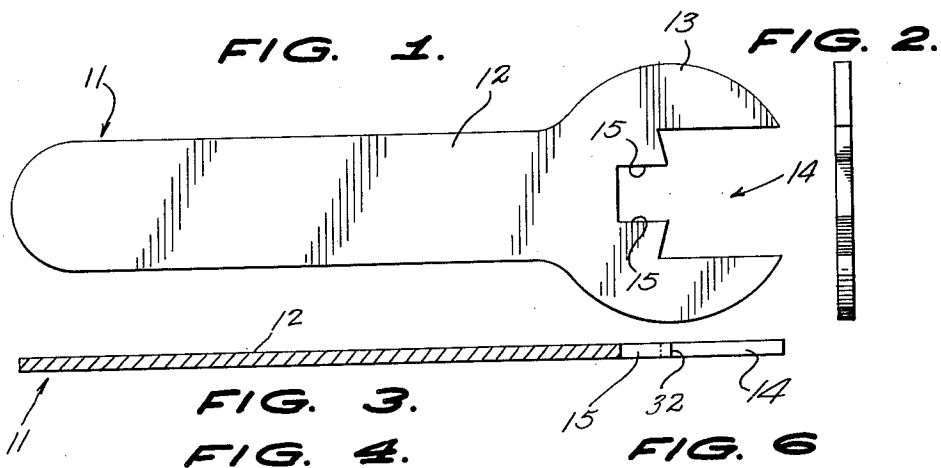
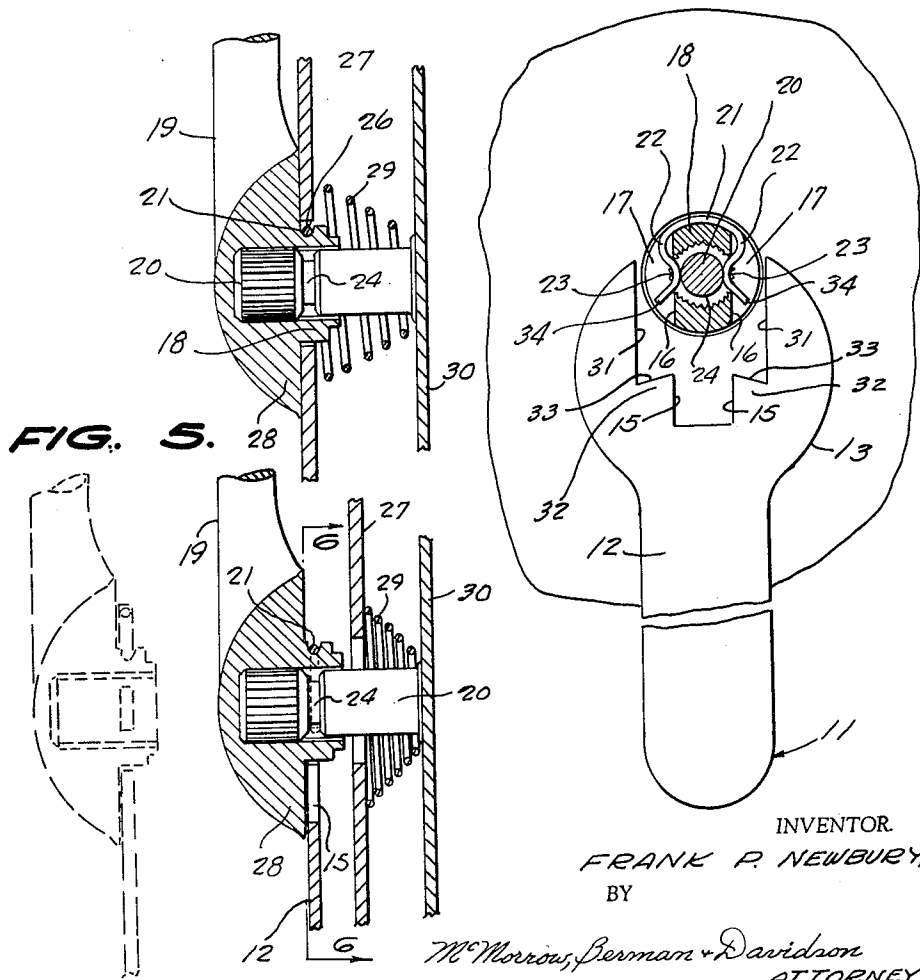


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F. P. NEWBURY
CAR DOOR HANDLE TOOL
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CAR DOOR HANDLE TOOL

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1 Claim. (Cl. 29—229)

This invention relates to an improved tool for use in disengaging the U-shaped retaining springs from the shafts of motor vehicle door handles, and more particularly a tool which may be slipped beneath the hub portion of a door handle against the force of the door handle biasing spring and may be pushed against the ends of the legs of the associated U-shaped retaining spring to spread said legs and to push the retaining spring out of the locking groove of the door handle shaft so as to release the door handle.

A main object of the invention is to provide a novel and improved door handle removing tool which is relatively simple in construction, which is easy to use and which provides a great saving in time and effort in disengaging the U-shaped retaining springs from the locking grooves of the shafts of motor vehicle door handles.

A further object of the invention is to provide an improved motor vehicle door handle spring-releasing tool which is inexpensive to fabricate, which is durable in construction, and which is designed to quickly and easily disengage the retaining springs from the locking grooves of the shafts of door handles without damage to the springs and without the possibility of losing said springs.

