

June 6, 1961

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2,987,080

DRAIN COCK TOOL

Filed June 3, 1959

2 Sheets-Sheet 1

Fig. 1

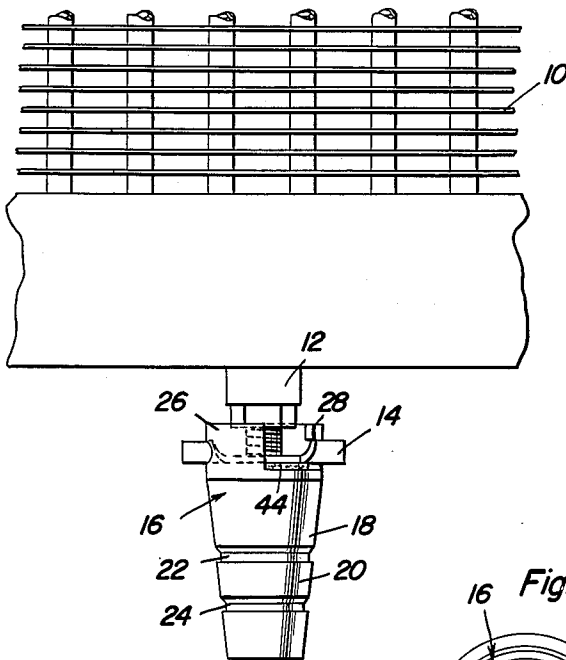


Fig. 7

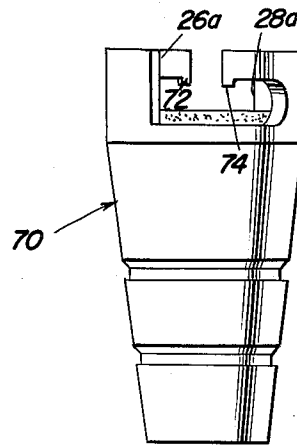


Fig. 8

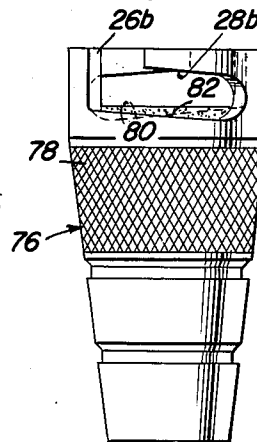


Fig. 3

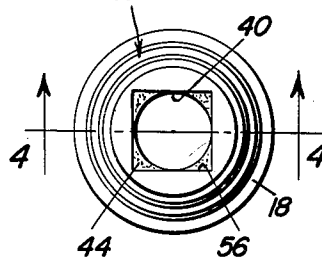
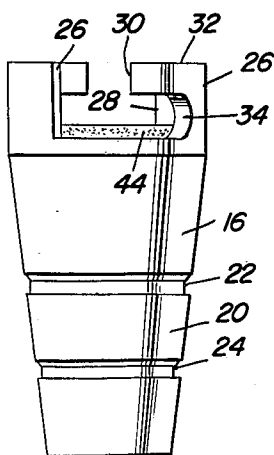


Fig. 2



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Fig. 5

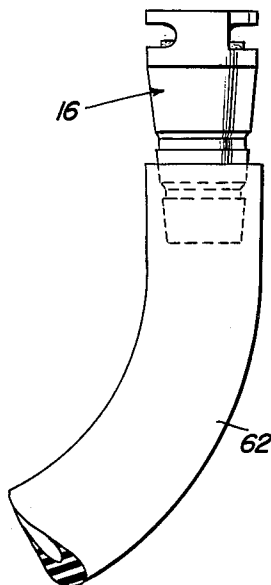


Fig. 9

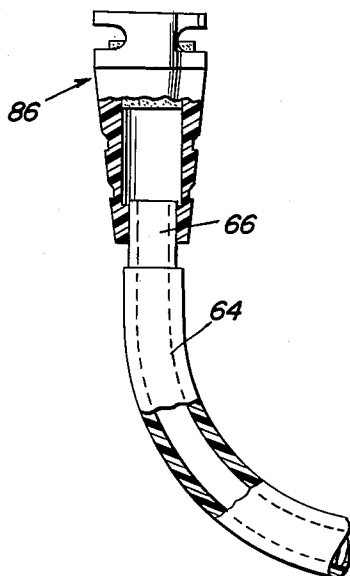


Fig. 6

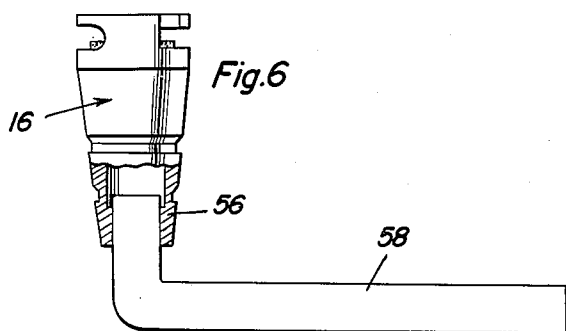
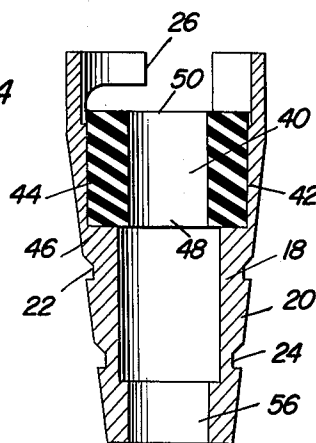


