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RADIO VIBRATOR PULLER

Filed May 27, 1940

Fig. 1

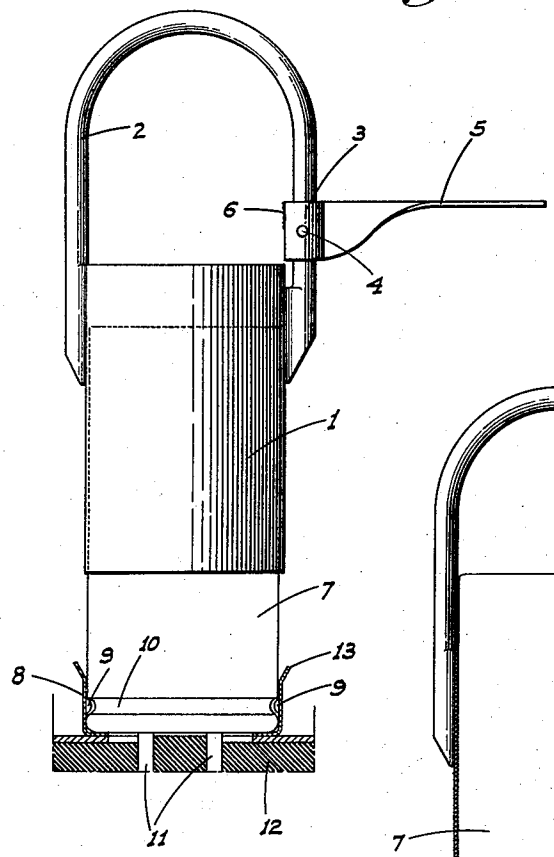


Fig. 2

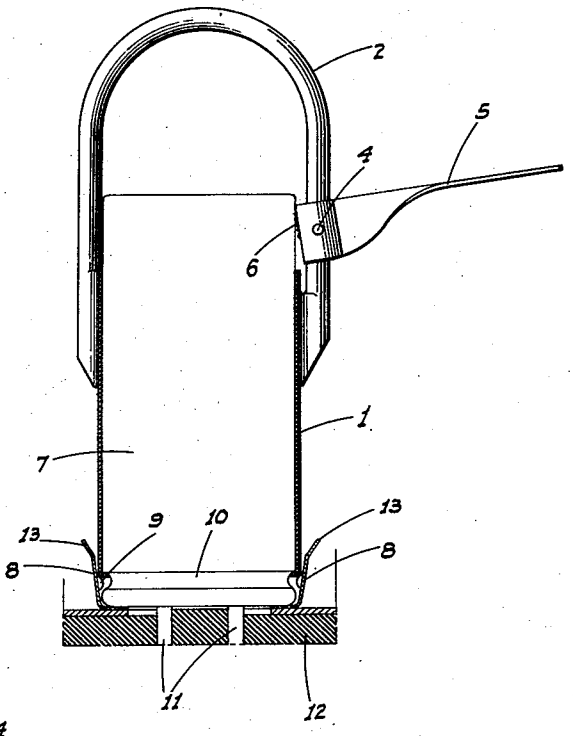
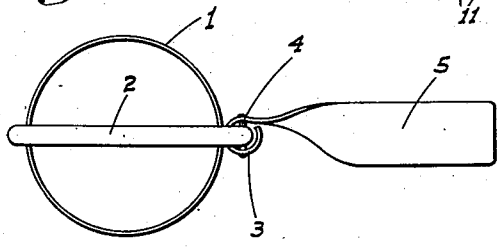


Fig. 3



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RADIO VIBRATOR PULLER

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6 Claims. (Cl. 81—3)

This invention relates generally to an improved tool and in particular the invention is directed to a novel form of tool especially designed for use in connection with the repair of radios.

In the construction of radios, and especially automobile radios, the numerous internal parts of the radio are mounted in extremely close relation on the chassis which is enclosed in a close fitting housing or shell provided with a removable cover or lid. As a result, even though the lid may be removed to expose the parts from above, certain parts thereof are difficult to remove for the purpose of testing or replacement.

This is particularly true in connection with the vibrator unit, the mechanism of which is customarily housed in an upstanding, elongated and cylindrical shell whose exterior surface is quite smooth; the lower end of the shell being seated in a spring socket. This shell is usually so closely surrounded by other parts of the radio as to make it an almost impossible task to grasp the shell with the fingers or conventional tools in order to remove the vibrator unit.

It is therefore the principal object of the present invention to provide a manually actuated tool arranged to frictionally and clampingly engage the shell of a vibrator unit, regardless of the closeness of other parts, whereby the vibrator unit may be readily withdrawn from its spring socket.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is an elevation of the tool illustrating the same partially engaged over the shell of a vibrator unit of a radio.

Figure 2 is a sectional elevation of the tool fully engaged with the vibrator unit, and with the clamping lever assembly frictionally engaging the shell of the unit.

Figure 3 is a top plan view of the tool.

