June 23, 1953 M. M. JOHNSON, JR 2,642,688

MAGAZINE-CONVERSION UNIT FOR FIREARMS

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Fig. 1.

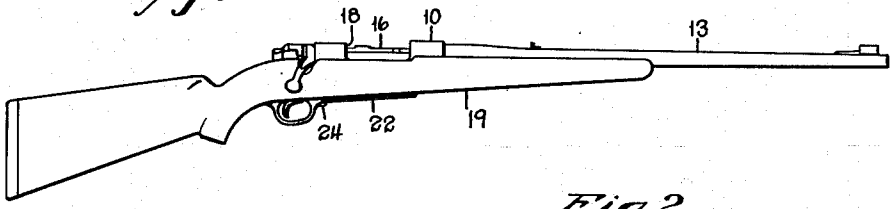


Fig. 2.

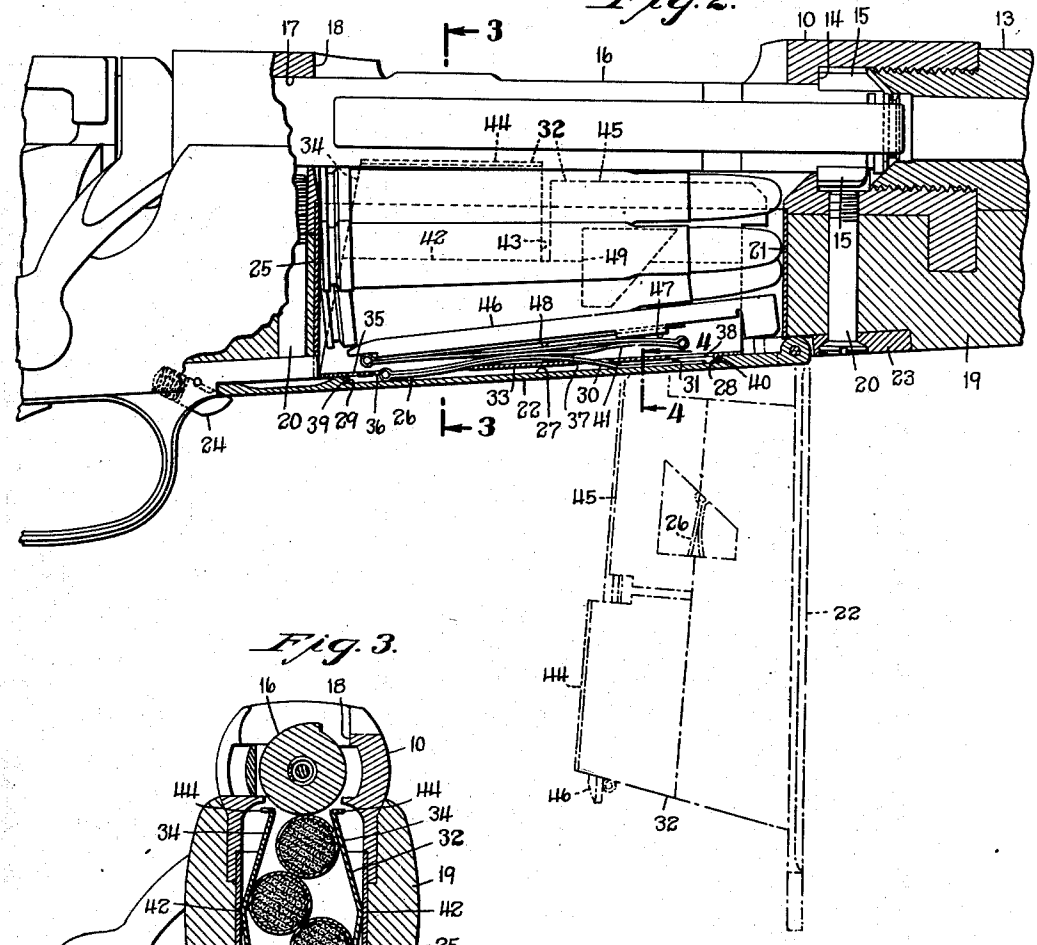
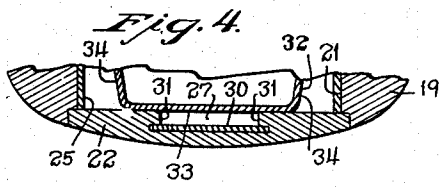


Fig. 3.

