Aug. 31, 1954 G. M. WALRAVEN 2,687,567

DOOR HANDLE PIN REMOVAL TOOLS AND THE LIKE

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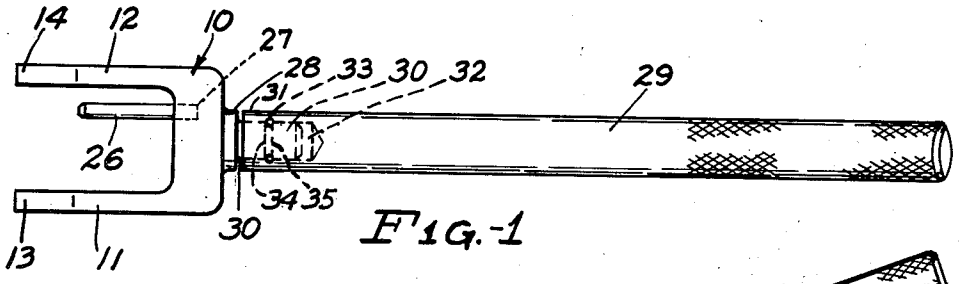

FIG.-1

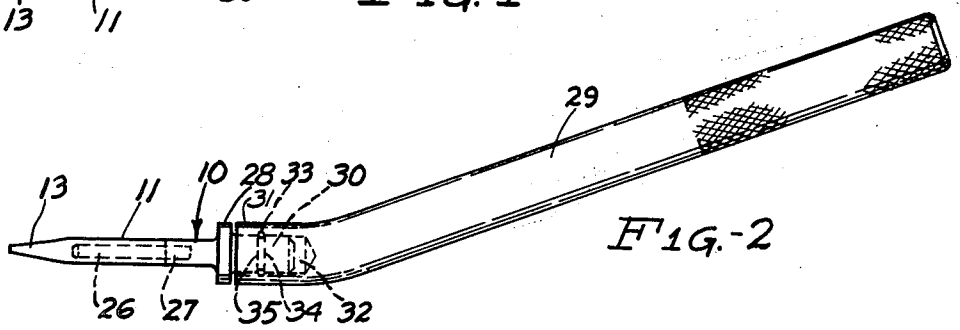

FIG.-2

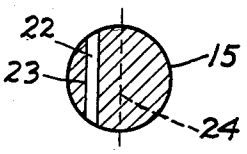

FIG.-4

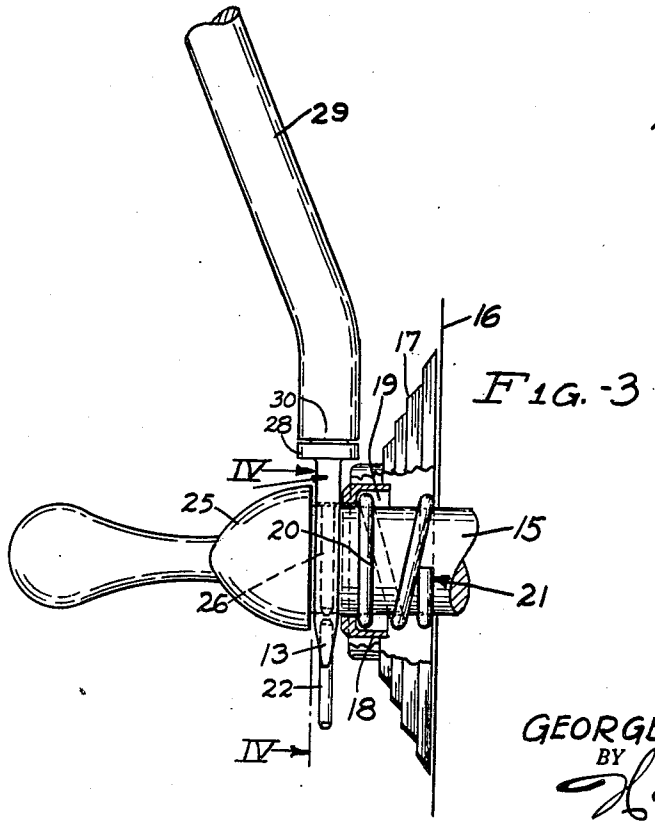

FIG.-3

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DOOR HANDLE PIN REMOVAL TOOLS AND THE LIKE

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1 Claim. (Cl. 29—270)

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This invention relates to pin removing devices and more particularly to automobile door handle pin removal tools, although certain features thereof may be employed with equal advantage for other purposes.

It contemplates more especially the provision of a simple and efficient tool for removing the pins from shafts that hold door handles on automobiles and the like wherein the retainer pins are offset from the vertical shaft diameters for tangential disposition laterally thereof, thereby having an offset pin position to the left and the right of the vertical diameter on both sides of an automobile. This has presented the problem of providing a simple and effective tool for removing the retainer pins that are disposed on opposite sides of the vertical diameter of the door handle shaft depending upon the particular side of the automobile to which the door handle assemblies are attached.

With the teachings of the present invention, a simple and universal tool has been provided for effectively removing the pins when they are offset on either side of the vertical diameter of the door handle shaft. This eliminates the requirement for a separate tool for each of the oppositely offset door handle shaft pins. This has been accomplished by providing a novel and simple tool having a correspondingly offset pin pusher and involving a rotatable handle so that it can be advantageously used for both of the oppositely offset door handle shaft pins.

