No. 653,775. Patented July 17, 1900.

E. H. MARSHALL.

APPARATUS FOR REMOVING AND APPLYING VARIOUS DEVICES.

(Application filed July 20, 1899.)

(No Model.)

Fig. 1.

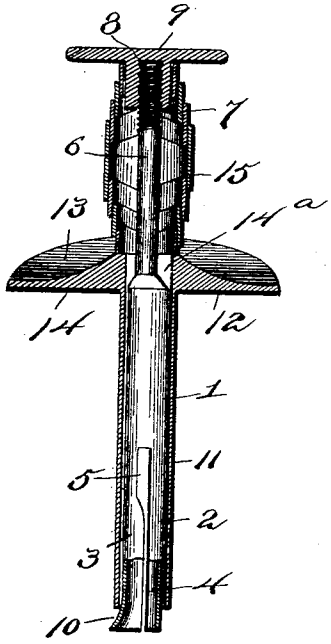


Fig. 2.

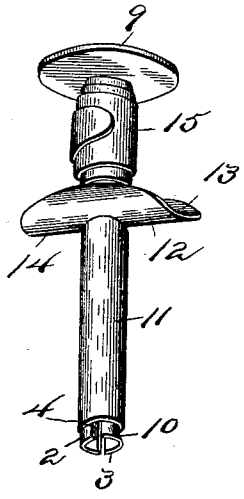
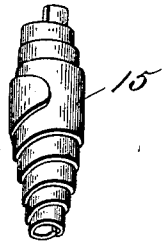


Fig. 3.



Witnesses
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By his Attorneys,
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ELLIS H. MARSHALL, OF FORT MADISON, IOWA.

APPARATUS FOR REMOVING AND APPLYING VARIOUS DEVICES.

SPECIFICATION forming part of Letters Patent No. 653,775, dated July 17, 1900.

Application filed July 20, 1899. Serial No. 724,526. (No model.)

To all whom it may concern:

Be it known that I, ELLIS H. MARSHALL, a citizen of the United States, residing at Fort Madison, in the county of Lee and State of Iowa, have invented a new and useful Implement for Removing and Applying Various Devices, of which the following is a specification.

This invention relates to an implement for removing or applying parts or attachments—such as nuts, caps, pins, rods, and like devices—and contemplates means for setting up a firm grip on such devices which is under manual control and effective in the operation sought.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a transverse vertical section of a puller embodying the invention. Fig. 2 is a perspective view of the same looking underneath the several parts. Fig. 3 is a detail view of a compound volute spring used in connection with the device.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a holder which is of tubular form and has its lower portion provided with opposite clamping-jaws 2 and 3, formed by longitudinally slitting the holder, as at 4, for a portion of its length from the said lower end upwardly, the upper terminals of the slits being enlarged, as at 5, to give freedom of movement to the jaws, particularly the one jaw 3. The upper end of the holder 1 is connected to or formed integral with a stem 6, having a screw-threaded terminal 7, to which is removably fitted a screw-threaded shank 8 of a button or presser-head 9. The outer portion 10 of the lower terminal of the jaw 2 is flared, and slidingly mounted over the holder as an entirety is a sleeve 11, having a cross-head 12 attached to the upper end thereof and provided with an upper concaved or hollow side 13 and a lower transversely-straight face 14. The face 14 is bisected by the sleeve 11 to thus form opposite gripping-faces, and the opening of the said sleeve is continuous with an opening 14^a through the said cross-head. Movably surrounding the stem 6 and the shank 8 of the button or presser-head 9 is a compound volute spring 15, constructed of flat metal and having the converging coils extending in opposite directions and respectively bearing upon the concaved or hollow side of the head 12 and the adjacent side of the said button or presser.

The flared end 10 of the jaw 3 has its outer surface gradually curved, and the sleeve 11 strikes the same and compresses said jaw toward the jaw 2. When the sleeve 11 is drawn upwardly on the holder 1, the tension on the jaw 3 is removed and said jaw springs outward and the entrance-mouth to the holder is enlarged. In this condition the holder can be quickly applied to the part to be pulled, and after proper connection the sleeve is released and exerts a pressure on the jaw and firmly holds both jaws against the said engaged part. This sets up a firm gripping action, which is strong enough to overcome ordinary resistance offered by the devices intended to be pulled by the improved puller, and by a subsequent updrawing on the sleeve, the jaws 2 and 3 are free to release the plunger-rod or rod-cap.

In operating the improved device fingers of the hand are arranged to straddle the sleeve 11 and bear against the gripping-faces of the side 14 of the cross-head 12, and the thumb is placed against the upper surface of the button or presser-head 9. By firmly forcing the thumb against the upper surface of the head to serve as a resistance against the updrawing pull on the cross-head 12 the sleeve 11 is moved upward over the holder and the jaws 2 and 3 are cleared for action.

As above indicated, the improved device is intended for use in removing or applying nuts, caps, pins, rods, and the like from and to various mechanism and is of such structure as to be capable of a general use and adapted for purposes to which it may be applicable, and it is intended that the spring-jaws have a stiff enough action to prevent slipping from the part to which the improved device is applied.

By using the compound volute spring a

strong tension is exerted on the sleeve, which is exceptionally beneficial in maintaining the holding action of the jaw. Furthermore, this spring is always clear of the spring 6 and wearing friction is prevented. By making one side 13 of the head 12 concaved or hollow the operation of the spring is facilitated and less obstruction to the movement of the convolutions in their compression results.

The device is light in its construction and can be easily transported from one place to another and carried in the pocket. In view of the small number of parts their assemblage can be quickly accomplished, and in arranging them in operative relation the holder 1 is moved endwise into the sleeve 11 and the stem 6 projected through the head 12. The spring 15 is then slipped over the projecting stem, and the shank 8 of the button or presser-head 9 is moved into the open end of the spring and connected with the screw-threaded terminal of said shank.

The improved device will be found exceptionally convenient and practicable, and changes in the proportions, size, and minor details of construction may be resorted to without in the least departing from the nature or spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

A device of the character set forth, comprising a tubular holder slitted longitudinally for a portion of its length to provide jaws, one of said jaws being flared, the said holder also having a screw-threaded stem at the extremity opposite the jaws, a sleeve slidingly mounted on the holder and provided with a cross-head at the extremity thereof farthest from the jaws of the latter, a presser-head removably attached to the stem of the holder, and a compound volute spring interposed between said cross-head and the presser-head and surrounding the stem of the holder, whereby the sleeve will be restored to normal position around the jaws of the latter when released.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ELLIS H. MARSHALL.

Witnesses:
FRANK WESTERHOFF,
J. M. NAUER.