

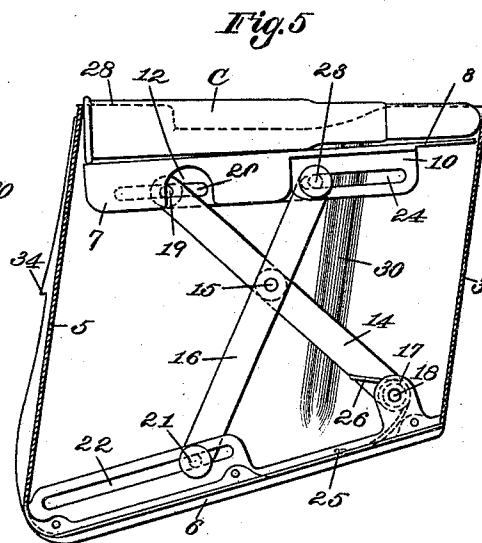
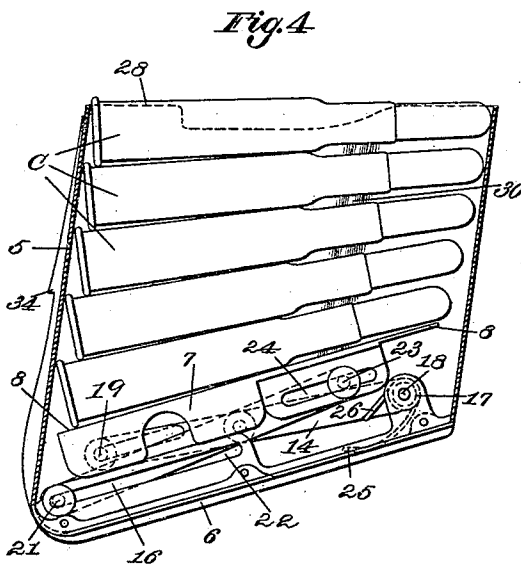
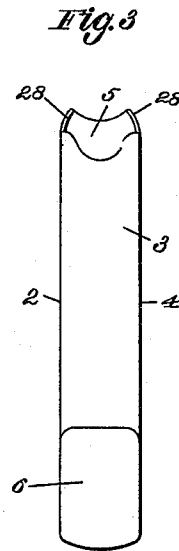
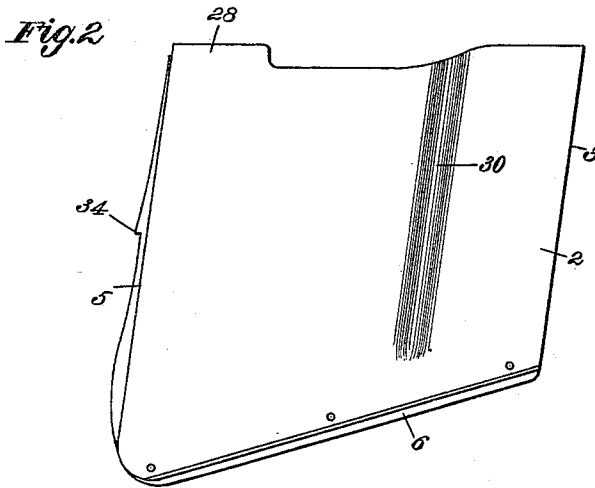
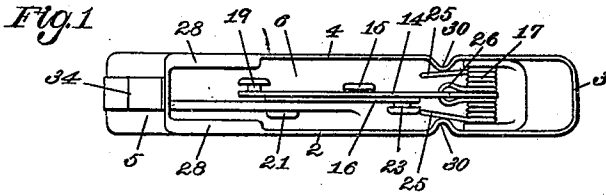
(No Model.)

3 Sheets—Sheet 1.

C. W. SPONSEL.
MAGAZINE FOR FIREARMS.

No. 487,432.

Patented Dec. 6, 1892.



Witnesses:

Henry L. Rickard.
H. Mallner.

Inventor:

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By his Attorney,
J. H. Richards

(No Model.)

