April 5, 1927. 1,623,912

P. P. DUNN ET AL

TYPEWRITER KEY REMOVER

Filed Aug. 10, 1926

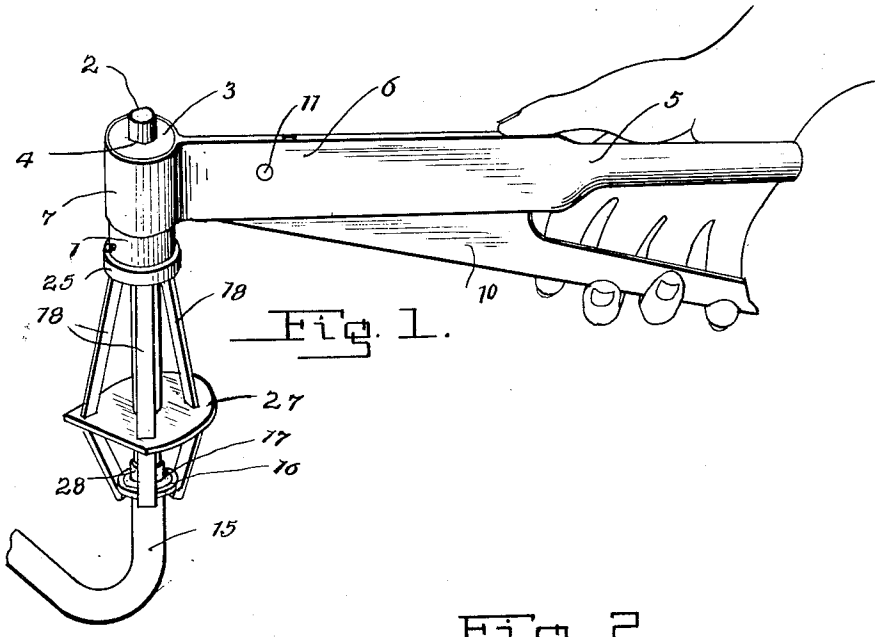


Fig. 1.

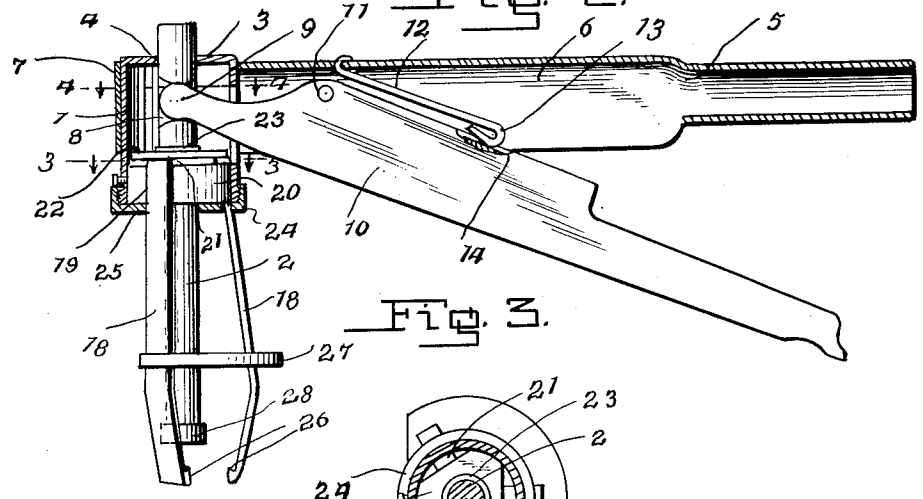


Fig. 2.

Fig. 3.

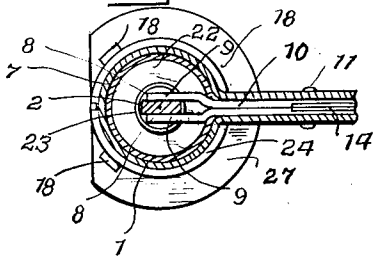


Fig. 4.

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UNITED STATES PATENT OFFICE.

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TYPEWRITER-KEY REMOVER.

Application filed August 10, 1926. Serial No. 128,460.

This invention relates to tools and more particularly to a device by means of which a collar retaining a transparent disk covering a letter or other character upon a typewriter key may be removed.

One object of the invention is to provide a tool by means of which the collar of a typewriter key may be readily removed without damage to the key or collar.

Another object of the invention is to permit jaws forming part of the tool to be readily adjusted and moved into firm gripping engagement with the collar of the typewriter key.

Another object of the invention is to so mount the jaws that they may be firmly held in place when in use but permitted to be readily removed and others substituted.

Another object of the invention is to provide the tool with a handle which may be formed from a length of metal tubing and firmly secured to a casing in which the jaws and a plunger are mounted.

The invention is illustrated in the accompanying drawing, wherein

Fig. 1 is a perspective view showing the tool in use;

Fig. 2 is a view showing the tool partially in longitudinal section and partially in elevation;

Fig. 3 is a transverse sectional view taken through the casing on the line 3—3 of Fig. 2; and

Fig. 4 is a transverse sectional view through the casing on the line 4—4 of Fig. 2.

