

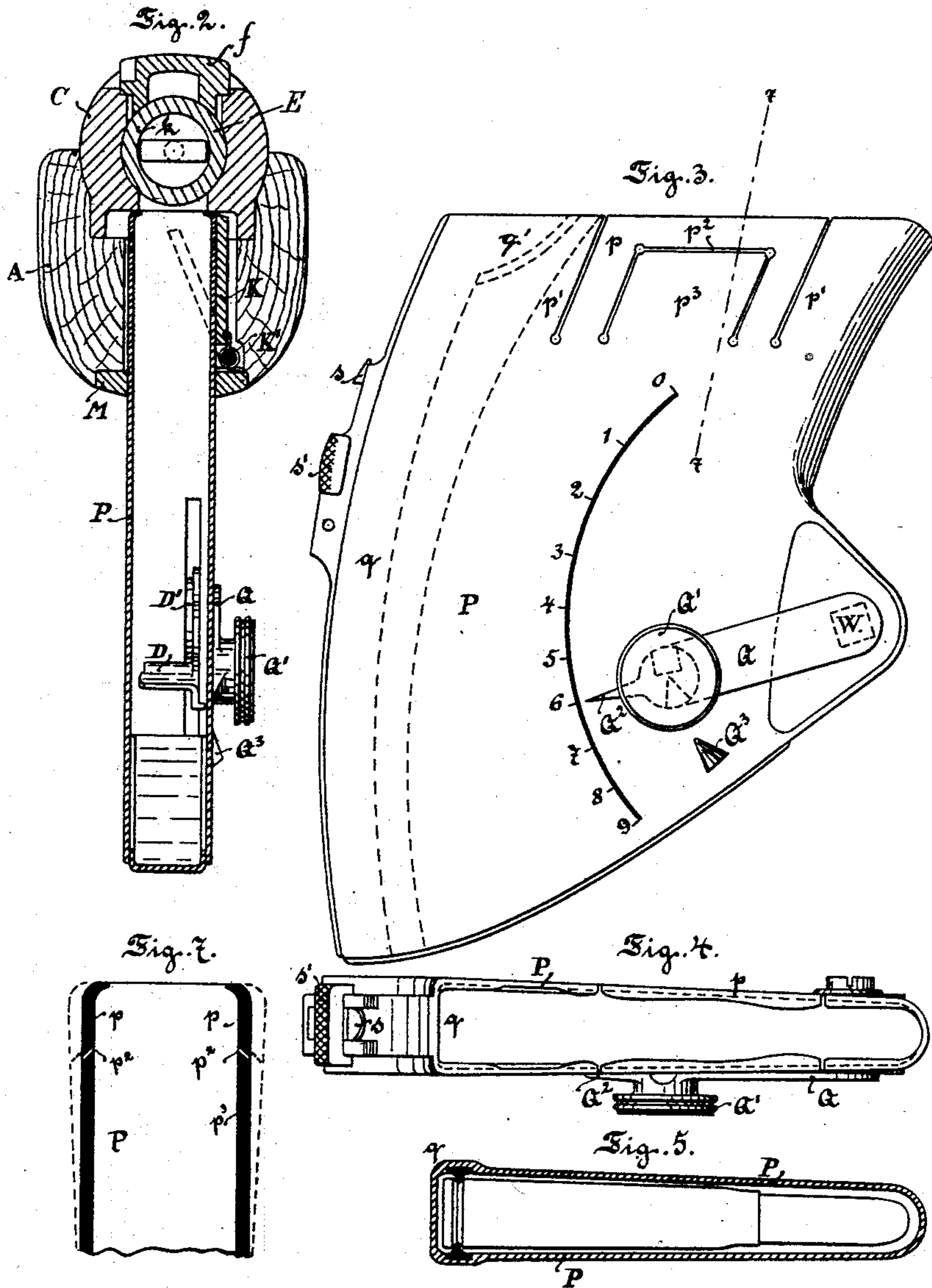
(No Model.)