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Fig. 6

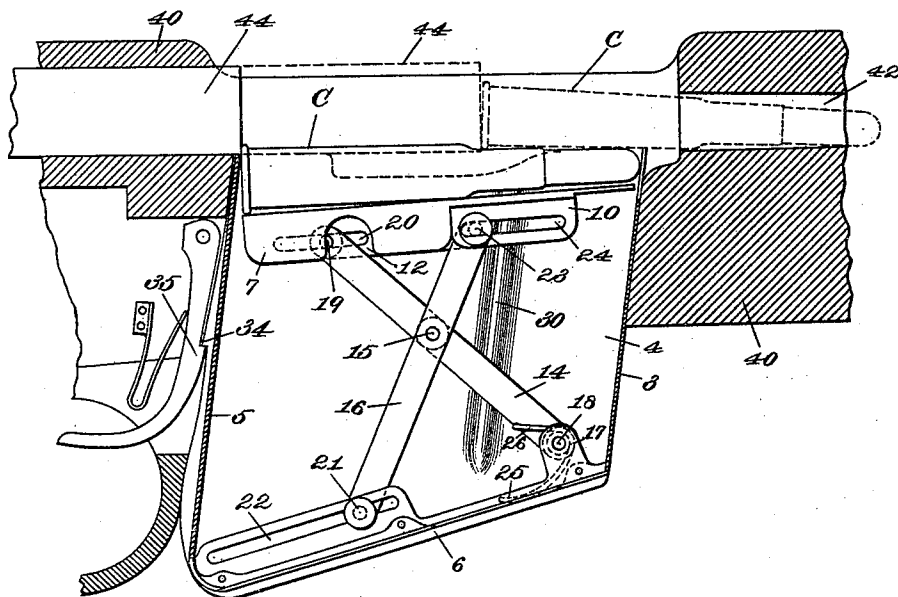


Fig. 7

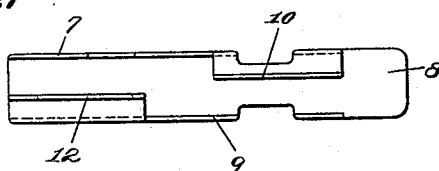


Fig. 8

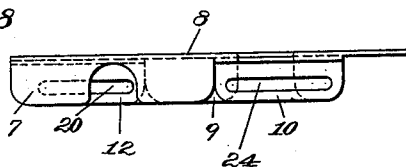
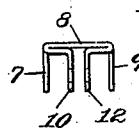


Fig. 9



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Fig. 10

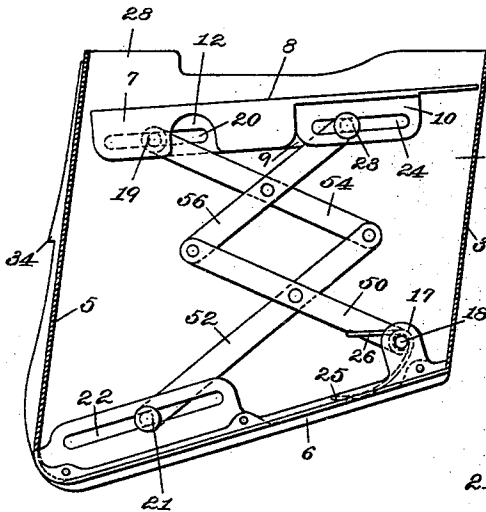


Fig. 11

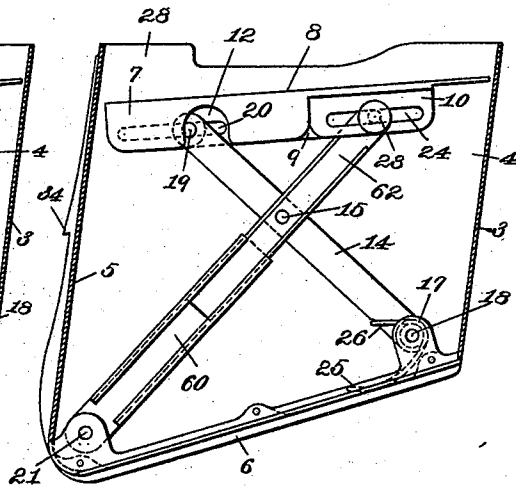
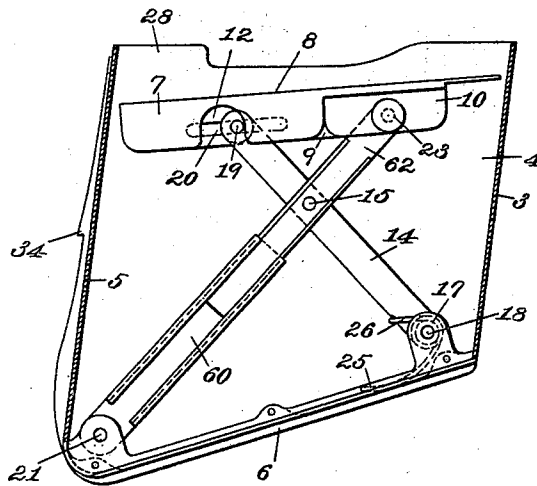


Fig. 12



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UNITED STATES PATENT OFFICE.

