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SAFETY WRENCH FOR RADIATOR CAPS

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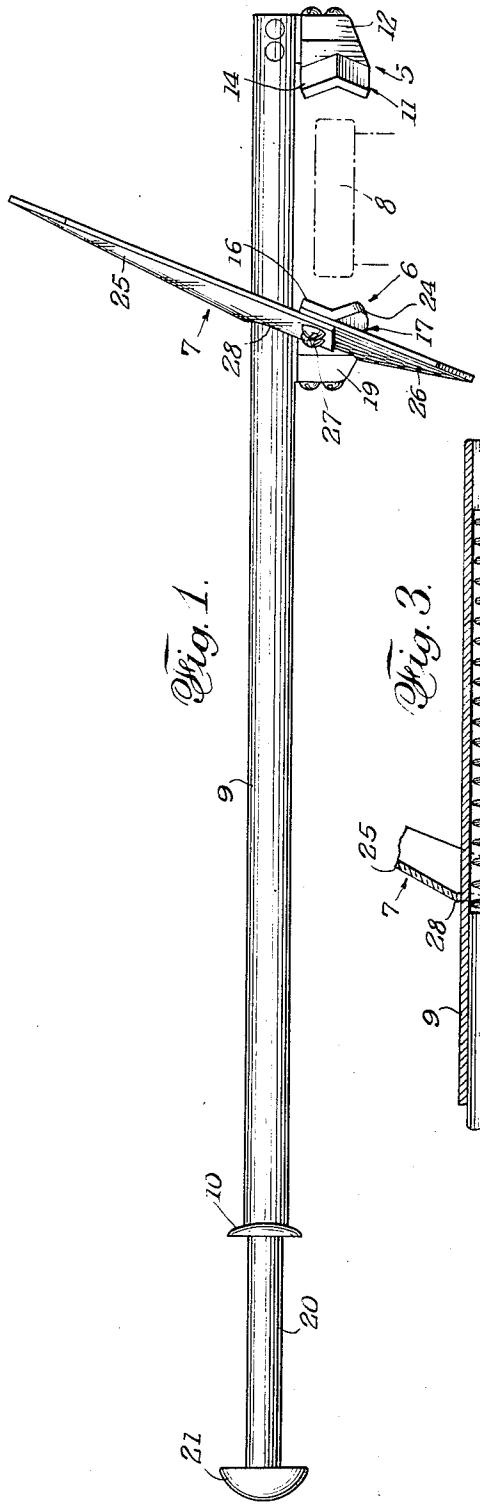


Fig. 1.

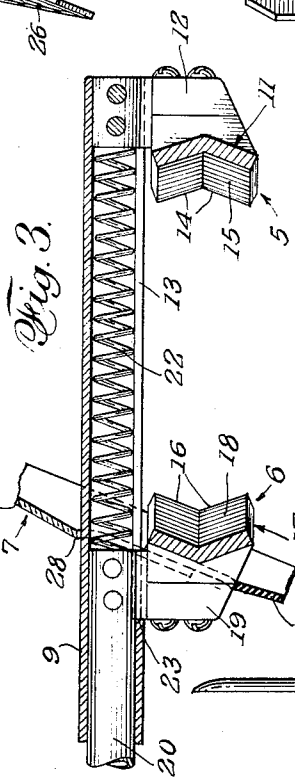


Fig. 3.