2 Sheets—Sheet 2.

P. MAUSER.
MAGAZINE FOR FIRE ARMS.

No. 403,765.

Patented May 21 1889.



Witnesses:
John A. Herrie,
J. A. Griswold.

Inventor:
Paul Mauser,
By his Attorneys:
Arthur C. Fraser & Co.

UNITED STATES PATENT OFFICE.

PAUL MAUSER, OF OBERNDORF-ON-THE-NECKAR, WÜRTENBERG, GERMANY,
ASSIGNOR TO THE WAFFENFABRIK MAUSER, OF SAME PLACE.

MAGAZINE FOR FIRE-ARMS.

SPECIFICATION forming part of Letters Patent No. 403,765, dated May 21, 1889.

Application filed July 3, 1888. Serial No. 278,904. (No model.) Patented in Belgium April 24, 1888, No. 81,536; in England May 11, 1888, No. 7,045; in Italy June 30, 1888, No. 23,596/335, and in Spain August 20, 1888, No. 8,251.

To all whom it may concern:

Be it known that I, PAUL MAUSER, manufacturer, a resident of Oberndorf-on-the-Neckar, in the Kingdom of Württemberg, German Empire, and a subject of the King of Württemberg, German Empire, have invented certain new and useful Improvements in Detachable Cartridge-Magazines for Breech-Loading Fire-Arms, of which the following is a specification.

This invention is the subject of Letters Patent as follows: Belgium, No. 81,536, dated April 24, 1888; Italy, Nos. 23,596 and 335, dated June 30, 1888; Spain, No. 8,251, dated August 20, 1888; England, No. 7,045, dated May 11, 1888.

This invention relates to a loading device for breech-loading fire-arms of the class having a cylindrical bolt moving longitudinally, and which are known as "bolt-guns." More particularly the invention relates to loading devices for such guns, consisting of a detachable cartridge-magazine which is applied to the gun from beneath, so that the cartridges enter the cartridge-rest or loading-cavity in the breech through a slot in the bottom of the breech-case.

My improved magazine is constructed in such manner that it can be supplied or filled with cartridges either before its attachment to the arm or afterward, in the latter case the single cartridges being inserted into the magazine through the cartridge-rest in the breech. If the magazine is attached to the gun, the latter can be used as a common single-loader, and this equally well whether the magazine be filled or empty. The magazine is provided with a hand upon its exterior, which indicates automatically upon a dial how many cartridges, if any, are contained in it at any time. The gun is so constructed that if the magazine is detached from it the slot in the bottom of the breech-case can be closed to prevent the entrance of rain, dust, &c. A means is also provided for enabling the gun to be used as a single-loader when the magazine is removed.

Although my invention is intended especially for bolt-guns, and more particularly for such guns as are constructed with a slid-

ing guide-plate to close the case-opening in the top of the breech-case, yet it is to be understood that my invention may also be applied to other types of breech-loading guns, provided only that the breech-piece provides sufficient room for properly applying the cartridge-magazine.

The accompanying drawings show the preferred application of my invention.

Figure 1 is a vertical longitudinal section of the breech part of a gun with the magazine attached. Fig. 2 is a transverse section thereof cut on the line 2 2 in Fig. 1. Fig. 3 is a side elevation of the magazine removed. Fig. 4 is a plan of the magazine. Fig. 5 is a horizontal section of a modified construction of magazine designed for rimless cartridges. Fig. 6 is a horizontal axial section of the breech portion of the gun cut in the plane of the line 6 6 in Fig. 1, the magazine being detached and the bolt removed.

A designates the stock of the gun; B, the barrel; C, the breech-case; E, the cylindrical bolt; F, the bolt-head or breech-lock, and T the trigger.