Further objects and advantages of the invention will become apparent from the following description and claim, and from the accompanying drawings, wherein:

FIGURE 1 is a top plan view of an improved motor vehicle door handle removing tool constructed in accordance with the present invention.

FIGURE 2 is an end elevational view of the tool of FIGURE 1.

FIGURE 3 is a longitudinal vertical cross sectional view taken through the tool of FIGURE 1.

FIGURE 4 is a transverse vertical cross sectional view taken through the shank portion of a conventional motor vehicle door handle, showing the retaining spring thereof in its normal locking position.

FIGURE 5 is a cross sectional view similar to FIGURE 4 but showing the tool of FIGURES 1 to 3 engaged beneath the hub portion of the door handle in a position to push the retaining spring thereof along the side grooves of the door handle, so as to release the door handle from its shaft.

FIGURE 6 is a vertical cross sectional view taken substantially on the line 6—6 of FIGURE 5.

Referring to the drawings, 11 generally designates an improved door handle removing tool constructed in accordance with the present invention. The tool 11 comprises a flat elongated body 12 formed with an enlarged head portion 13 at one end thereof, said head portion being formed with a forwardly facing open-ended notch 14 having an inner portion provided with parallel side wall portions 15, 15 spaced apart by slightly more than the distance between the inner walls 16, 16 of the side grooves 17, 17 in the shank portions 18 of a conventional door handle 19, such as the door handle shown in FIGURES 4, 5 and 6.

The conventional door handle 19 is retained on its shaft 20 by a generally U-shaped retaining spring 21 having side legs 22, 22 formed with the inwardly bowed locking loops 23, 23, said locking loops being engageable through side apertures provided in the reduced shank portion 18 into an annular locking groove 24 formed in the shaft 20. Normally the spring 21 is covered by being

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housed within an aperture 26 provided in flexible facing member 27 of the associated door, said facing member being urged against the enlarged portion 28 of the door handle by a coiled spring 29 surrounding the shaft 20 and bearing between the flexible facing member 27 and the rigid frame member 30 of the door, as is clearly shown in FIGURE 5.

As shown in FIGURES 1 and 2, the head portion 13 is of generally circular shape, but may have any other desirable shape, provided that it is formed with the forwardly facing notch having the generally rectangular rear end portion provided with the parallel side walls 15, 15, above described, which are spaced apart by a distance slightly greater than the distance between the grooved inside walls 16, 16. The notch is further provided with the more widely spaced parallel forward edge portions 31, 31 which are spaced apart by a distance slightly greater than the diameter of the shank portion of handle 19, so that said shank portion may be received between the edges 31, 31 in the manner shown in FIGURE 6 when inserting the tool between the hub 28 of the handle and the flexible lining wall 27. The edges 31, 31 guide the tool into position when it is inserted from any angle.

The head 13 is formed between the notch walls 15 and 31 with respective shoulders 32, 32 located symmetrically relative to the longitudinal central line of the tool, said shoulders having the rearwardly and laterally inclined forward edges 33, 33 which diverge rearwardly, as is clearly shown in FIGURE 6, whereby the shoulders present acute angles at their inner corners.

In using the tool, the head portion thereof is slipped between the hub 28 of the handle and the flexible lining member 27, the shank of the handle being received in the space between the edges 31, 31 of notch 14, until the tool has been rotated so that the edges 15, 15 are aligned with the grooved inside walls 16, 16. The tool is then pushed forwardly, causing the edges 33, 33 to engage against the inclined ends 34, 34 of the retaining spring 21, whereby the inclined edges 33 will exert respective wedging actions on the inclined spring ends 34, urging the spring ends outwardly, and causing the legs 22, 22 of the spring to spread apart, until finally the spring is pushed forwardly, namely, in an upward direction, as viewed in FIGURE 6, exposing its bight portion, so that it may be easily pushed back to cause the legs to reenter the grooves in walls 16, 16 when the handle is subsequently replaced.

After the spring has been disengaged from the groove 24 in shaft 20, the handle is released from the shaft and may be readily removed therefrom.

As above mentioned, when the handle is reinstalled, the bight portion of the spring, which is in an exposed position, may be easily pushed back, to cause the locking loops 23, 23 to reenter the side apertures in the reduced shank portion 18 and to reengage in the annular locking groove 24.

The inner portion of the notch 14, namely, that which is provided with the side wall portions 15, 15, is of such depth that the legs of the retaining spring 21 can be pushed through the grooves in walls 16 only sufficiently to cause the bowed loops 23, 23 to ride on the opposite shoulders of the shank portion 18 adjacent the locking side apertures. This exposes the bight portion of the spring but does not completely disengage the spring from the door handle, thereby avoiding loss of the spring.

While a specific embodiment of an improved motor vehicle door handle removing tool has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is

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intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

A motor vehicle door handle removing tool for use in moving the U-shaped retaining springs engaged in side grooves in door handles to normally retain the handles on their shafts, said tool comprising a flat rigid body formed with a notch having inner parallel rigid side wall portions spaced apart by slightly more than the distance between the inner walls of the side grooves in the door handles, so that the notch can engage on a door handle with said parallel side wall portions received in said side grooves, and respective shoulder elements formed in the notch and extending outwardly from said side wall portions at the opposite side corners of the notch, said shoulder elements having rearwardly and laterally inclined forward edges and parallel inner longitudinal edges,

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whereby the shoulder elements present acute angles at their inner corners, said rearwardly and laterally inclined forward edges being engageable with the ends of the legs of the U-shaped retaining springs to push the legs along the side grooves.

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