CHARLES W. SPONSEL, OF HARTFORD, CONNECTICUT.

MAGAZINE FOR FIREARMS.

SPECIFICATION forming part of Letters Patent No. 487,432, dated December 6, 1892.

Application filed December 7, 1891. Serial No. 414,214. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. SPONSEL, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Magazines for Firearms, of which the following is a specification.

This invention relates to that class of magazines which are used for holding the cartridges for shoulder-arms and which are usually removably fixed in the under side of the firearm, immediately rearward of the barrel.

My improved magazine is adapted to be used as a fixed magazine and loaded from the top, after the manner of the so-called "Mannlicher" magazine-rifle, or it may be used as a detachable magazine, being held in place by a spring-catch and readily removed for reloading, as in the well-known "Lee" magazine-rifle.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view, with the cartridge-supporting platform removed therefrom, of a magazine embodying my invention. Fig. 2 is a side elevation of the magazine. Fig. 3 is an end or edge view of the same as seen from the right hand in Fig. 2. Fig. 4 is a vertical sectional view of the case, showing the magazine filled with cartridges. Fig. 5 is a view similar to Fig. 4, but showing only one cartridge in the magazine. Fig. 6 is a view similar to Fig. 5, illustrating the use of the magazine in connection with a firearm. Fig. 7 is an inverted plan view of elevator-platform. Fig. 8 is a side view of said platform. Fig. 9 is an end view of the same as seen from the right hand in Fig. 8. Figs. 10, 11, and 12 are views similar to Fig. 5, showing three modified forms of the elevator devices.

Similar characters designate like parts in all the figures.

The magazine consists of a case of a width corresponding to the length of the cartridge to be carried thereby, a thickness corresponding to the diameter of the cartridge, and a depth corresponding to the maximum number of cartridges to be held in the magazine at one time.

The magazine-case may be constructed of sheet metal cut to the required shape and

bent to form the side walls 2 and 4 and the end walls 3 and 5 thereof. The lower end of the magazine is ordinarily closed or partly closed by a suitable cap or plate, as 6, fixed or removably fixed in said case and carrying the device or means for supporting and actuating the table or elevator upon which the cartridges, as C, are supported. This elevator consists of a table or platform connected with the platform-elevating device or devices and fitted to slide freely upwardly and downwardly within the magazine-case. Said table or platform may be varied in form and construction; but the preferred form thereof is the one shown in the drawings, which is constructed of sheet metal suitably cut and bent to the required form. This is shown in detail in Figs. 7, 8, and 9, and consists of the top plate 8, the sides 7 and 9, depending therefrom and forming guides, which engage the sides of the magazine-case to prevent the platform from tipping sidewise, and the depending ribs or parts 10 and 12, by means of which the table is attached to the elevating devices.

The elevating apparatus, by which term I designate in a general way the device or devices for raising the table or platform, consists in its preferred form of a device related in principle to the apparatus commonly known as "lazy-tongs," and consists in its simplest form of a pair of rods 14 and 16, which act in part as levers and in part as connecting-rods, which rods are suitably connected together by a pivot or connecting-pin 15 intermediately of their length and are connected at their lower ends to the bottom plate 6 or to the lower end of the magazine and at their upper ends to the aforesaid cartridge-elevating platform. A spring 17 is connected to one of said levers to normally swing the lever in a direction to elevate the platform, and thus feed the cartridges upward into position forward of the bolt of the gun, ready to be pushed into the barrel thereof.

When the elevating device consists of the levers or connecting-rods, as aforesaid, there are five points of connection for said rods, as follows: one medial connection between the two rods or levers, which are crossed the one past the other; two connections—one at the lower end of each rod—with the lower end of

the magazine, and two connections—one at the upper end of each rod—with the cartridge-supporting platform. The particular nature of said connections may be varied according to the requirements of any particular case; but in practice at least one of the lower or upper connections should be an ordinary pivot joint, so as to maintain the elevating device as a whole in proper relation with the other parts of the magazine. The other connections should be slot-and-pin connections, so as to provide for the required swinging movements of the levers, the one relative to the other, and for the rising-and-falling movement of the said platform.

