April 23, 1929. N. KRAMER 1,710,363

RADIATOR CAP AND PLUG

Filed Sept. 16, 1925

Fig. 1

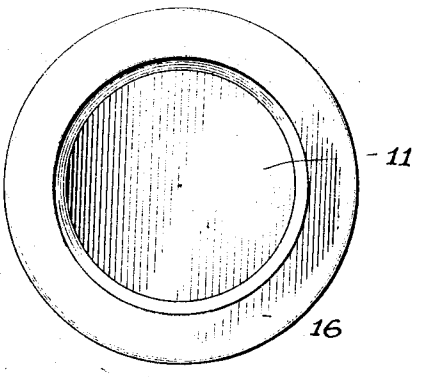


Fig. 2

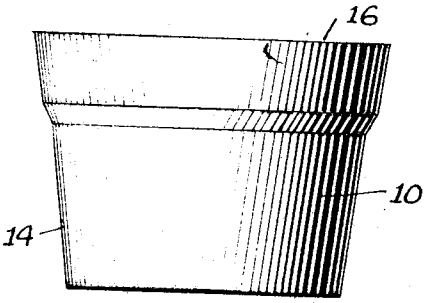
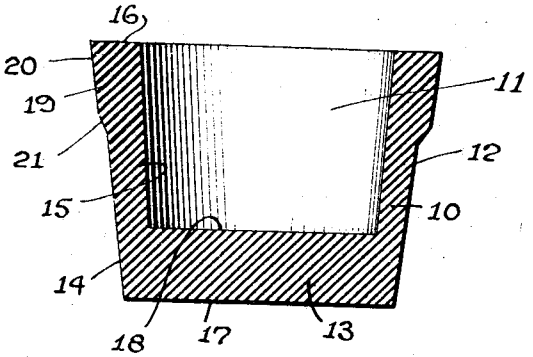


Fig. 3



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UNITED STATES PATENT OFFICE.

NATHAN KRAMER, OF TRENTON, NEW JERSEY, ASSIGNOR TO TRENTON AUTO RADIATOR WORKS, INC., OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

RADIATOR CAP AND PLUG.

Application filed September 16, 1925. Serial No. 56,566.

My present invention relates to plugs, caps or the like for automobile radiators and the like, and aims to devise means of the general character specified which are simple in construction, easy and convenient to fabricate, and which are very convenient in use. Other advantages of the present invention will in part be pointed out hereinafter and will in part be obvious to those skilled in the art to which the present invention relates.

In the accompanying specification I shall describe, and in the annexed drawing show an illustrative embodiment of the present invention. It is, however, to be clearly understood that my invention is not limited to the specific embodiment thereof herein shown and described for purposes of illustration only.

Referring to the annexed drawing, wherein I have illustrated the aforesaid illustrative embodiment of the present invention:

Fig. 1 is a top plan view of the aforesaid illustrative embodiment of the persent invention;

Fig. 2 is a side elevation view of the same; and

Fig. 3 is a view in longitudinal section of said embodiment.

Referring now to the aforesaid illustrative embodiment of the present invention, and more particularly to the drawing illustrating the same, the devices of the present invention which, it will be understood, are in the form of tools, are preferably made of a resilient and compressible and expansible material. For this purpose I prefer to employ soft vulcanized rubber, since I have found that this material is very suitable for the intended purpose.

Referring to the drawing, 10 indicates the main body portion of the plug, cap or the like for automobile radiators or the like made in accordance with the principles of the present invention and which is applied to the radiator inlet and outlet while the same is being tested under water, which obviously necessitates an airtight joint. The main body portion 10 is hollow, being provided with the recess or cavity 11. The main body portion 10 is likewise tapered, as indicated by reference character 12, and is provided with the bottom portion 13, all as more clearly shown in Fig. 3 of the drawing.

Just as the outer surface 14 of the main body portion 10 is tapered, as indicated at 12, so also the cavity 11 is tapered, as indicated at 15, the taper of the surface 15 being slightly less in degree than the taper of the surface 14, so that the thickness of the main body portion 10 diminishes more or less continuously from the upper edge 16 to the bottom surface 17. The bottom surface of the cavity 11 has been indicated by reference character 18.

At 19 I have indicated a shoulder which likewise has the tapered surface 20. At 21 is provided a lower tapered ledge or portion for a purpose to be described in considerable detail subsequently herein.