The casing 1 through which the plunger 2 passes is cylindrical in shape and at its upper end is provided with a head 3 having an opening 4 formed centrally therein to receive the plunger. The casing is carried by a handle 5 which is preferably formed from a metal tube split longitudinally from its forward end and flattened to provide spaced parallel walls 6 joined along their upper edges. The forward end portions of the walls 6 are severed to provide longitudinally extending tongue portions bent and united at their ends to form a sleeve 7 which fits snugly about the casing 1 and may be brazed, soldered or otherwise firmly secured thereto. Within the casing the plunger is formed with opposed side recesses 8 having arcuate upper and lower ends, as shown in Fig. 2, and adapted to receive the substantially circular end portions of the forks 9 provided at the forward end of the actuating handle or lever 10. This handle or lever 10 extends longitudinally of the handle 5 between the spaced walls 6 thereof and is pivotally mounted through the medium of a pin 11. A spring 12 is carried by the handle 5 between its walls 6 and extends longitudinally thereof. The free rear end portion of the spring is folded back upon itself, as shown at 13 in Fig. 2, and this folded end portion of the spring rests in a longitudinally extending groove 14 formed along the inner edge face of the lever 10 so that the spring cannot readily move out of proper engagement with the lever. The lever 10 will, therefore, be normally held in the position shown in Fig. 2 but may be swung against the action of the spring to the position shown in Fig. 1 when the handles are gripped and the plunger moved longitudinally in an operative direction and exert pressure against the transparent covering carried by the typewriter key 15.

In order to grip the ring or collar 16 which holds the transparent covering disk 17 in place, there has been provided jaws 18 which are formed of resilient metal. These jaws are preferably rectangular in cross section and have their upper end portions fitted into grooves or seats 19 formed in the peripheral edge face of a collar 20 in spaced relation to each other circumferentially of the collar. The extreme upper end portions of the jaws are bent to form side arms 21 which fit into extensions of the seats 19 and these side arms are engaged by a disk 22 held firmly upon the disk by outward swaging of a neck 23 projecting upwardly from the disk. The jaws project through openings 24 formed in a cap or closure 25 for the lower end of the casing, and from an inspection of Fig. 2 it will be readily seen that when the cap is screwed upon the casing the collar and jaws will be firmly but releasably held in place. If desired, the cap 25 may be omitted and a set screw passed through the casing radially thereof and screwed into a threaded socket formed in the collar to securely but removably retain the collar in place. The jaws extend in diverging relation to each other from the casing but have their free end portions converging and terminating in hooks 26 adapted to engage beneath the re-

taining ring or collar 16 of the typewriter key. A disk 27, which may be formed of any suitable material and is provided with openings to receive the jaws, is slidably mounted thereon and when moved towards the free ends of the jaws will serve to move the jaws towards each other and retain them in gripping engagement with the ring 16.

When the tool is in use, the plunger is engaged with the upper face of the transparent disk 17 and the hooked ends of the jaws disposed beneath the ring 16. The disk 27 is then slid downwardly to contract the jaws and pressure applied to the handles 5 and 10 to impart downward movement to the plunger and upward movement to the casing. This pressure will cause the jaws to draw the ring or collar 16 upwardly while the plunger holds the key and covering disk stationary and the ring will be very easily removed. A padded tip 28 is provided at the lower end of the plunger so that there will be no danger of the transparent disk which is usually formed of glass being broken. While it is stated that the tool is to be used to remove a collar from a typewriter key, it will be understood that, if made of a proper size, it could be used to remove the hands of a clock, to draw a collar or fly wheel from a shaft or for any other similar purpose.

Having thus described the invention, we claim:

1. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle and projecting from one end of the casing for abutting engagement with the carrier, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, and means removably mounted in said casing and extending from one end thereof in transverse spaced relation to the projected end portion of said plunger for gripping engagement with the article to be removed.

2. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle and projecting from one end of the casing, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, a collar removably mounted in said casing having a bore slidably receiving said plunger, and jaws carried by said collar and projecting from said casing in transverse spaced relation to the projected end portion of said plunger, and adapted to grip the article to be removed.

3. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, a collar in said casing having a bore slidably receiving said plunger, means to removably hold said collar in the casing, and jaws extending from said collar externally of said casing and adapted to grip the article to be removed.

4. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, a collar in said casing having a bore slidably receiving said plunger, the peripheral face of said collar being formed with circumferentially spaced seats, and jaws fitted into said seats and projecting from said casing and adapted to grip the article to be removed.

5. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, a collar in said casing having a bore slidably receiving said plunger, jaws carried by said collar and projecting from said casing, and means slidably mounted upon said jaws and adapted to move the jaws into gripping engagement with the article to be removed.

6. A tool for removing an article from encircling engagement with a carrier, said tool comprising pivoted handles, a casing carried by one handle, a plunger for engaging the carrier slidable through said casing transversely of said handle, the other handle extending into said casing and engaging said plunger and adapted to impart sliding movement thereto when swung towards and away from the first-mentioned handle, a collar in said casing having a bore slidably receiving said plunger, the peripheral face of said collar being formed with circumferentially spaced seats extending vertically and having

their upper ends extending radially into the collar, resilient jaws fitted into said seats and having side arms projecting into the extensions of the seats, said jaws projecting longitudinally from said casing in diverging relation to each other and having their free ends formed with hooks, means to removably secure said collar stationary in said casing, and a member slidable upon said jaws and when moved towards their free ends adapted to draw their hooked ends into gripping engagement with the article to be removed.

7. A tool for removing an article from encircling engagement with a carrier, said tool comprising a casing, a handle consisting of a tube split and flattened for a portion of its length to provide spaced walls and at its forward end having the walls formed into an open-ended sleeve secured about said casing, the casing being formed with a slot between the spaced walls of said handle, a plunger slidable longitudinally through said casing and projecting from the same and within the casing formed with side recesses, a lever pivoted between the spaced walls of said handle and projecting into said casing and having forks seated in the recesses of said plunger, a collar secured in said casing about said plunger, and jaws for engaging the article to be removed carried by said collar and projecting from said casing.

In testimony whereof we affix our signatures.

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