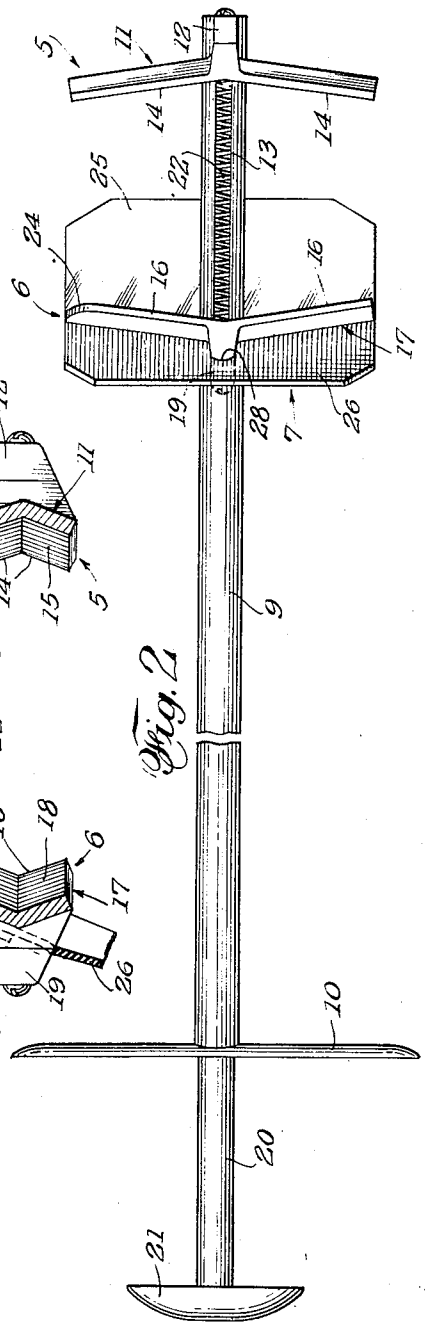


Fig. 2.

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SAFETY WRENCH FOR RADIATOR CAPS

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This invention relates to a wrench for removing the radiator caps of automotive vehicles and deals more particularly with a wrench that embodies safety features to protect the user from scalding by steam due to overheating of the water in the radiator. This invention is an improvement of the wrench disclosed in our Patent No. 2,625,848.

It is an object of this invention to provide an improved wrench for the purpose intended in which great utility and paramount safety are the important features.

Another object of the invention is to provide a wrench of the character referred to embodying improved guard means that insure safety in the use thereof.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a side elevational view of a safety wrench embodying features of the present invention.

Fig. 2 is a broken bottom plan view thereof.

Fig. 3 is an enlarged fragmentary longitudinal sectional view.

The safety wrench that is illustrated comprises, generally, relatively movable and telescopically engaged cap-gripping units **5** and **6**, and guard means **7** carried by unit **6** so as to be interposed between a cap **8** being removed by the wrench and the user of the wrench, and, more particularly, the hand manipulating the wrench.

Unit **5** is shown as comprising an elongated tube **9** which is provided at one end with a transverse finger-gripping bar **10** and at the opposite end with a jaw **11** that extends transversely to tube **9** in symmetrical arrangement. A bracket **12** is affixed to tube **9** and extends through a longitudinal slot **13** therein, said jaw **11** being affixed to the extension of said bracket.

Jaw **11** is formed to have two similar oppositely directed arms **14** that are disposed to have an included obtuse angle therebetween that approaches 180 degrees. The transverse form of each arm **14** is in the form of an obtuse angle and the inner faces thereof are serrated or knurled as at **15** to have non-slipping engagement with cap **8**.

Unit **6** is substantially identical to unit **5** in the form and disposition of the arm **16** of the jaw **17** and the serrations **18** of said arms which are disposed in opposition to arms **14** so as to encompass cap **8** and grip the same when the two jaws **11** and **17** are pressed toward each other. A bracket **19** is affixed to the inner end of a plunger tube **20**, projects through slot **13** in tube **9**, and has jaw **17** affixed thereto in substantially the same manner as jaw **11** is affixed to bracket **12**. A palm-engageable knob **21** is provided on the outer end of tube **20**. An expansion coil spring **22** is disposed in tube **9** between bracket **12** and the inner end of tube **20** and is normally expanded to separate the jaws, the end **23** of slot **13** limiting the separation. Pressing

bar **10** and knob **21** toward each other with the hand compresses spring **22** and brings the jaws together to grip a cap **8**. Relative rotation between the jaws is obviated by the keying engagement of bracket **19** in slot **13**.