In the particular construction of gun shown the bolt E and bolt-head F are separate parts, which are constructed to move together in longitudinal direction, the bolt E being constructed to oscillate a quarter-revolution when it has been pushed fully forward in order to lock the parts in place ready for firing, while the bolt-head F has no oscillatory movement. The bolt E is turned by a hand-lever, *h*, Fig. 1, and has two recoil projections, *w*, on opposite sides, which, when the bolt is locked, enter recesses *w'* *w'*, Fig. 6. Above the bolt is a longitudinally-sliding guide-plate, *f*, which is connected to the bolt, so as to partake of the longitudinal movement thereof, preferably by being formed with a recess, *w*², into which one of the projections *w* enters when the bolt E is oscillated, so that as the bolt is drawn back this projection carries back the guide-plate *f* with the bolt. The plate *f* is fixed to or formed integrally with the bolt-head F. It is mounted to slide in suitable grooves or ways along the top of the breech-case and under the bridge portion at the rear thereof, and serves, when the bolt is pushed

fully forward, to close the case-opening in the top of the breech-case and exclude dust and rain therefrom. This construction of bolt-gun is not claimed in my present application and not essential to my present invention. It will be found more fully described in another application for patent, designated as "Case A."

In the bottom of the breech-case C is formed an opening or slot, c' , of such size and shape that a cartridge can easily pass through it in a position parallel to the axis of the barrel. A metal plate, M, is let into the under side of the stock A and is united by screws to the breech-case C and the stock. This plate M is also formed with a slot through it, and the wood of the stock A between this slot and the slot c' is sufficiently cut away to form a socket for the insertion of the upper part of the cartridge-magazine P. When the magazine is fully inserted and comes to its proper position, it is caught by a spring-catch, s, which is formed on a thumb-lever, s' , pressed out by a spring, so that the catch engages a notch over the plate M. In order to detach the magazine, the thumb-plate s' is pressed in to release the catch s, whereupon the magazine may be removed downwardly.

When the magazine is removed, the slot in the plate M may be closed by means of a slide, M' , which is confined in guides in the plate M, and may be drawn back and fastened by a hook, m , so that dust, sand, rain, &c., cannot enter into the lock mechanism through this slot.

If after the removal of the magazine the gun is to be used as a single-loader, the slot c' in the breech-case ought to be closed or obstructed in some manner, so that a cartridge laid into the cartridge rest or cavity of the breech-case cannot fall into or through the said slot. The obstruction should be of such character as to hold an inserted cartridge at such height within the breech-case cavity that the bolt in its forward movement shall strike the base of the cartridge and push it forward properly into the barrel. For this purpose I provide a hinged plate, K, the lower edge of which is pivoted to the plate M at one side of the slot through which the magazine enters, and which is pressed by a spring, K' , into the position shown in dotted lines in Fig. 2, so that its top edge comes into the middle of the slot in the breech-case. Suitable offsets at the lower edge of the plate K prevent its being pressed too far out by the spring K' . In this position of the plate K its upper edge supports properly any cartridge that is placed in the cartridge rest or cavity, so that the bolt-head in its forward movement hits the base of the cartridge and pushes it forward, thrusting it into its proper place in the barrel. When the magazine P is again applied to the gun, the act of pushing it up into place presses the plate K to one side and out of the way in a recess in the stock A, as shown in full lines in Fig. 2, where it remains inactively until

the magazine is removed, when it will again spring out to its inclined position, so that it automatically and instantaneously converts the gun into a practicable single-loader.

After firing the gun the backward movement of the bolt drags back the empty cartridge-shell by means of the claw r , carried by the bolt-head F, until the base of the cartridge-shell encounters the nose g' of the ejector g , whereby the shell is thrown out at the top of the breach. This ejector, the position of which is indicated in Fig. 6, will be found fully described and illustrated in another application which I have prepared, and which is designated as "Case B." Its use is not essential to my present invention.

The magazine P is a box of sheet metal, preferably of the shape shown, where it is drawn to hold nine cartridges of eight millimeter caliber. Its size of course changes according to the number of cartridges that it is to hold and according to their caliber. The front and rear sides are curved according to eccentric circles in such manner as to allow the cartridges, which are placed loosely one above another, to be pressed up easily without jamming, their bases resting one upon another, and their bullet ends resting tangentially on the curved front side of the magazine. Upon the rear side is mounted the spring-catch $s s'$, already referred to. At the lower portion of the front side is formed an extension or pocket, which serves to inclose the cross-spindle W of a light arm or lever D, which moves inside of the magazine, and is pressed upward by a spring, D' , which may be coiled around the spindle W within said pocket.

