G. H. WRIGHTSON, JR.

PUMP PLUNGER.

APPLICATION FILED MAY 16, 1914.

1,133,778.

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Fig. 1.

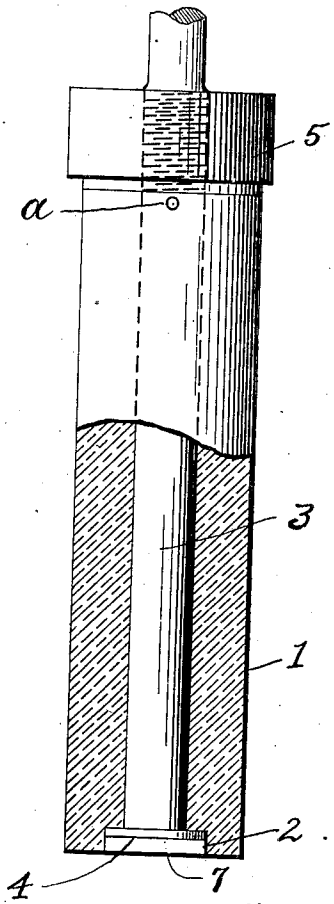
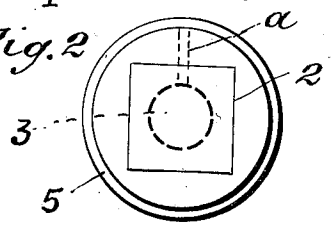


Fig. 2



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE H. WRIGHTSON, JR., OF BUTTE, MONTANA.

PUMP-PLUNGER.

1,133,778. Specification of Letters Patent. Patented Mar. 30, 1915.

Application filed May 16, 1914. Serial No. 839,030.

To all whom it may concern:

Be it known that I, GEORGE H. WRIGHTSON, Jr., of the city of Butte, in the county of Silverbow, State of Montana, United States of America, have invented certain Improvements in Pump-Plungers, of which the following is a specification.

This invention relates to an improved pump plunger which is not necessarily in contact with the inner surface of the pump.

In certain mines, the water pumped therefrom is strongly impregnated with a salt of copper, probably, copper sulfate; and the plungers of the pumps, if of iron, and particularly cast iron, or of brass, are attacked by the copper salt held in solution in the water, to such an extent as to render them unserviceable in a few hours. Furthermore, the coating of copper deposited on iron or brass plungers is not a solid body, but a spongy material which as it accumulates on the plungers falls to the bottom of the pump cylinders, and interferes with the proper working of the valves which control the passage of water to and from the pumps. The practice now in vogue when a pump becomes impaired in operation from the cause before stated, is to remove the plunger and turn off in a lathe, the damaged surface, and then replace the plunger in the pump. But this expedient is a costly one, and among the many disadvantages accruing from its employment, is its reduction in transverse area which lessens the capacity of the pump. It has been proposed to construct the plungers of some metal, such for instance as copper, which is not acted upon by the copper sulfate, but the cost of such a metal is great enough to almost prohibit its use.

With my present invention, I effect the advantages of using copper, by an expedient hereinafter described.

In the further description of my invention which follows, reference is made to the accompanying drawing forming a part hereof, and in which:—

Figure 1 is a partly sectional side view of a pump plunger embodying my present invention; and Fig. 2 an underside view of the same.

Referring now to the drawing, 1 is a straight hollow cylinder of glass, glazed-earthenware or porcelain, which forms the portion of the pump plunger with which the copper sulfate comes into contact, having at one end thereof a polygonal recess 2 for a purpose hereinafter described.

3 is a rod which constitutes the core of the plunger. It can be made of iron, brass or some other material which if not protected, would have its surface injured by contact with the copper sulfate, and is provided with a head 4 adapted to fit in the recess 2, and at a point above the end of the cylinder 1 has a thread, and a nut 5 which when set up, draws the head tightly into the recess.

To prevent the copper sulfate passing around the head 4 to the interior of the cylinder and into contact with the rod or core 3 there is interposed between the head and the cylinder, a joint-forming gasket 7 of say lead as that metal is not injured by the copper sulfate, and is slightly compressible.

The plunger constructed as described can be used for an indefinite period without material deterioration taking place.

I am aware that it is not new in pumps for corrosive liquids, to construct the plungers of glass which is molded around a metallic rod having enlargements which are wholly embedded in the glass in the molding operation; but I am not aware that plungers comprising a hollow glass cylinder open from end to end, and a metallic rod which is inserted in the cylinder and clamped thereto by means of a head on the rod which bears against one end of the cylinder, and a nut which bears upon the other, a joint-forming gasket being interposed between the head and the end of the cylinder to prevent passage of liquid to the interior of the cylinder to contact with the core, and

I therefore claim as my invention:

1. In a pump plunger for the purpose described, a vitreous cylinder having an inner diameter which is uniform throughout its length except at one end where it is enlarged to form a recess, combined with a cylindrical rod or core having a head adapted to rest in the recess, and which is threaded and fitted with a nut whereby the head is drawn tightly into the recess, and a joint-forming

gasket which is interposed between the head and the cylinder to prevent the passage of liquid into the interior of the cylinder.

2. In a pump plunger for the purpose described, a hollow vitreous cylinder, combined with an actuating rod for the same which is passed through the cylinder, heads on the rod, means whereby the said heads are drawn together and upon the ends of the cylinder, and a joint forming gasket which is interposed between one of the heads and the adjacent end of the cylinder.

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