Fig. 4.



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Fig. 5.

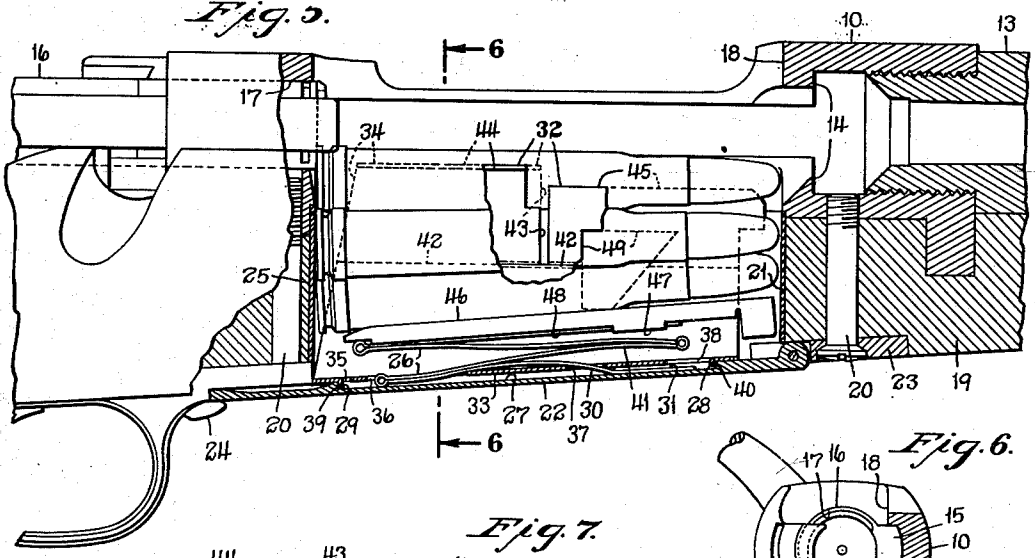


Fig. 6.

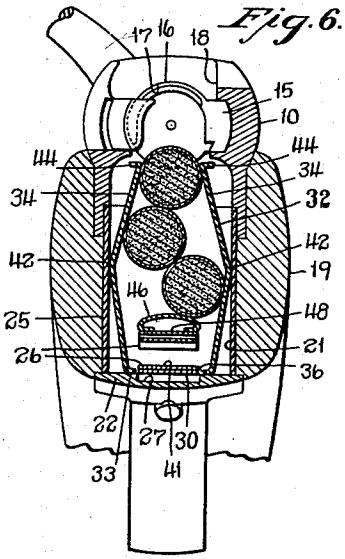


Fig. 7.

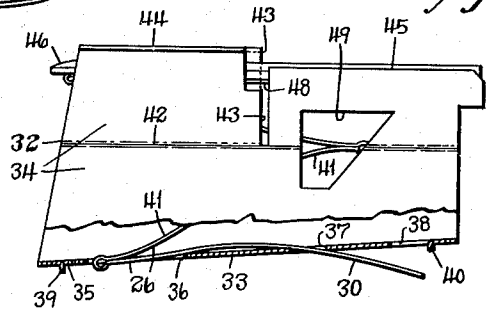


Fig. 8.

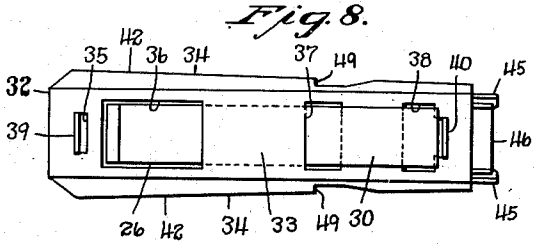
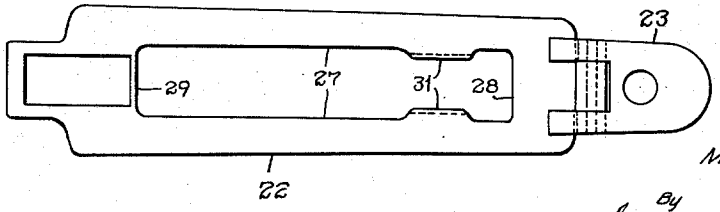


Fig. 9.



