AUTOMATIC BULLET PULLER

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The present invention relates to an automatic gripping tool for use in extracting bullets from their shells, and has for its object the provision of a device by means of which bullets can be more easily and quickly removed and in which it is not necessary to remove the extracted bullet from the puller before extracting the next bullet from its shell.

Another object of the invention is to design a pullling device which can be mounted on a bench or other support and in which the cartridge or shell can be readily mounted, the extracted bullets being automatically discharged from the extractor into a tray as the puller is operated, thus eliminating manual handling of individual extracted bullets and eliminating any interference with the puller's operation.

Another object of the invention is to provide a repeater action bullet extractor which is simple in operation and in which it is not necessary to remove each extracted bullet from the puller before pulling the next bullet and in which the same bullet puller may be used for cartridges of different calibres.

Still a further object is to provide an elongated opening in the support housing in alignment with the extractor passage in the puller to facilitate discharge of the bullet from the extractor passage into a receptacle, so that the bullets when extracted are automatically discharged in orderly sequence into a tray or other receptacle so that they can be quickly and easily handled.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts, hereinafter more fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims; it being understood that changes may be made in the form, size, proportion and minor details of construction, without departing from the spirit, or sacrificing any of the advantages of the invention.

In the drawings:
FIG. 1 is a side elevational view of my bullet pulling tool, and the support on which it is mounted, the broken lines indicating the travel of the shell holder and shell.
FIG. 2 is an enlarged, side elevational view of the tubular support housing and tray.
FIG. 3 is a top plan view showing the bullet tray or receptacle.
FIG. 4 is a detail, side elevational view of the main body portion.
FIG. 5 is a face elevational view of the bullet ejector.
FIG. 6 is a vertical, sectional view thereof, taken on the line 6--6 of FIG. 5.
FIG. 7 is a vertical, sectional view through the support housing assembly, a conventional shell being shown below the support.
FIG. 8 is a top plan view of the shell holder, the broken lines showing the shell being inserted in the holder.
FIG. 9 is a fragmentary, sectional, elevational view of the support housing, ejector member and collet, with the bullet tray in position, the arrow indicating the course of travel of the bullets.

Referring now more particularly to the drawings in which I have shown the preferred embodiment of my invention.

The letter B indicates a bench or other support of any desired design in which the puller P is mounted, said puller comprising a frame section 10 secured to the support by bolts 11 or the like, with the upper end of the frame terminating in an overhanging hub section 12 suitably bored as at 14 to accommodate the threaded end 15 of a tubular housing support 16 as shown.

A depending section 17 is formed integral with the main frame 10 and is shouldered as at 18 to bear against the edge of the support B, said depending section being disposed at a slight angle with relation to a vertical line and is bored as at 19 to slidably accommodate a guide member 20 which is slidably mounted therein.

Forwadly projecting ears 21 are cast integral with the ribs 22 provided on the depending section, and an actuating handle H is hingedly connected to these ears at a point based from the lower end thereof by means of a pin 23.

A toggle link 24 is pivotally connected to the lower end of the handle H by means of pin 25, the free end of the link being connected to another link 26 by means of pins 27 and 28 so that actuation of the handle H reciprocates the guide member 20, all as indicated by broken lines in FIG. 1 of the drawings.

A rib projection 29 is formed on the front face of the puller, and a shell holder 30 is provided on the upper end of the guide member 20, the face of the holder having a passage 31 formed therein to accommodate the shell S, and said passage is undercut as at 32 to firmly secure the shell in position.

The tubular support housing 16 is bored as shown, and a collet chuck C is mounted therein, said chuck comprising a cylindrical body 33 including a plurality of circumferentially spaced apart, resilient fingers 34 terminating in frusto-conical, finger-like prongs 35 which bear on the shoulder 36 provided in the support housing.