Fig. 4



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2,987,080

DRAIN COCK TOOL

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10 Claims. (Cl. 137-798)

This invention relates to a multipurpose tool which is principally useful in connection with the operation and use of drain cocks of automotive vehicles.

An object of the invention is to provide a tool to facilitate draining of engine blocks and radiators of motor cars and trucks.

The same tool may be used not only to facilitate opening the draining cock but also to bleed off the water and anti-freeze, when used, so that the garage attendant does not become wet in performing this task.

The tool also functions as an adapter by which to connect a liquid conductor to the bottom of the radiator or engine block for reverse flushing.

An important feature of the tool is found in the actual construction thereof. It is very simple and yet it has numerous features. For instance the central passageway of the tool through which water or other liquid may pass, is so shaped and dimensioned as to receive a conventional wrench. When the knurled surface on the exterior of the tool is insufficient for manual gripping and turning the drain cock to the open or closed position, usually the former, the conventional tool may be inserted in the water passageway and the tool very easily turned thereby opening the drain cock. Once the drain cock is cracked open, the tool may be removed and a hose applied to the end of the tool to lead off the liquid before the drain cock is actually opened in an amount sufficient to enable water to flow from the radiator or engine block.

By using this tool for opening and closing drain cocks a considerable amount of damage usually caused by improvised or improper tools, is eliminated. At the present time a hammer, pair of pliers or any other tool at the disposal of the attendant is used for opening drain cocks. The instant special tool for drain cocks will serve the intended purpose effectively and eliminate a source of considerable damage to the radiator, engine block and drain cock.

Conventional drain cocks may actually be inserted or removed from the radiator or engine block by using the tool because of the conventional thread and nut of the drain cock which has been adopted as essentially standard in the current manufacturer's makes and models of automobiles and trucks.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a fragmentary elevational view of a radiator showing a drain cock with a typical tool in accordance with this invention applied thereto.

FIGURE 2 is an enlarged elevational view of the tool in FIGURE 1.

FIGURE 3 is a bottom view of the tool in FIGURE 2.

FIGURE 4 is a sectional view taken on the line 4-4 of FIGURE 3.

FIGURE 5 is an elevational view of the tool showing a second use thereof.

FIGURE 6 is an elevational view of the tool of FIGURE 1 but showing a wrench being used with the tool.

FIGURE 7 is an enlarged elevational view of a modification of the tool.

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FIGURE 8 is an elevational view, parts broken away

FIGURE 9 is an elevational view, parts broken away in section, and showing a further modification of the tool and also illustrating a further use to which any of the tools may be placed.

In the accompanying drawings there is illustrated a part of a radiator 10 equipped with a conventional drain cock 12 having a handle 14. The radiator diagrammatically represents any conventional location for the standard drain cock 12 but has been selected since most of the drain cocks are located at the bottom of the radiator of the motor vehicle.

Tool 16 is shown in FIGURES 1-6 inclusive. It is made of a body 18 having a tapered side wall 20 with annular grooves 22 and 24 spaced from each other and also spaced from the ends of the body of the tool. There is a cylindrical upper portion 26 of the body of the tool, and it has a pair of bayonet slots 26 and 28 therein by which to receive and hold the ends of handle 14. The bayonet slots, each has an entrance portion 30 opening through edge 32 of the cylindrical portion 26 of the wall of the tool, together with a portion 34 which is parallel to edge 32 but spaced therefrom. The ends of handle 14 are received in portion 30 by moving the tool upward, and then they are received in portion 34 (in a corresponding portion of slot 28) by turning the tool about the longitudinal axis thereof.

The longitudinal axis of the tool is coincident with the longitudinal axis of liquid conducting passageway 40 extending completely through the tool (FIGURE 4). Passageway 40 has an upper enlarged part 42 within which compressible, yielding resilient bushing 44 is disposed. The bushing is in the shape of a sleeve and may be made of rubber or some other elastomeric substance. The lower edge of the bushing 44 is disposed on shoulder 46 of passageway 40, and the bore 48 of the sleeve-like bushing is coincident with the longitudinal axis of passageway 40 and actually constitutes a part thereof. The upper surface 50 of bushing 44 constitutes a yielding seat against which the lower surface of the handle 14 comes to bear. The upper surface 50 of the bushing is normally above the lower edge of slots 28 and 30 so that the bushing must be compressed slightly when the tool is inserted on the handle 14 of drain cock 12 so that there is established a liquid seal at this point.