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MAGAZINE-CONVERSION UNIT FOR FIREARMS

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4 Claims. (Cl. 42—50)

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The present invention relates in general to firearms of the box-magazine type and more particularly to a box-magazine conversion-unit for adapting a box-magazine to a single-column cartridge-feed.

An object of the invention is to provide a superior conversion-unit for box-magazines.

A further object of the invention is to provide a box-magazine conversion-unit of simple, durable and economical construction adapted to be readily attached to and detached from the hinged floor plate of a box-magazine.

A still further object of the invention is to provide a box-magazine conversion-unit with fastening-means by which the conversion-unit may be readily attached to or detached from the hinged floor plate of a box-magazine in the field without the use of tools or special equipment.

A still further object of the invention is to provide a box-magazine conversion-unit having fastening-means whereby the conversion-unit may be readily attached to and detached from the hinged floor plate of a box-magazine to adapt the latter to single-column cartridge-feed.

Other objects and advantages will appear to those skilled in the art from the following, considered in conjunction with the accompanying drawings.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

Fig. 1 is a right-side elevation of a bolt-action firearm of the box-magazine type with which the superior conversion-unit of the invention is adapted to be used;

Fig. 2 is a fragmentary enlarged right-side elevation of the firearm of Fig. 1, partially broken away to show the action in its closed position and the assembly of the conversion-unit on the hinged floor plate, the latter being shown by broken lines in its unlatched position;

Fig. 3 is a transverse section of the firearm on line 3—3 of Fig. 2;

Fig. 4 is an enlarged fragmentary transverse section on line 4—4 of Fig. 2;

Fig. 5 is an enlarged fragmentary right-side elevation of the firearm of Fig. 1 partly broken away to show the action open;

Fig. 6 is a transverse section on line 6—6 of Fig. 5;

Fig. 7 is a right-side elevation of the improved box-magazine conversion-unit of this invention, with a portion of the lower side wall broken away;

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Fig. 8 is a bottom plan view of the conversion-unit of Fig. 7; and

Fig. 9 is a top plan view of the hinged floor plate of the firearm to which the conversion-unit is adapted to be attached.

For the purpose of describing the invention, the box-magazine conversion-unit is shown as used in the box-magazine of a bolt-action type of firearm. It will be appreciated, however, that the particular firearm illustrated herein is merely for the purpose of describing one application of the invention and that the latter is applicable to other firearms of the type having a box-magazine and a hinged floor plate.

Referring especially to Fig. 2, the bolt-action firearm embodies, in the main, a receiver indicated generally at 10 and having threadedly secured to its forward end a barrel 13, the forward end of the receiver being provided with locking-shoulders 14 for coaction with the locking-lugs 15 on the forward end of an upturn-and-pull-back breech-bolt 16. The latter is adapted to reciprocate in the central bore 17 of the receiver which has a loading-and-ejection opening 18 in the top wall thereof intermediate its opposite ends. The locking-lugs 15 of the bolt 16 are adapted to slide in guide-grooves of the receiver and to be rotated through a quarter turn when the bolt is in its extreme forward position, as shown in Fig. 2, to coact with the locking-shoulders 14 of the receiver to lock the bolt in breech-closing position.

The receiver-and-barrel assembly is mounted on a solid stock 19 and secured thereto by assembling-screws 20, the stock being provided with a vertical box-magazine receiving-aperture 21 which extends therethrough from its top side to its bottom side and is substantially in alignment with the loading-and-ejection opening 18 of the receiver. The lower open end of the box-magazine receiving-aperture 21 of the stock is adapted to be closed by a floor plate 22. The latter is hinged at its forward end to the underside of the stock by means of a hinge-strap 23 which is seated in a recess in the underside of the stock and secured therein by one of the aforesaid assembling-screws 20. The rear end of the hinged floor plate is adapted to be engaged by a spring-loaded latch 24 which serves to hold the floor plate in its normal closed position, as shown in Fig. 2.