The spring-lever D presses upwardly at its tip against the rear portion of the lowermost cartridge in the magazine, so that the uppermost cartridge is pressed up against the under side of the bolt EF, by which the gun is loaded. Upon the back-stroke of the bolt the empty shell is first drawn out of the barrel and ejected, as already described. Subsequently the bolt passes beyond the rear of the uppermost cartridge, whereupon the latter, which until this instant has been held down by the bolt above it, is pressed up by the lever D and rises within reach of the bolt, so that upon the forward movement of the bolt it is forced into the barrel.

On the outside of the magazine is a graduated scale, preferably concentric with the axis of the shaft W and graduated and numbered according to as many cartridges (nine in the example shown) as the magazine is designed to contain. An arm, Q, is fixed to the projecting end of the shaft W, and is formed at its outer or free end with a pointer or finger, Q^2 , which travels along the scale as the lever D moves, and consequently by its position indicates the number of cartridges still remaining in the magazine, if any there be, or by pointing to zero indicates that the magazine is empty. The arm Q is provided with a knob

or handle, Q' , by means of which the arm Q , shaft W , and lever D may be simultaneously moved.

If it is desired that the cartridges shall not rise automatically into the cartridge-rest, but shall remain down beyond the reach of the bolt, in order to convert the gun while the magazine is attached into a single-loader, the arm Q , which is made somewhat elastic in lateral direction, is pressed downward by means of the handle Q' until it snaps over a tapering projection, Q^3 , which is formed upon the flat side of the magazine, whereby the arm Q and consequently the shaft W and lever D are held immovably. The lever D is thus drawn down a little beyond its lowest working position, so that all the cartridges are also lowered to the same extent, and consequently, even though the magazine be entirely filled, the uppermost cartridge is beneath the reach of the bolt $E F$. When the gun is to be loaded again from the magazine, the arm Q is to be released from the projection Q^3 by springing it off sufficiently to clear the latter, whereupon the lever D at once presses up the uppermost cartridge into reach of the bolt whether the magazine be entirely full or contain even but one cartridge.

In order to allow the cartridges to be easily inserted in the top of the magazine P , but to prevent their falling out accidentally in any position that the magazine may occupy, the upper part or mouth of the magazine is made elastic and is laterally contracted. To this end two oblique incisions, $t' t'$, are made from the edge downward, and in the space between them an inverted-U-shaped cut, p^2 , is made, thereby forming around the latter cut an inverted-U-shaped flap, p , the upper edge of which is bent inwardly, as shown in Figs. 4 and 7.

The U-shaped flap p is elastic, so that it yields to permit a cartridge to be pressed into the magazine from above in charging the magazine, or to be forced out by the bolt in the automatic loading of the gun; but the flaps $p p$ have sufficient strength or tension to resist the passage out of cartridges under the impetus of their own weight aided by the tension of the spring D' of the lever D , so that the filled magazine may be inverted without any cartridge falling out. The yielding of the flaps $p p$ is, however, only in an outward direction, as they are prevented from yielding inwardly by some suitable construction of stops, so that the sides of the magazine offer as great a resistance to external pressure as if the incisions by which the flaps are formed were not made in them. The preferred construction of these stops is that shown best in Fig. 7. The horizontal portion of the U-shaped cut p^2 is formed obliquely, or is undercut in such way that the upper inside edge of the cut overlaps the lower outside edge. The wing p^3 , to which the lower edge belongs, is stretched upwardly until the two edges of the cut closely meet each other, so

that the metal of the flap p is held by the abutment of the two oblique edges of the cut in the same plane with the metal of the wing p^3 . Thus the flaps $p p$ may yield outwardly, as shown in dotted lines in Fig. 7, but have the same resistance to movement inwardly as the uncut sides of the magazine.

