

H. S. MORGAN.
CAP FOR AUTOMOBILE RADIATORS AND THE LIKE.
APPLICATION FILED JUNE 28, 1913.

1,134,890.

Patented Apr. 6, 1915.

Fig. 1.

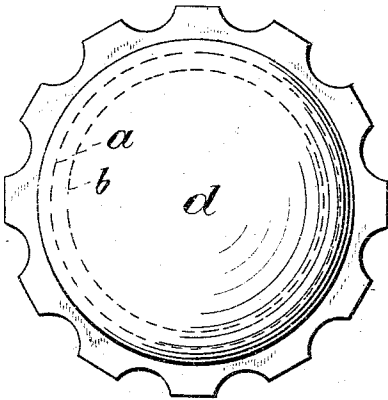


Fig. 2.

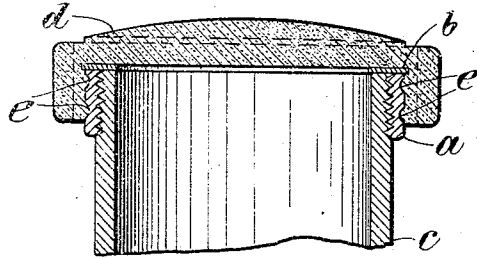


Fig. 3.

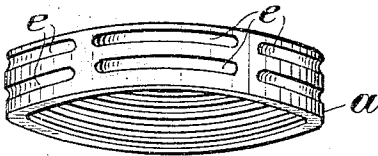
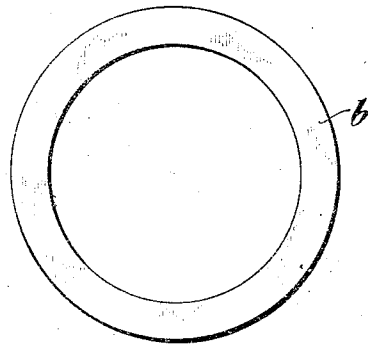


Fig. 4.



WITNESSES

Geoffmertz
John W. Thompson

INVENTOR

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his ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY S. MORGAN, OF TRENTON, NEW JERSEY, ASSIGNOR TO ESSEX RUBBER COMPANY, INC., OF TRENTON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CAP FOR AUTOMOBILE-RADIATORS AND THE LIKE.

1,134,890.

Specification of Letters Patent.

Patented Apr. 6, 1915.

Application filed June 28, 1913. Serial No. 776,228.

To all whom it may concern:

Be it known that I, HENRY S. MORGAN, a citizen of the United States, and a resident of Trenton, Mercer county, in the State of New Jersey, have invented an Improvement in Caps for Automobile-Radiators and the like, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The object of the invention is to provide, at less expense than has been possible heretofore, a cap for automobile radiators and other devices, of the type which has an exterior covering of hard rubber or the like molded about an interior metallic form which is generally threaded for connection to the part to which it is to be applied.

The invention is characterized by constructing the metallic part in such a way that a minimum of metal may be used in the production of the device, and preferably by the use of some such covering material as "bakelite" or "condensite," instead of hard rubber, as the former are unaffected by the action of steam or hot water and therefore may be directly exposed to the interior of the radiator without the interposition of metal. By means of the present invention, the amount of metal may be considerably reduced, so that, where brass is employed, a large saving can be effected.

In the drawings, I have illustrated a practical embodiment of my invention; and as there shown Figure 1 is a plan view, Fig. 2 is a view in central vertical section, showing the cap in position on the top of the radiator pipe, Fig. 3 is a perspective view of a threaded bushing removed from the cap, and Fig. 4 is a plan view of a ring removed from the cap, which ring forms an annular shoulder at the top of the bushing when the parts are assembled.

The bushing referred to above is denoted by *a* and may readily be formed from thin metallic brass piping by passing the same through an automatic threading machine and cutting the same off to size. As now generally formed, these bushings are cast integrally with a top piece which covers the opening in the bushing at one end and accordingly are required to be made con-

siderably thicker than the present bushing. On the top of the cap is laid a top piece *b* which is preferably in the form of a ring as shown in Fig. 4. This ring may be stamped out of a very thin sheet of brass and should be made of sufficient dimensions to project inwardly across the opening of the bushing *a* so as to form an annular shoulder for the radiator pipe *c* to abut against when the cap is in position (see Fig. 2). By thus forming the top piece separately from the bushing, a much thinner piping may be used to produce the bushing for the reason that if the top piece be formed integrally with the bushing and project a sufficient extent into the opening of the bushing to form an abutment for the pipe *c*, the piping would have to be much thicker to start with.

The exterior covering *d*, as will be seen, is exposed to the interior of the pipe *c*, whereas heretofore, a thickness of metal has separated it from the space inside the pipe in order to prevent the deleterious action of the steam or hot water upon such covering. In the present case, therefore, the covering, where it is exposed, consists of a material which is not affected by the action of steam. An admirable material for this purpose is either the well-known bakelite or condensite which consist of a properly treated mixture of phenol and formaldehyde. This material is molded over the top and around the sides of the cap in any suitable manner, the bushing being preferably provided with grooves *e* to retain the same; and then the material is cured or hardened so as to form a rigid impervious cover around the ring and bushing both of which it holds in place.

Instead of forming the top piece *b* as a ring, it may be formed as a very thin flat disk or concave piece and in this way will cover the top of the pipe *c* entirely. This latter construction however, while requiring more brass than where a ring is used, would still require much less metal than is used to form the present castings and would render the production of caps of the present type much cheaper.

The advantages of the present improvements and their application will be obvious without further exposition. They may

be applied to a variety of uses other than in radiator caps, all of which will be readily understood.

I claim as my invention:—

5 1. A cap for automobile radiators and the like, comprising a threaded metal bushing open at both ends and adapted to be screwed on to the end of a pipe, and a covering of hardened moldable material un-
10 affected by the action of steam or hot water and having a relatively high elastic limit, the said covering surrounding the periphery and closing one end of the bushing.

15 2. A cap for automobile radiators and the like, comprising a bushing adapted to fit the part to which the cap is to be applied, a separate top piece upon the bushing projecting inwardly to a sufficient extent to form a shoulder for the said part to
20 abut against and a covering of moldable material over the top and around the sides and hardened so as to hold the bushing and

top piece in position and to form a rigid impervious cap.

3. A cap for automobile radiators and the like, comprising a bushing adapted to fit the part to which the cap is to be applied and open at both ends, a covering of hard moldable material unaffected by the action of steam or hot water and having a relatively high elastic limit, the said covering surrounding the periphery and closing one end of the bushing, and means to retain the cap on the part to which it is to be applied.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses, this 17th day of June, 1913.

HENRY S. MORGAN.

Witnesses:

JOHN W. THOMPSON,
ALEXANDER S. GROSS.