Mounted in the box-magazine receiving-aperture 21 of the stock is a top-loading box-magazine body comprising a substantially-rectangular sheet-metal sleeve-like member 25 having

side walls and end walls arranged to engage securely against corresponding walls of the box-magazine receiving-aperture 21, as indicated in the drawings. The bottom of the box-magazine body 25 is normally closed by the hinged floor plate 22.

The box-magazine is of the top-loading type adapted to accommodate a double column of staggered cartridges for feeding the cartridges successively into the breech of the barrel for chambering by the breech-bolt, the feed-means of the box-magazine body including a cartridge-follower (not shown) and a follower-spring 26 for supporting and actuating the follower. The lower end of the follower-spring 26 is adapted to be detachably secured to the hinged floor plate 22, and to this end the upper surface of the hinged floor plate 22 is provided with a relatively-shallow substantially-rectangular recess 27 extending longitudinally thereof, as shown especially well in Fig. 9, and having a front end-wall 28 and rear end-wall 29, the over-all length of the recess 27 being somewhat greater than the length of the lowermost leaf 30 of the follower-spring. The width of the recess 27 corresponds substantially to the width of the aforesaid leaf 30 of the follower-spring, whereby the latter is adapted to seat in the recess 27 in the upper face of the hinged floor plate. For detachably securing the lower leaf 30 of the follower-spring in the recess 27, the opposite side walls of the latter, adjacent its forward end, are provided with inwardly-projecting overhanging lips 31 beneath which the free end of the leaf 30 of the follower-spring is securely held with a snug fit. By unlatching the hinged floor plate and swinging it down to a substantially-vertical position, the box-magazine follower and follower-spring are withdrawn from the box-magazine body, in which position they may be readily detached from the hinged floor plate.

The top-loading box-magazine hereinabove described is used extensively in certain models of high-powered hunting rifles and, as mentioned above, is commonly referred to in the art as a "double-column-feed type" of magazine wherein successive cartridges are fed alternately from left to right and from right to left into chambering position.

The box magazine-conversion unit of this invention is adapted to convert a box-magazine of the double-column-feed type to single-column-feed whereby the uppermost cartridge in the magazine will be fed into chambering position substantially in axial alignment with the bore of the barrel, this type of feed being especially desirable when using soft-nosed large-calibel bullets in a high-powered hunting rifle. In this connection, a feature of the conversion-unit is its adaptability in the field to the magazine-body of a double-column-feed type of box-magazine whereby a hunter may readily adapt his firearm to handling hard point and soft point bullets, as the circumstances may require.

To these ends, the conversion-unit indicated generally by the numeral 32, comprises, in the main, a sheetmetal bottom wall 33 and two upstanding laterally-spaced sheet-metal side walls 34—34, forming a holder for a single column of cartridges. The bottom wall 33 of the conversion-unit is considerably narrower than the box-magazine body 25, as shown especially well in Fig. 6, and is provided with a series of substantially-rectangular apertures 35, 36, 37 and 38 respectively spaced longitudinally thereof as shown in Fig. 8, the width of the respective apertures 36, 37 and 38 being substantially the same and slightly wider than the lower leaf 30 of the follower-spring 26 as and for the purpose hereinafter described. The aperture 35 is relatively narrow as compared to the apertures 36, 37 and 38 and is formed for the purpose of providing a down-turned lip 39 (see Fig. 7) which, as shown especially well in Fig. 5, is adapted to engage against the rear end wall 29 of the recess 27 in the hinged floor plate 22 to positively hold the conversion-unit 32 against rearward displacement relative thereto when assembled thereon, as hereinafter described. Similarly, the aperture 38 in the forward end of the bottom wall 33 of the conversion-unit has a down-turned lip 40 which is adapted to engage against the front end wall 28 of the clearance-recess 27 of the hinged floor plate to positively prevent the conversion-unit from moving forwardly relative to the floor plate when assembled thereon. The aforesaid aperture 36 and the aperture 38 in the bottom wall of the conversion-unit constitute clearance-recesses for accommodating the cylindrical enlargements of the reverse bends of the lowermost leaf 30 and the next-succeeding upper leaf 41 of the follower-spring as illustrated in Figs. 5 and 6, so as to insure sufficient space within the conversion-unit for accommodating at least three cartridges.