One object of the present invention is to simplify the construction and improve the operation of devices of the character mentioned.

Another object is to provide a door handle pin removal tool having an adjustable handle so that the pin pusher will be offset either to the left or the right of the vertical diameter of a shaft to increase the range of use.

Still another object is to provide a simple door handle pin removal tool having a furcated member provided with a rotatably adjustable handle to change the relative position therebetween in relation to an offset pin pusher element.

A further object is to provide a furcated member with an offset pusher pin which can be effectively used to the left or the right of the vertical shaft diameter to which it is applied to increase the range of use thereof.

A still further object is to provide a furcated member with an offset pusher pin and a rotatably associated handle so that the pusher pin can be offset to the left or the right of the vertical shaft diameter in the effective application of the device for its intended purpose.

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Still a further object is to provide a simple and effective pin pusher tool having an offset pin displacing element which can be effectively used to the left or the right of the vertical diameter to increase the range of usefulness thereof.

Other objects and advantages will appear from the following description of an illustrated embodiment of the present invention.

In the drawings:

Figure 1 is a plan view of a device embodying features of the present invention.

Figure 2 is a side view in elevation of the device shown in Figure 1.

Figure 3 is a side view in elevation of the device shown in Figure 1 as applied to a door handle shaft, parts thereof being shown in sections broken away to clarify the illustration.

Figure 4 is a sectional view in elevation taken substantially along line IV—IV of Figure 3.

The structure selected for illustration is not intended to serve as a limitation upon the scope or teachings of the invention, but is merely illustrative thereof. There may be considerable variations and adaptations of all or a part of the teachings depending upon the dictates of commercial practice. The present embodiment comprises a furcated member 10 having spaced parallel jaws 11—12 which extend to terminate forwardly in wedge-shaped extremities 13—14.

The space between the parallel jaws 11—12 corresponds substantially with the diameter of a door handle shaft 15 which protrudes through the door panel 16 of an automobile or other structure. An ornamental medallion in the form of a concave plate 17 extends over the shaft 15 to confine a spring receiving cap 18 which is cupped as at 19 to receive the extremity 20 of a heavy coiled spring 21. A holding or retainer pin 22 projects through a restricted aperture 23 which tangentially extends through the shaft 15 and is offset to the left or the right of the vertical diameter 24 thereof. The holding or retainer pin 22 frictionally extends through the aperture 23 to the left or the right of the vertical diameter 24 depending upon its attachment to the door 16 on either side of a vehicle such as an automobile.

A door handle 25 is attached to the shaft 15 on the inside of the door panel 16 and in order to wedge open the escutcheon plate 17 on the automobile door handles 25, the wedged jaw extremities 13—14 displace the spring retainer cup 18 against the urge of the springs 21 to expose the retainer pin 22 which is frictionally held in the shaft aperture 23. The continued downward displacement of the spaced jaws 11—12 will align a protruding pusher pin 26 that is imbedded as

at 27 into the base of the furcated member 10 and it is offset proximate to the jaw 12 the same distance that the retainer pin 22 is offset on the shaft 15, thereby engaging the extremity of the retainer pin 22 and displacing it beyond the shaft aperture 23 (Figure 3).

This procedure will enable the door handle assembly to be readily removed when the retainer pin 22 is offset on the same side as the pusher pin 26 is positioned relative to the longitudinal axis of a boss 28 that is formed integral with the furcated member 10. When the retainer pin 22 is offset on the opposite side of the vertical shaft diameter 24, however, the furcated member 10 is applied by turning it completely around and this is rendered possible and accomplished by providing a handle member 29 that rotatably swivels relative to a stud 30 that axially extends from the furcated member boss 28. The extremity 31 of the handle 29 is provided with an internal bore 32, and a split ring 33 retains the handle 29 on the furcated member stud 30 in rotative assembled association by reason of the aligned annular grooves 34 and 35 provided in the stud 30 and handle bore 32 respectively.

In order to provide sufficient hand clearance between the handle 29 and the handle 16, the former is angularly offset (Figures 2 and 3) and by reason thereof the handle 29 must be rotated through a 180 degree arc in order to provide for offsetting the pusher pin 26 to one side and then the other of the shaft diameter 24. It is this facility for the rotation of the angularly offset handle 29 that enables the pusher pin 26 to be utilized in conjunction with the furcated jaws 11—12 in disassembling a left and/or a right handed door handle 25.

With the arrangement of the parts above described it will be apparent that a very simple and efficient door handle pin removing tool has been

provided which is capable of application to door handle shaft offset retainer pins positioned either to the left or the right of the vertical shaft diameter 24 as would be the occasion on opposite sides of an automobile or other structure having door handles on both sides thereof.

While I have illsutrated and described a preferred embodiment of this invention, it must be understood that the invention is capable of considerable variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations anl modifications as come within the scope of the appended claim.

I claim:

In a device of the character described, the combination with a furcated member having spaced jaws for straddling a shaft, of wedge-shaped extremities on said spaced jaws, a pin extending from said furcated member parallel to and asymmetrically offset between said spaced jaws to drive a pin from said shaft as said spaced jaws are displaced in straddling relation to said shaft, and a longitudinally offset handle swivelly connected with and extending from said furcated member to manipulate said furcated member to serve as a pin removing device.

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