The lower end of the passageway 40 is non-circular to form a wrench receiving socket 56. A conventional wrench 58 (FIGURE 6) may be inserted in socket 56 to facilitate turning the handle 14 of the drain cock. This may be in either the clockwise or counterclockwise direction.

In use tool 16 is applied to drain cock 12 as described. The outer surface of the tool is pressed by one hand and turned thereby opening the drain cock 12 by rotating handle 14. A knurled surface may be provided on the body of the tool to facilitate gripping. In instances where a wrench is required or desired one may be used as shown in FIGURE 6. Circumferential grooves 22 and 24 are used to enhance a frictional grip with hose 62 that may be attached to the body of the tool by simply slipping it over the lower end thereof (FIGURE 5). This materially aids in conducting the water or other liquid from the engine or radiator without getting the attendant wet. As shown in FIGURE 9 a liquid conductor 64 having a hollow plug 66 at one end, may be attached to the tool by inserting the hollow plug into socket 56. It is clearly evident that the tool may be used not only for tightening and loosening the drain cock 12 but also to conduct off the liquid and also to apply liquid under pressure into the radiator 10 or engine block for reverse flushing.

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Attention is now invited to FIGURE 7. Tool 70 shown in this figure is exactly the same in all details of construction as tool 16 with the sole exception that the bayonet slots 26a and 28a have short projections 72 and 74 at the entrances thereof in order to latch the handle 14 in place in the slots. FIGURE 8 illustrates a further embodiment of the invention. Tool 76 is essentially the same as the tools 16 and 70. This figure illustrates a knurled surface 78 referred to in connection with tool 16 and which may be used on tool 70 or any other tool in accordance with the invention. In addition slots 26b and 28b have angulated lower surfaces 80 and 82 to serve as cams in locking the tool onto the drain cock. Tool 86 in FIGURE 9 shows a variation in the material of construction. The previously described tools are made of metal, but it is within the purview of the invention to use a suitable, commercially available plastic such as nylon or some other synthetic resinous material having the proper hardness and heat resistance characteristics.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A tool for manipulating the handle of a drain cock, said tool comprising a body having a passageway extending completely therethrough and constituting a liquid conductor, one end of said body having a pair of slots with entrance portions opening through one end edge of the body and lateral portions registering with said first mentioned portions, a compressibly resilient bushing in said passageway and having a surface extending beyond an inwardly disposed edge of said slots, said bushing having a passageway therethrough and constituting a part of the first mentioned passageway.

2. The tool of claim 1 wherein there are means operatively associated with said slots for locking the tool in an operative position.

3. The tool of claim 1 wherein the end of said passageway opposite to that end having said slots is non-circular in cross-section to provide a tool receiving socket.

4. The tool of claim 3 wherein said wrench receiving

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socket also is adapted to receive an insertable and removable coupling on a liquid conductor in a manner to retain the liquid conductor therein.

5. The tool of claim 4 wherein said tool body has a tapered outer wall by which to receive and retain the end of a liquid conductor.

6. A tool for actuating a radiator drain cock which has a handle, said tool comprising a body having a longitudinal passage therethrough, said passage having an enlarged portion at one end with a shoulder at one end of said enlarged portion, a compressible and resilient bushing seated on said shoulder and having a bore constituting a part of said passage, said body provided with bayonet slots with surfaces spaced inwardly of the adjacent outwardly disposed surface of said bushing.

7. The tool of claim 6 wherein said body is constructed of plastic material.

8. The tool of claim 6 wherein said body is constructed of metal.

9. The tool of claim 6 wherein the end of said passage opposite to the end having said slots registered therewith is non-circular in cross-section to receive a wrench or similar tool to facilitate turning the body.

10. A tool for turning the handle-equipped valve of a radiator drain cock off and on comprising an elongated body having a median body portion and end portions, said body being of truncated conical form and provided with an axial passage extending therethrough from one end portion to the other end portion, the end of the passage opposite to said truncated end being counter-bored and provided with a shoulder, a bushing of compressibly resilient material constituting a gasket and located in the counterbored portion and seated on said shoulder, that portion of the body beyond an outwardly disposed end of said bushing being provided with diametrically opposite bayonet slots, and the portion of the bore adjacent the truncated end of the body being reduced and providing a socket member, the latter serving to accommodate a wrench.

References Cited in the file of this patent

UNITED STATES PATENTS

169,489	Smeaton	Nov. 2, 1875
513,475	Bergmon	Jan. 30, 1894
766,753	Brooks	Aug. 2, 1904
987,000	Lukens	Mar. 14, 1911
1,423,418	Girkscheit	July 18, 1922