The structure above provided has its cap-engaging jaws **11** and **17** beneath tube **9** so that the wrench may be applied from above in a convenient manner. Frequently there are obstructions immediately below the cap that may lie in the path of anti-clockwise rotation of the wrench when removing a cap. Overflow pipes are typical of such obstructions. To obviate snagging of one or the other of the jaws on such pipes, the leading and lower corner thereof is rounded over or relieved as at **24** to ride over such pipe or pipes. The jaw **17** is shown with such relief and it will be obvious that jaw **11** may have its leading end similarly relieved, if desired.

The guard means **7** comprises an upwardly and rearwardly extending transparent shield **25**, and a downwardly and forwardly extending protector **26** that are affixed to the arms **16** of jaw **17** by means such as screws **27**. Since said arms **16** are at a rearward angle, the shield and protector are trained over the outside and are bowed where the screws fasten them to impart form-retaining curvature to these elements. Also, by fastening these elements to the upper rearwardly angled legs of the arms **16**, the mentioned angular disposition of said shield and protector is achieved. These elements **25** and **26** need only be cut to fit around tube **9** and bracket **19** as at **28**.

A suitable plastic sheet may be advantageously used for guard **25** and of such thickness as to have limited flexibility. Soft natural or synthetic rubber may be used for protector **26** so that the same will yield to obstructions but, nevertheless, drape over the radiator top during use of the wrench.

It will be evident from the foregoing that steam and spurting hot water are effectively deflected in a direction away from the user of the wrench; that the transparency of the shield permits full visibility when applying the wrench; and that the guard mean is, at all times, in best position to perform its function because the same is carried directly by jaw **17** and moves therewith.

While we have illustrated and described what we now contemplate to be the best mode of carrying out our invention, the construction is, of course, subject to modification without departing from the spirit and scope of the invention. It is, therefore, not desired to restrict the invention to the particular form of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

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

1. A wrench for radiator caps comprising two opposed and normally separated jaws, means to move the jaws into cap-gripping position, and guard means carried by one of said jaws and interposed between the latter and the user of the wrench to protect the user against emissions from the radiator during removal of the cap the guard means comprising an upwardly extending transparent shield and a downwardly extending flexible protector.

2. A wrench for radiator caps comprising two opposed and normally separated jaws, means to move the jaws into cap-gripping position, an elongated connection between the jaws and the moving means thereof to locate said latter means remote from the jaws, and guard means carried by the jaws nearest said moving means and movable therewith to protect the user of the wrench against emissions from the radiator during removal of the cap the guard means comprising an upwardly extending shield and a downwardly extending protector.

3. A wrench for radiator caps comprising two opposed and normally separated jaws, means to move the jaws into cap-gripping position, an elongated connection between the jaws and the moving means thereof to locate said latter means remote from the jaws, and guard means carried by the jaws nearest said moving means and movable therewith to protect the user of the wrench against emissions from the radiator during removal of the cap, said nearest jaw having a sloping face directed upwardly

and away from the jaw-moving means, and the guard means comprising an upwardly extending transparent shield and a downwardly extending flexible protector both secured to said sloping face and disposed on the slope thereof.

4. A wrench for radiator caps comprising two opposed and normally separated jaws, means to move the jaws into cap-gripping position, an elongated connection between the jaws and the moving means thereof to locate said latter means remote from the jaws, and guard means carried by the jaws nearest said moving means and movable therewith to protect the user of the wrench against emissions from the radiator during removal of the cap, said nearest jaw having a sloping face directed upwardly and away from the jaw-moving means, and the guard means comprising an upwardly extending transparent shield and a downwardly extending flexible protector both secured to said sloping face and disposed on the slope thereof, the jaws being transverse of the elongated connection and the widths of the shield and protector being substantially coextensive with said transverse length of the jaws.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
137,910	Gibbs	Apr. 15, 1873
960,070	Brown	May 31, 1910
2,583,266	Jenson	Jan. 22, 1952
2,625,848	Davies et al.	Jan. 20, 1953

FOREIGN PATENTS

Number	Country	Date
601,047	Great Britain	Apr. 26, 1948