The aforesaid aperture 37 in the bottom wall 33 of the conversion-unit is provided for permitting the free end of the lowermost leaf 30 of the follower-spring to project therethrough below the underside of the bottom wall 33 of the conversion-unit for detachable engagement in the recess 27 of the hinged floor plate, and in particular for engagement beneath the overhanging lips 31—31 thereof, in the manner shown especially well in Figs. 2 and 5.

Referring especially to Figs. 6 and 7, it will be seen that the lower half of each side wall 34 of the conversion-unit is bent outwardly, while the upper half of each side wall is bent inwardly, the bend at the juncture of the upper and lower halves of each side wall extending longitudinally of the conversion-unit arranged to engage against the inner surface of the corresponding side wall of the box-magazine body 25 when the conversion-unit is assembled therein. Each longitudinal bend 42 thus serves as a fulcrum for lateral displacement of the upper halves of the side walls 34—34 of the conversion-unit when loading cartridges into the top thereof in the manner characteristic of magazines of the top-loading type.

As shown especially well in Fig. 7, the upper half of each side wall 34 of the conversion-unit is provided with a substantially-vertical slot 43 intermediate its opposite ends, which divides the upper half of each respective side wall into a rear portion and front portion, the rear portions of the side walls of the conversion-unit being symmetrical with respect to the vertical axis of the conversion-unit and inclined inwardly so that the transverse distance betweeen the upper flanged edges 44—44 of the rear portions of the side walls 34—34 is slightly less than the diameter of a cartridge. The upper flanged edges 44—44 of the conversion-unit thus serve as resilient lips for holding the cartridges in the conversion-unit down against the upwardly-directed force of the follower-spring. In this connection, the side walls of the conversion-unit may be heat-treated or otherwise provided with the required springiness for functioning in the prescribed manner.

The upper edges 45—45 of the forward portions of the side walls 34—34 of the conversion-unit are preferably cut down, as indicated especially well in Fig. 7, so as to increase the lateral spacing of the upper edges thereof so that these upper edges of the conversion-unit will permit a cartridge to pass upwardly freely therebetween whereby cartridges may be elevated by the follower and follower-spring assembly of the conversion-unit into position for chambering by the breech-bolt, as hereinafter described. In this connection, the follower 46 of the conversion-unit comprises a strip of relatively-stiff sheet-metal stock, the opposite longitudinal edges of which are turned under, as shown especially well in Fig. 6, to provide stiffening-means, the follower having preferably a slight convex curvature in cross section. The turned-under edges of the follower also include a pair of inwardly-projecting spring-retaining lips 47—47 with which the free end of the uppermost leaf 48 of the follower-spring is adapted to be engaged for detachably securing the follower thereto.

Inasmuch as each side wall of the box-magazine body 25 is provided adjacent its forward end with an inwardly-struck substantially-vertical cartridge-guide rib, each side wall 34 of the conversion-unit is provided in its forward portion with a clearance-aperture 49 for accommodating the cartridge-guide ribs of the box-magazine body when the conversion-unit is assembled therein.

As shown in Fig. 6, the maximum internal width of the conversion-unit is less than the width of the box-magazine body 25. Moreover, the upper half of each side wall of the conversion-unit is inclined inwardly, as hereinabove described, so that the resilient lips 44—44 of the conversion-unit will be spaced apart less than the diameter of a cartridge. Consequently, the conversion-unit holds one less cartridge than a double-column-feed type of box-magazine, the cartridges being arranged in the conversion-unit in a semi-staggered relationship with the uppermost cartridge held by the resilient lips 44—44 substantially in axial alignment with the bore of the barrel for achieving single-column feeding.

The operation of the conversion-unit of the firearm is as follows: Let it be assumed that the shooter wishes to convert the double-column cartridge-feed type of box-magazine in the firearm to single-column cartridge-feed so as to prevent malfunctioning of the firearm when using soft-nosed bullets. The shooter unlatches the hinged floor plate 22 of the box-magazine and allows it to swing downwardly into a substantially-vertical position, whereupon he disengages the leaf 30 of the follower-spring from the spring-retaining lips of the floor plate. He thereupon disengages the double-column-feed type of follower from the upper leaf 48 of the spring 26 and attaches to the latter the sheet-metal follower 46 of the conversion-unit 32. He then slips the single-column-feed follower 46 and the follower-spring 26 between the side walls 34—34 of the conversion-unit with the lower leaf 30 of the follower-spring projecting through the aperture 37 in the bottom wall 33 of the conversion-unit. The completely-assembled conversion-unit is then mounted on the hinged floor plate 22 by engaging the free end of the lower leaf 30 of the follower-spring beneath the spring-retaining lips 31—31 of the floor plate, whereby

