A. ROESCH.

BULB PROTECTOR FOR THERMOMETERS.

APPLICATION FILED APR. 11, 1907.

924,276. **Patented June 8, 1909.**

Fig. 1.

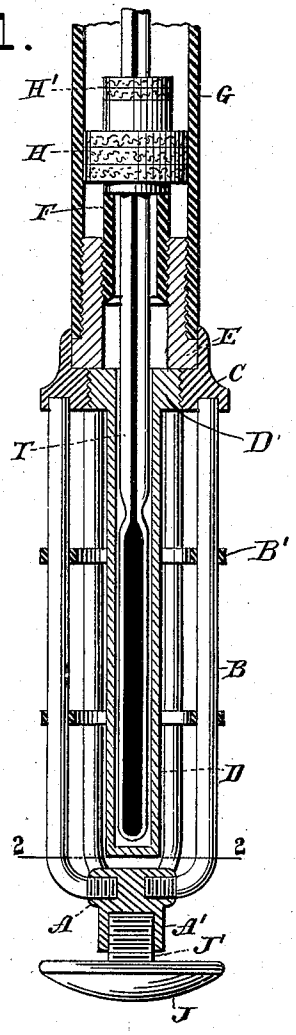


Fig. 3.

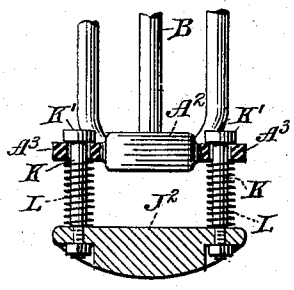


Fig. 4.

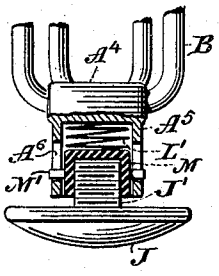
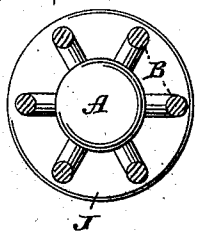


Fig. 2.



WITNESSES

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BULB-PROTECTOR FOR THERMOMETERS.

No. 924,276. Specification of Letters Patent. Patented June 8, 1909.

Application filed April 11, 1907. Serial No. 367,545.

To all whom it may concern:

Be it known that I, ALFRED ROESCH, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Bulb-Protectors for Thermometers, of which the following is a specification.

My invention relates to bulb protectors for thermometers, particularly such as are exposed to the action of brine or other corroding liquids, and has for its object to render such protectors more durable and effective.

In the accompanying drawings I have illustrated three forms of my invention, Figure 1 being a sectional elevation of one form of the protector; Fig. 2 a cross-section on line 2—2 of Fig. 1; Fig. 3 a partial sectional elevation of another form, and Fig. 4 a partial vertical section of a third form.

In the construction illustrated by Figs. 1 and 2, the bulb protector comprises an end plate A and a cage made of bars B the lower ends of which are bent and screwed radially into the end plate A. The vertical portions of the bars are soldered or otherwise secured at their upper ends to a collar C, and any suitable construction may be employed for properly connecting the protector with the thermometer. Thus in Fig. 1 the collar C is screwed on a plug D′ at the end of the tube D located within the cage and containing the bulb of the thermometer T. The upper end of the collar C is recessed to receive a screw plug E screwing on the stuffing box F and into the sleeve G, packings H, H′ which surround the thermometer tube T being employed to obtain a tight joint. The end plate A has a central downward projection A′ which is screwthreaded internally to receive the upward stem J′ of the bottom plate disk J. This plate J provides a wearing surface and protects the cage proper against wear by friction. It is readily removable and a new one can therefore be substituted conveniently when the bottom plate has become worn.

It will be seen that the connections of the plate A with the bars B require no solder and will therefore not be attacked readily by brine or other corroding liquids. Furthermore, the end plate B offers a large volume and even for this reason alone will resist corrosion much longer than the construction employed hitherto, according to which the lower ends of the bars B simply meet at the center, no end plate being used.

In some cases it is desirable to give the bottom plate or button a yielding movement, and two structures of this character are shown in the drawing. In Fig. 3, the end plate A^2 has no downward projection, but two lateral lugs A^3 in which are adapted to slide vertically rods K provided with heads K′. Springs L coiled on said rods bear against the lower surfaces of the lugs A^3 and against the upper surface of the bottom plate or disk J^2 to which the lower ends of the rods K are secured either permanently or detachably, as shown. In the latter case, renewal of the bottom plate is greatly facilitated. In Fig. 4, the bottom plate A^4 has a downwardly projecting socket A^5 provided with vertical slots A^6 to receive pins M′ on the outside of a screw sleeve M. This sleeve receives the stem J′ of the disk or bottom plate J, and is pressed downward by a spring L′ contained in the socket A^5. In either of the constructions shown in Figs. 3 and 4, the bottom plate is capable of a yielding upward movement relatively to the upper portion of the protector, and thus jars due to the said plate's striking the walls of a vat or other vessel will be relieved, so as to avoid breaking the thermometer bulb or tube.

The connection of the bars B with the end plate A may be the same in all three constructions.

One or more rings B′ may be employed to prevent the thermometer chamber from being struck by prongs of the stirrer used in agitating the fluid.

I claim as my invention—

1. The combination of a thermometer, a packing-box through which said thermometer extends, a protecting cage formed of bars secured to said packing-box and surrounding said thermometer at its bulb end, and a protecting plate connected with said case at the end opposite to that which the packing box is located, said protecting plate being located exteriorly of said cage and adjacent to the bulb end of the thermometer.

2. The combination of a thermometer, a packing-box through which said thermometer extends, a cage formed of bars secured to said packing-box and surrounding said thermometer at its bulb end, and a removable protecting plate connected with said

cage at the end opposite to that at which the packing-box is located, said protecting plate being located exteriorly of said cage and adjacent to the bulb end of the thermometer.

3. A thermometer protector comprising a cage and a disk located below the said cage, and yieldingly carried thereby.

4. A thermometer protector comprising a cage and a removable disk located below the cage, and supported thereby and elastic means having a tendency to force said disk away from the cage.

5. A thermometer protector comprising an end plate having a downward projection, cage-forming bars connected with said end plate, and a disk located below said end plate and provided with an upward stem connected to said projection.

6. A thermometer protector comprising an end plate and a cage formed of bars, the ends of which are screwed into said plate.

7. A thermometer protector comprising a cage composed of longitudinal members and a ring through which said members pass and which is located between their ends.

8. The combination of a thermometer, a packing-box through which said thermometer extends, a cage formed of bars secured to said packing-box and surrounding said thermometer at its bulb end, and a protecting plate connected with the said cage at the end opposite to that at which the packing-box is located, said protecting plate being located exteriorly of said cage adjacent to the bulb end of the thermometer.

9. The combination of a thermometer, a packing-box through which said thermometer extends, a cage formed of bars secured to said packing-box and surrounding said thermometer at its bulb-end, and a removable protecting plate connected with said cage at the end opposite to that at which the packing-box is located, said protecting plate being located exteriorly of said cage adjacent to the bulb end of the thermometer.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

ALFRED ROESCH.

Witnesses:
OTTO V. SCHRENK,
JOHN LOTKA.