A tubular bullet ejector 37 is mounted in the support housing 16 above the collet C, and is formed as clearly shown in FIGURES 5 and 6 of the drawings, the lower end being open to a bullet passage 38 provided in said ejector, the upper end of which is curved as shown to guide the ejection of the bullet E, the upper end of the ejector is bifurcated to form forks 39 and has a raised V-shaped ridge 40 spanning the fork sections 39, and a pin 41 is mounted in opposed openings 42 and 43 provided in the wall of the support housing, the opening 43 being elongated so that when downward pressure is exerted on the pin, the ejector 37 will exert pressure on said collet.

An elongated opening 44 is formed in the wall of the support housing 16 in alignment with the ejector passage 43, and a lock nut 45 is provided on the threaded end 15 of the support to provide for adjustment as desired.

A preferably plastic bullet receptacle R is mounted on the support housing 16 and is formed with an offset tubular neck 46 which is slidable over the upper end of the support to facilitate mounting the tray in position below the opening 44 so that the bullets E are discharged thereinto as they are pulled and forced upwardly as the pulling operation progresses, the extracted bullets being forced in the collet and ejector slide, and thence out through opening 44 into the tray. When the tray R is filled, the operator merely slides the neck 46 upwardly and off the support 16, after which the bullets can be deposited where desired.

When extracting a bullet, the operator grasps the pin 41 and exerts downward pressure thereon, said pin engaging the ridge 40 of the ejector to apply pressure desired, he then swings the handle H downwardly, forcing the tapered end of the bullet into the collet C which yieldingly grips the bullet, and the return stroke of the handle pulls the bullet free from the shell, the shell D is then removed and another shell inserted, and by actuating the handle again, the end of the bullet being extracted engages the butt end of the pulled bullet, forcing it upwardly in the passage and ejecting it through opening 44 into the tray R, all as shown in FIGURE 9 of the drawings.
When it is desired to pull the bullet, a shell S is placed in the shell holder 30, and the operator grasps the pin handle 41 with one hand, and the handle H with the other, and swings the actuating handle H down into position shown in broken lines in FIG. 1, forcing the bullet E up into the collet against the pressure on the ejector; returning the handle to original position pulls the bullet free, and shell returns to original position. Upon insertion of the next shell, the action is repeated, and the extracted bullet forced out of the ejector passage 38 and through the opening 44 into the tray. When the tray is filled, the operator merely slides it over the top of the body member, deposits the bullets where desired and again places the tray in position.

From the foregoing description, it will be obvious that I have perfected a very simple, practical and inexpensive puller mechanism by means of which bullets may be easily, quickly and economically extracted.

What I claim is:

1. In a device for removing a bullet from its casing comprising: a frame; a hollow, tubular support housing mounted on said frame having a discharge opening in the side wall thereof; a collet formed with a plurality of resilient fingers mounted in said support and adapted to grippingly receive the bullet section of a shell; an ejector plunger in said support housing; a passage in the side wall of the plunger in register with the support discharge opening, a laterally projecting tray removably mounted on said support housing directly below the discharge passage and in position to receive the bullet sections when ejected, and means for exerting pressure on said ejector when the device is actuated.

2. The combination defined in claim 1 in which the upper end of the ejector plunger is bifurcated and formed with an upwardly curved passage, a central raised ridge spanning said bifurcations, and means for exerting downward pressure on said ridge.

3. In a device of the character described for removing a bullet from its casing comprising; a frame having a hub; a hollow, tubular support housing mounted in said hub; a collet in said housing and formed with resilient fingers adapted to grip a bullet therebetween; a bullet ejector mounted in said housing above said collet and bearing thereon; a centrally disposed bullet passage in said ejector with its upper end section outwardly curved to guide said bullet; an opening in said housing in register with said ejector; a tray removably mounted on said housing below said opening; manually actuated means for exerting downward pressure on said ejector; a shell holder, a shell mounted therein; reciprocating means for forcing said holder upwardly and forcing said shell into gripping engagement with said collet for extracting said bullet when the device is reciprocated.

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