For the ordinary cartridges with projecting rims at the base the magazine P is formed with guide-grooves $q q$ in its sides, which are pressed or stamped out of the material of the magazine and along which the base of the shells can slide, so that as the cartridges are fed into the magazine they travel automatically into their proper place. The eccentric front and rear curved sides of the magazine are a little closer together than the length of the cartridges, so that the latter are compelled to assume an inclined position, except in the case of the uppermost cartridge, and the top of the guide-groove q terminates in an incline, q' , which, in connection with the incline against which the nose of the bullet rides, serves to lift the cartridge out of the magazine and direct it into the barrel when it is being pushed forward by the bolt. During this movement of the cartridge obliquely upward the elastic flaps $p p$ yield outwardly to permit the escape of the cartridge.

For cartridges without projecting rims, but with annular grooves at the base for receiving the extractor-claw, the magazine is constructed with ribs q , projecting inwardly, as shown in Fig. 5.

If while the magazine is attached to the gun it is to be fed with new cartridges, the latter are pressed down through the cartridge-rest and into the magazine, the flaps $p p$ yielding outwardly and the cartridges being guided to place by the grooves $q' q' q q$. During this operation the arm Q may be fastened down by the nose Q^3 , or may remain in its working position, in which latter case the lever D will be pressed down the distance of one cartridge at a time.

I am aware that a breech-loading gun has been provided with a magazine beneath its breech, wherein the cartridges are pressed up by a vibrating arm or lever acted on by a spring; but in such constructions the spring-arm has not heretofore had its bearings in a detachable magazine or cartridge-receptacle, but in a pocket formed on the gun itself, or in a cup or case hinged to the under side of the gun and arranged to turn downwardly, and within which the cartridge receptacle or magazine proper is deposited.

I claim as my invention the several improvements in breech-loading magazine fire-arms wherein the magazine is applied beneath the breech and in magazines for such fire-arms, defined as follows, substantially as hereinbefore specified, namely:

1. A cartridge-magazine consisting of a receptacle or cup adapted for direct attachment to the gun, having an open top and formed with a pocket or extension at the

lower portion of its front side, in combination with a lever pivoted to said receptacle in said pocket and arranged to vibrate within the receptacle for pressing up the cartridges, and a spring pressing said lever upwardly, whereby the lever and spring are necessarily removable from the gun with the magazine.

2. A cartridge-magazine consisting of a receptacle having an open top curved at its front and rear sides in eccentric circular arcs in order that the cartridges shall be supported one upon another at the base and by tangential contact of their bullet ends with the eccentric front side of the receptacle, and the receptacle formed with a pocket or extension at the lower portion of its front side, in combination with a lever pivoted in said pocket and arranged to vibrate within the magazine for pressing up the cartridges, and a spring in said pocket for pressing said lever upwardly.

3. A cartridge-magazine having an open top and formed with a fixed catch-tooth upon its exterior, in combination with a pivoted lever working within the magazine for pressing up the cartridges, a spring pressing said lever upwardly, a rotatively-mounted spindle to which said lever is fixed and which projects outside of the magazine, and an arm

outside of the magazine fixed to said spindle, elastic in lateral direction, and arranged to engage with said catch-tooth by reason of said elasticity in order to hold said lever down against the tension of its spring and thereby throw the magazine out of operation.

4. A cartridge-magazine having an open top and provided with spring-flaps at its top on opposite sides, with their upper edges bent inwardly, formed by means of incisions in the material of its sides, and with stops or abutting shoulders on the sides of the magazine and on said flaps for preventing the pressing in of the flaps beyond the remaining portions of the sides of the magazine.

5. A cartridge-magazine having an open top and provided with spring-flaps of inverted-U shape at its top, formed by means of incisions in the material of its sides, and with stops for preventing the pressing in of said flaps beyond the remaining portions of the sides of the magazine, formed by oblique overlapping portions of said incisions.

This specification signed by me this 14th day of May, 1888.

PAUL MAUSER.

Witnesses:

EDMUND GRONCKI,
THEODOR SCHMID.