Referring now more particularly to the characters of reference on the drawing, the tool comprises a cylindrical sleeve 1 whose length is somewhat less than the height of the cylindrical shell of a conventional vibrator unit; the interior diameter of such sleeve being such that said sleeve will engage over the cylindrical shell of a vibrator unit with a close running fit.

An inverted U-shaped handle 2 extends upwardly from the upper end of sleeve 1; the lower ends of the legs of such handle being fixed to the exterior of the sleeve on opposite sides thereof as by welding or the like. A relatively short collar 3 surrounds one leg of the handle 2 at a point immediately above the upper end of sleeve 1, such collar having a loose fit with said leg of the handle and being pivoted thereto by means of a cross pin 4 for rocking or swivelling movement so that the upper and laterally inward edge of said collar may swing toward the longitudinal axis of the sleeve 1. A finger lever 5 is formed with and projects outwardly from the collar.

The leg of the handle to which collar 3 is pivoted is offset laterally outwardly a slight distance from the upper end portion of the sleeve in order that the collar 3 may have the desired loose play, and yet so that when straight or disposed axially parallel with the corresponding leg of the handle 2, the laterally inward face of said collar is disposed outwardly of the vertical plane of the adjacent face of sleeve 1. Serrations 6 are formed on said laterally inward face of collar 3.

In use, the sleeve 1 is inserted over the cylindrical shell 7 of the vibrator unit. The lower end of the vibrator unit is conventionally seated in a spring socket which includes a plurality of circumferentially spaced spring fingers 8 having detents 9 intermediate their ends which engage in an annular circumferential groove 10 in the vibrator unit shell 7 adjacent its lower end, as clearly shown in Fig. 1; the terminal prongs 11 of the vibrator unit projecting from the lower end of the shell 7 into a customary contact receptacle indicated generally at 12.

After the sleeve 1 is engaged over the cylindrical shell 7 of the vibrator unit, said sleeve is urged downwardly until it engages the out-turned upper end portions 13 of spring fingers 8 springing the same outward and retracting detents 9 from groove 10.

Thereupon lever 5 is pulled upwardly by certain fingers of one hand, rocking or swivelling collar 3 into frictional engagement with the adjacent side of shell 7 adjacent its upper end, which then extends above the upper end of sleeve 1; such frictional engagement being assured by virtue of the serrations 6 formed on said collar. With the handle 5 and collar 3 in such positions, the handle 2 is grasped by the hand and drawn upwardly effecting an easy withdrawal of the vibrator unit from its socket.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention, what we claim as new and useful and desire to secure by Letters Patent is:

1. A lifting tool comprising a tubular sleeve adapted to be slipped over a member to be lifted, an inverted U-shaped handle projecting from one end of the sleeve, the legs of said handle being fixed on opposite sides of the sleeve adjacent said end, a loose-play collar surrounding one leg of the handle adjacent but beyond said end of the sleeve, a cross pin pivoting the collar on said leg for rocking movement to swing one portion of the laterally inward face of the collar inwardly toward the longitudinal axis of the sleeve and beyond the plane of the adjacent inner face of said sleeve, and means to rock said collar to, and to maintain the same in, said position.

2. A device as in claim 1 in which said one leg adjacent said end of the sleeve is offset laterally outward from the sleeve whereby when the longitudinal axis of the loose-play collar is disposed parallel to said one leg, the laterally inner face of the collar is disposed outwardly of the plane of the adjacent inner face of the sleeve.

3. A device as in claim 1 in which said means comprises a lever element fixed on said collar and projecting laterally outward therefrom.

4. A lifting tool comprising an open ended tubular sleeve, said sleeve being adapted to be slipped over a member to be lifted, the sleeve being shorter than said member whereby the latter may project beyond one end of said sleeve, a lifting handle element fixed on the sleeve and projecting longitudinally from said one end thereof a movable clamping means mounted on the projecting portion of the handle element for movement into frictional and releasable engagement with the projecting portion of the member beyond said one end of the sleeve to prevent relative movement between the member and the sleeve, and means connected to the clamping means to thus move the same.

5. A lifting tool comprising an open ended tubular sleeve, said sleeve being adapted to be slipped over a member to be lifted, the sleeve being shorter than said member whereby the latter may project beyond one end of said sleeve, an inverted U-shaped handle, the legs of the handle being fixed on the exterior of the sleeve and projecting lengthwise from said one end thereof, a clamping member, means movably mounting the clamping member on one leg of the handle beyond said one end of the sleeve for movement to frictionally but releasably engage the projecting portion of the member to prevent relative movement between the latter and said sleeve, and means connected to the clamping member to move the same.

6. A lifting tool comprising a sleeve adapted to be slipped over a member to be lifted, a lifting handle fixed on the sleeve and projecting longitudinally from one end thereof, said handle including a leg secured on the sleeve, and clamping means mounted in connection with said leg and arranged to frictionally engage the member and prevent relative movement between said sleeve and member; said means comprising a loose-play collar surrounding said leg and pivoted thereto for tilting movement toward the longitudinal axis of the sleeve, and a lever element fixed on said collar and projecting laterally outward therefrom.

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