the conversion-unit is detachably secured thereon, the unit being positively held against movement longitudinally relative thereto by engagement of the respective lips 39 and 40 with the corresponding end walls of the recess 27 in the floor plate. The shooter then swings the hinged floor plate up into its normal latched position thereby moving the conversion-unit up into the box-magazine body 25. The firearm is now converted for single-column cartridge-feed so that cartridges held in the conversion-unit of the box-magazine will be fed therefrom in substantially-axial alignment with the bore of the barrel.

Assuming cartridges have been loaded through the top of the conversion-unit, then upon moving the breech-bolt forwardly from its rearmost position, the forward face of the bolt will engage the upper edge of the uppermost cartridge in the conversion-unit of the magazine in the manner shown in Fig. 5, and advance the uppermost cartridge forwardly therein whereby the nose of the cartridge is brought into engagement with the mouth of the breech and is guided upwardly by the sloping surface thereof into the bore of the barrel. When the bolt has advanced sufficiently to bring the rim of the cartridge opposite the vertical slots 43—43 in the walls 34—34 of the conversion-unit, the cartridge is released from the resilient cartridge hold-down lips 44—44 of the conversion-unit and is thereupon moved upwardly by the force of the compressed follower-spring into engagement with the extractor on the face of the bolt, the upward and forward movement of the cartridge being concurrent with the forward movement of the breech-bolt, whereby the cartridge is chambered in the bore of the barrel. The bolt-operating handle is then swung down to engage the locking-lugs 15 of the bolt with the locking-shoulders 14 of the barrel for locking the bolt in breech-closing position preparatory to firing the piece. After firing the cartridge in the barrel, the action is opened by the upswing and pull-back of the bolt-handle, whereupon the fired cartridge is extracted from the barrel by the rearward movement of the breech bolt and pulled rearwardly opposite the loading-and ejection opening 18 of the receiver, from which the fired cartridge is ejected in the usual manner. At the end of the rearward excursion of the breech-bolt, the next-succeeding cartridge in the conversion-unit of the magazine is moved upwardly by the follower and follower-spring assembly to project into the path of the front face of the breech-bolt, in which position it is resiliently held by the hold-down lips 44—44 of the conversion-unit. The firearm is again ready for loading a new cartridge into the chamber of the barrel.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. In a box-magazine firearm, the combination with a box-magazine body of the double-column cartridge-feed type having a hinged floor plate for closing the lower end of said box-magazine body: of a conversion-unit fitting snugly within said box-magazine body for converting said

magazine-body to single-column cartridge-feed; a cartridge-follower and follower-spring positioned in said conversion unit, said follower-spring being releasably anchored to said hinged floor plate and releasably interlocked with said conversion unit for detachable attachment of the latter to said floor plate.

2. The combination in a box-magazine firearm as defined in claim 1, wherein said floor plate is provided with a recess and spring-retaining lips positioned on opposite sides of said recess which project inwardly towards each other to overlie the bottom of said recess, one end of said follower-spring being detachably anchored to said floor plate by sliding engagement under said spring-retaining lips to frictionally hold that end of said follower-spring against the bottom of the recess of said floor plate.

3. The combination in a box-magazine firearm as defined in claim 2, wherein said conversion unit comprises a magazine having a bottom wall and upstanding side walls connected to said bottom wall; said bottom wall being apertured and said free end of said follower-spring projecting therethrough for engagement with said spring-retaining lips.

4. In a firearm of the converted box-magazine type, the combination with a mounted box-magazine of the double-column cartridge-feed type, a hinged floor plate to close the bottom of said magazine, and a cartridge follower spring releasably anchored to said floor plate, of a cartridge holder insertable in said magazine for converting the latter to single-column cartridge-feed, said cartridge holder being releasably interlocked with said floor plate and said spring and held by the latter in interlock with said floor plate to be carried thereby into and from said magazine.

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