In the form of elevator devices shown in Figs. 1 to 9, inclusive, the rod 14 is pivoted at 18 to the bottom piece 6, which may be a small casting. The upper end of said rod is provided with a pin 19, which is fitted to slide in a slot 20, that is formed in the rib 12 of the platform. As before stated, the rods 14 and 16 are connected together by means of a pivot-pin 15, located intermediately of their length. The rod 16 is furnished at its lower end with a pin 21, which is fitted for sliding movement in a slot 22, that is formed in the bottom piece 6. The upper end of said rod 16 is similarly provided with a pin 23, which is fitted to slide in a slot 24, that is formed in the rib 10 of the platform to receive it.

Owing to the well-known conical form of the cartridges now generally used for breech-loading firearms, the platform carrying the cartridges must have a greater movement at the rearward end thereof than at the forward end thereof and as it moves farther downward from the line of the barrel have a greater inclination to said line, conforming in this respect to the taper of the upper and lower lines of the series of cartridges whatever the number of cartridges in the series. To meet these requirements and to give the forward and rearward ends of the platform the necessary relative movements is one of the principal objects of my invention. This object I accomplish by suitably proportioning the lengths of the upper and lower ends of the levers so as to throw the platform upward more rapidly at the rearward end thereof than at the forward end thereof and yet control the movement (except for a very slight play due to the form of the joints) during the whole stroke of the platform. The difference in length between the upper end (between pivots 15 and 23) and the lower end (between pivots 21 and 15) of the lever 16 is greater than the difference between the upper end (between pivots 19 and 15) and the lower end (between pivots 15 and 18) of the lever 14, as will be understood from Figs. 4, 5, and 6. This disproportion between the two levers is for the purpose of imparting to the rearward end of the platform a more rapid downward movement than to the forward end thereof, and it will be observed by comparison of Figs. 4 and 5 that the inclination of the platform rela-

tively to the upper line of the magazine is much greater in Fig. 4 than in Fig. 5, said inclination in Fig. 5 corresponding to the taper of a single cartridge, while in Fig. 4 it corresponds to the taper of a group of five cartridges.

The spring which I prefer to use for actuating the platform-elevating levers or rods is a spiral spring, (designated by 17,) the ends thereof forming arms, which bear against the magazine. Intermediate of the ends of the wire forming said spring I have formed a loop 26, engaging the lever 14, said spring being carried upon the pivot 18, on which the lower end of said lever is pivotally supported. The force of such a spring, as is well known, decreases as it expands, so that so far as the action of this spring is concerned the upward thrust of the platform against the cartridges will decrease as the platform moves upwardly; but this effect I overcome and counteract by means of the lever 14, which connects the spring with the platform and which by reason of its changing angles exerts a greater and greater upward thrust upon the platform as this rises from its lowermost position in Fig. 4 to its uppermost position in Fig. 5. In practice this increasing effect of the lever substantially counterbalances the decreasing effect of the spring and produces the required substantially-uniform upward thrust upon the cartridges in the magazine. By careful design and workmanship in the laying out and construction of the magazine that upward thrust may be made very nearly the same at all points of the upward movement of the platform.

The upper end of the magazine-case at the rearward side thereof is furnished with the usual stops or abutments 28 28 for preventing the cartridge from being thrown out until after it has been pushed forward a portion of its length by the bolt 44, Fig. 6, of the gun. Said abutments are preferably formed by bending or curving inwardly the upper rearward edges of the sides 2 and 4 of the magazine-case, as shown in the drawings.

As a means for holding the forward ends of the cartridges vertically central one above another I have bent the sides of the case inwardly, forming the ribs 30 30, between which the forward reduced ends of the cartridges rest.

In Fig. 6 of the drawings I have shown the magazine in place in a gun and having one cartridge in place therein. The frame or breech-block of the gun is designated by 40, the bore thereof by 42, and the bolt by 44. The bolt is shown in solid lines engaging the head of the uppermost cartridge in the magazine. On the further forward movement of the bolt the cartridge is pushed forward into the bore of the gun. In Fig 6 I have also shown by dotted lines a cartridge pushed forward about half its length into the bore of the gun, the bolt being shown by dotted lines in the corresponding position.

As a means for removably fixing the magazine in the gun said magazine is provided with a catch 34 on one (usually the rearward) edge thereof, which catch engages with a
 5 spring-actuated catch or pawl 35, pivotally supported in the breech-block of the gun and engaging with the magazine-catch. When it is desired to remove the magazine, the user has only to press upon the catch, which frees
 10 the magazine, when this may be removed and reloaded in the ordinary manner.