The construction of the aforesaid illustrative embodiment of the present invention, has, it is believed, been made sufficiently clear in the foregoing description. Likewise the manner of using the device for the purposes of the present invention will be clear to those skilled in the art to which the same relates and may be briefly summarized as follows:— When the device is to be used as a cap for an inlet or outlet of an automobile radiator or the like during a test, such inlet or outlet portion has the cap applied over the same by being entered within the cavity or recess 11. Due to the tapering surface 15 with which the cap is provided, the latter will readily fit over such inlet or outlet. At the same time the provision of the shoulder 19 helps to bring about a proper fit of the cap over the inlet or outlet to which the same is applied.

Where, on the other hand, the device is to be used as a plug during the test, the lower end 13 of the plug is inserted in the inlet or outlet of the radiator to which the device is to be applied. The tapered surface 14 permits the proper admission of the plug to the inlet or outlet to which it may be applied. In certain instances the opening of the inlet or outlet to which the device is applied is large enough to cause the edge of such inlet or outlet to be brought to bear against the tapered lower portion 21 of the shoulder 19. This gives the device a wide range of usefulness for varying dimensions of inlets and outlets to which it may be applied for the purposes of the present invention.

The advantages of the present invention are numerous and of great practical importance. The devices as made in accordance with the provisions of the present invention are simple in construction, easy to fabricate and convenient in use. In use the device may

be applied to a wide variety of purposes either as a cap or as a plug, particularly to the inlet or outlet of an automobile radiator. Other advantages of the present invention will readily occur to those skilled in the art to which the present invention relates.

What I claim as my invention is:

1. As a temporary closure device for use in testing automobile and like radiators immersed in a fluid, a combined sealing plug and cap in the form of a hollow, open-ended member of readily compressible and relatively impervious material, said member being so formed externally as to constitute an air-tight seal when applied within an opening in the radiator and being so formed internally as to constitute an air-tight seal when applied over a connection communicating with the interior of the radiator.

2. A temporary closure device for use in testing an automobile radiator or the like for leaks while such automobile radiators or the like is submerged in part at least in a liquid medium, comprising a plug of resilient material adapted to fit either within or over a fluid connection communicating with the interior of such automobile radiator or the like so as to render such fluid communication substantially air-tight so that by the application of air or other fluid pressure admitted to the interior of such automobile radiator or the like by means of another fluid connection communicating with the interior of such automobile radiator or the like the presence of the leak or leaks in such automobile radiator or the like may be determined.

3. A temporary closure device for use in testing an automobile radiator or the like for leaks while such automobile radiator or the like is submerged in part at least in a liquid medium, comprising a hollow plug of resilient material adapted to fit either within or over a fluid connection communicating with the interior of such automobile radiator or the like so as to render such fluid communication substantially air-tight so that by the application of air or other fluid pressure admitted to the interior of such automobile radiator or the like by means of another fluid connection communicating with the interior of such automobile radiator or the like the presence of the leak or leaks in such automobile radiator or the like may be determined.

4. A temporary closure device for use in testing an automobile radiator or the like for leaks while such automobile radiator or the like is submerged in part at least in a liquid medium, comprising a hollow tapered plug of resilient material adapted to fit either within or over a fluid connection communicating with the interior of such automobile radiator or the like so as to render such fluid communication substantially air-tight so that by the application of air or other fluid pressure admitted to the interior of such automobile radiator or the like by means of another fluid connection communicating with the interior of such automobile radiator or the like the presence of the leak or leaks in such automobile radiator or the like may be determined.

5. As a temporary closure device for use in testing automobile and like radiators immersed in a fluid, a combined sealing plug and cap in the form of a hollow, open ended member of readily compressible and relatively impervious material, said member having an annular off-set portion adjacent the open end and being so formed externally as to constitute an air-tight seal when applied within an opening in the radiator and being so formed internally as to constitute an air-tight seal when applied over a connection communicating with the interior of the radiator.

6. As a temporary closure device for use in testing automobile and like radiators immersed in a fluid, a combined sealing plug and cap in the form of a hollow, open ended member of readily compressible and relatively impervious material, said member having an annular off-set portion adjacent the open end and the interior and exterior walls being tapered so as to constitute an air-tight seal when applied within an opening in the radiator and being so formed internally as to constitute an air-tight seal when applied over a connection communicating with the interior of the radiator.

In testimony, whereof, I have signed my name to this specification this 24th day of July, 1925.

NATHAN KRAMER.