblique faces of the trigger-nose, the stop-tooth *j'*, and the ejector-beak *g'*.

The bolt-stop provided by my present invention differs from that shown in my United States Patent, No. 406,924, dated July 16, 1889, in that the recoil projections *a' a'* are formed at the front part of the bolt, and one of them constitutes the shoulder which encounters and is arrested by the stop-tooth, whereas in that patent the recoil projections are formed at the rear part of the bolt and have no connection with the bolt-stop, the shoulder which encounters the stop-tooth being formed on a non-oscillating slide which covers over the top of the bolt and moves with it, being fastened to the bolt-head. By my present construction this slide is omitted, the bolt-head is formed integrally with or fast to the bolt, so as to oscillate with it, and the recoil projections by this new arrangement are made to perform a double function. My present invention also introduces an improved construction of the bolt-stop.

I claim as my invention the following defined novel features or improvements, substantially as hereinbefore specified, namely—

1. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the latter constructed with a recoil projection at its front part entering a socket in the front part of the breech-case when the bolt is locked, of a bolt-stop consisting of an arm pivoted to the exterior of the breech-case, having a stop-tooth entering the latter and standing in the path of said recoil projection, and a spring for holding said arm against the breech-case.

2. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, of a bolt-stop consisting of an arm pivoted to the exterior of the breech-case, having a stop-tooth entering the latter, and said arm formed as an open frame with a plate-spring for pressing the arm against the breech-case, arranged to close the outer side of said frame.

3. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the breech-case constructed with a pivot-lug on its side, of a bolt-stop consisting of an arm on the side of the breech-case pivoted to said lug, having a stop-tooth entering a slot in the breech-case, and said arm formed as an open frame inclosing said lug, and a plate-spring closing the outer side of said frame, fastened to the free end thereof and pressing against said lug to hold the arm pressed against the side of the breech-case.

4. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the latter formed with a groove in its side at its front end, of a bolt-stop consisting of an arm pivoted to the exterior of the breech-case and having a stop-tooth entering the latter, an ejector consisting of an arm pivoted to the side of the breech-case and having its beak entering the latter in line with the groove in the bolt, and adapted to enter it when the bolt is drawn back, and a spring reacting against the bolt-stop and bearing against the ejector to press its beak inward.

5. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the latter formed with a groove in its side at its front end, of a bolt-stop consisting of an arm pivoted to the exterior of the breech-case and having a stop-tooth entering the latter, and formed as a hollow frame or box, an ejector consisting of a pivoted arm working within the hollow of said frame with its beak projecting into the breech-case in line with and adapted to enter the groove in the bolt, and a spring for pressing said ejector-arm inwardly.

6. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the latter constructed with a groove in its side at

its front end, of a bolt-stop consisting of an arm pivoted to the exterior of the breech-case, having a stop-tooth entering the latter and said arm constructed as an open frame, an ejector consisting of an arm pivoted within said hollow frame with its beak entering the breech-case, and two springs fastened to the free end of said arm, the one a plate-spring arranged to close the open side of the arm and acting to press the latter against the breech-case, and the other housed within the arm and pressing against the ejector to thrust its beak into the breech-case.

7. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the former having a pivotal lug on its side, of a bolt-stop consisting of an arm constructed as an open frame, inclosing said lug and having a stop-tooth entering the breech-case, an ejector consisting of an arm pivoted to said lug by the same pivot-pin as the stop-arm and housed within the latter, and springs for pressing said stop-arm and ejector inwardly.

8. In a breech-loading bolt-gun, the combination, with the breech-case adapted for the attachment of a magazine beneath and having a corresponding loading-opening in its top, of an arm j, pivoted to the breech-case and having a projection j^3 terminating at the top of the breech-case at said loading-opening, and a spring acting against said arm and tending to press said projection into the opening, whereby the operation of loading the magazine with cartridges held in a holder engaging their bases is facilitated.

9. In a breech-loading bolt-gun, the combination, with the breech-case adapted for the attachment of a magazine beneath and having a corresponding loading-opening in its top, and the bolt having a stop-shoulder, of the bolt-stop j, consisting of a spring-pressed arm pivoted to the exterior of the breech-case and having a stop-nose j' projecting into the breech-case in the path of said shoulder, and an extension j^3, projecting over the top of the breech-case and terminating at said loading-opening.

10. In a breech-loading bolt-gun, the combination, with the breech-case and bolt, the latter formed with recoil projections on its front end and a groove in one of them extending into the front end of the bolt, of the bolt-stop j, with its stop-nose j' entering the breech-case in the path of said grooved recoil projection, pivoted to a lug h' on the breech-case, the ejector g, also pivoted to said lug and having a beak g' entering the breech-case in position to enter said groove when the bolt is drawn back, and a spring g^2 for pressing said ejector inwardly.

This specification signed by me this 2d day of September, 1889.

PAUL MAUSER.

Witnesses:
EDMUND GRONCK,
THEODORE ABENHEIM.