A. LITTMANN.

VALVE.

APPLICATION FILED JUNE 29, 1914.

1,250,601. Patented Dec. 18, 1917.

Fig. 1.

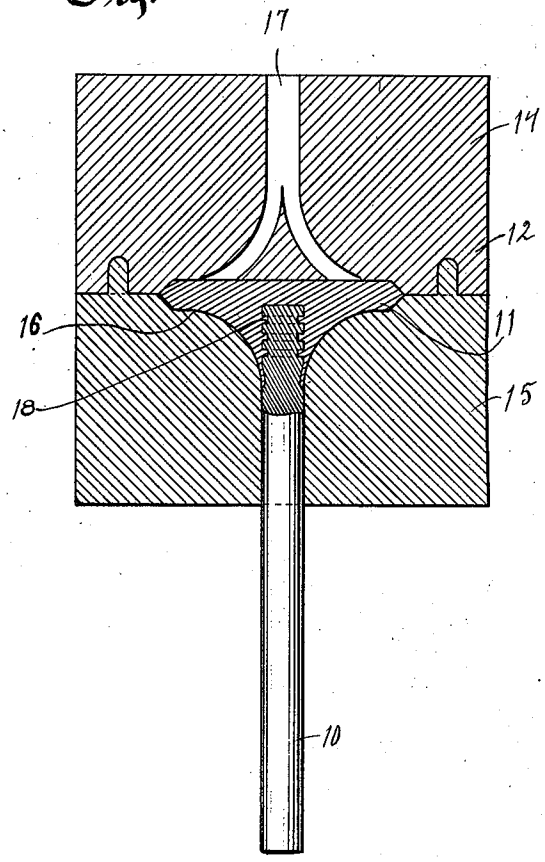
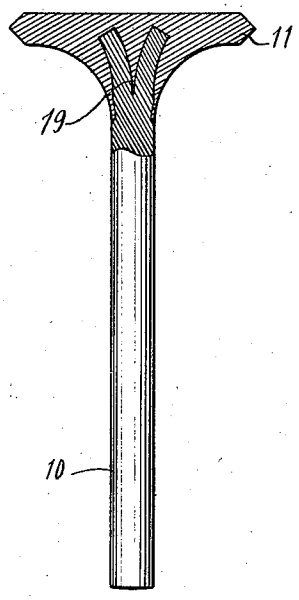


Fig. 2.



WITNESSES

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AUGUST LITTMANN, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO AMERICAN METAL PRODUCTS COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

VALVE.

1,250,601. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed June 29, 1914. Serial No. 847,809.

To all whom it may concern:

Be it known that I, AUGUST LITTMANN, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Valves, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The invention relates to valves or similar machine parts composed of dissimilar metals.

The invention designs more particularly to provide a valve stem or other machine part in which the rod is of ferrous metal, as steel, and the head is of a non-ferrous metal, as a brass or bronze composition for use more particularly in internal combustion engines.

In the drawings, Figure 1 is a vertical sectional view showing the die and the valve stem. Fig. 2 is a detail view of the valve stem, showing a modified form of valve rod.

The valve stem consists of a valve rod 10 of ferrous metal such as steel, to which is attached a head 11 of non-ferrous metal preferably of brass or bronze composition.

Formerly valves have been made by securing the brass or bronze head on to the steel rod by mechanical means such as screw joints, but the present invention is designed to produce a valve in which the valve head is in the condition of having been cast onto the valve stem and in which the metals used in the valve stem and head are of substantially the same coefficient of expansion.

In Figs. 1 and 2 I have shown a valve embodying the invention in which the head 11 of brass or bronze composition is in the condition of having been cast onto the rod or stem 10 which may be provided with grooves 18 or be split at 19 for giving a better gripping surface to the metal.

This non-ferrous or brass or bronze composition possesses the following qualities: Its coefficient of expansion is substantially the same as the coefficient of expansion of the ferrous metal, thus preventing any tendency of the dissimilar metals from working loose.

The invention thus exemplifies a valve stem or other machine part consisting of two dissimilar metals attached together by casting one onto the other, each of said metals having substantially the same coefficient of expansion.

What I claim is:

A valve for internal combustion engines consisting of a valve stem of wrought metal and a valve head of brass composition in the condition of having been cast onto said stem, the material of the stem and head having substantially the same coefficient of expansion.

In testimony whereof, I affix my signature, in presence of two witnesses.

AUGUST LITTMANN.

Witnesses:

KATHERINE HOLT,

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