When the magazine is required to be of such a depth that owing to its relatively-narrow width it is impracticable to use only one
 15 pair of elevating-levers, the elevating device may be modified to comprise two pairs of said levers, as illustrated in Fig. 10, operating, as in the first instance, upon the principle of the so-called "lazy-tongs." In this modification
 20 the lower pair of levers 50 and 52 are arranged substantially the same as the pair of levers used in the more simple form of the magazine, and said lower pair of levers act upon an upper pair of levers 54 and 56, which
 25 connect by pin-and-slot connections, as hereinbefore described, (or by some form of connection equivalent thereto,) with the cartridge-carrying platform.

According to another modification of the
 30 construction of the platform-elevating apparatus, as illustrated in Fig. 11, a single pair of levers is used, which levers are connected together intermediate of their length by a pivotal connection, as 15. Both levers are
 35 pivotally connected at their lower ends to the magazine-case and are both connected by pin-and-slot connections at their upper ends to the platform, one of the levers being formed of two parts 60 and 62, the one part sliding
 40 on the other part, as will be understood from the drawings.

The form of magazine shown in Fig. 11 does not require the two slots 20 and 24 in the platform; but the extensible connecting-rod may
 45 be pivoted to the platform, as at 23, Fig. 12, provided, of course, that the proportions of the levers are such as to carry the platform up and down in a line substantially parallel with the forward and rearward edges of the
 50 magazine-case. Other similar and unimportant modifications will be obvious; but these I deem it unnecessary to further describe, as the same are included within the scope and limits of my present invention.

55 In all of the modifications described the required difference of the movements of the two ends of the platform is obtained by suitably proportioning the length of the upper and lower ends of the levers, substantially as described in connection with the first-described form of the apparatus.

When the platform is in its lowermost position, its elevating-levers lie side by side at the bottom of the magazine, as illustrated in
 55 Fig. 4, thereby requiring the least possible space for the elevating apparatus.

An important advantage secured by my invention is that, owing to the positive control of the platform throughout its stroke by means of the described elevating devices, 70 nearly all parts of the magazine can be manufactured out of sheet metal and by the most economical processes, so that the entire magazine may be produced for a small part of the cost heretofore required for producing this
 75 class of magazines.

By means of the positive control of the platform-elevating devices over the upward movements of the platform the points of the cartridges cannot be pushed down to carry the
 80 head of the upper cartridge back of the head of the cartridge below it, and thus lock the cartridges into the magazine, so that this will be inoperative. This, it is well known, has heretofore been a serious difficulty in the
 85 practical use of some forms of magazines for shoulder-arms.

Having thus described my invention, I claim—

1. In a magazine, the combination, with the
 case and with the platform movable in the
 case, of a pair of crossed levers pivotally connected medially of the length thereof and
 connected at one end of each lever with the
 case and at the other end of each lever with
 95 the platform and means actuating the levers to elevate the platform, substantially as set forth.

2. In a magazine, the combination, with the case and with the platform movable in the
 case, of two crossed levers pivotally connected medially of the length thereof and of different proportions, respectively, one end of
 each of said levers being connected with the
 case and the other end thereof connected with
 105 the platform, whereby the two ends of the platform are given different velocities, substantially as set forth.

3. In a magazine, the combination, with the case and with the platform movable in the
 case, of two crossed pivotally-connected levers of different proportions connecting at their
 upper ends with the platform by pin-and-slot connections and connecting at their lower
 ends with the magazine-case by one pivot connection and one pin-and-slot connection and
 means actuating the levers to elevate the platform, whereby the position of the platform is
 positively controlled during the elevation thereof, substantially as set forth. 120

4. In a magazine, the combination, with the magazine-case carrying the pivot 18 and having the slot 22 and with the platform constructed, substantially as described, for engagement with the upper ends of two crossed
 125 levers, of the lever 14, carried by the pivot 18 and connecting by a pin-and-slot connection with the rearward end of the platform, and the lever 16, pivotally connected to the
 lever 14 at the point 15 and connecting at its
 130 upper end by a pin-and-slot connection with the platform and at its lower end having a

pin working in the slot 22, substantially as set forth.

5. In a magazine of the class specified, the improved cartridge-platform herein described, consisting of the table or plate having its edges folded upon the under side thereof and then bent downwardly and said depending

parts fitted to receive the lever-pivots of the platform-elevating devices, substantially as set forth.

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