G. E. GRABLE.

VALVE TAPPET.

APPLICATION FILED FEB. 23, 1918.

1,366,788. Patented Jan. 25, 1921.

Fig. 1.

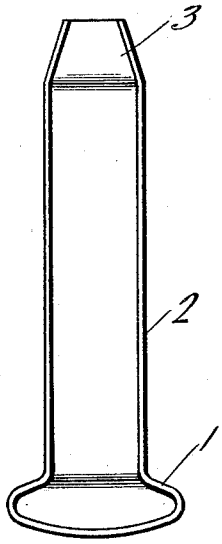


Fig. 2.

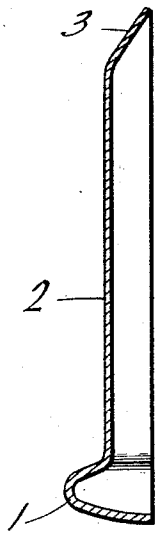


Fig. 3.

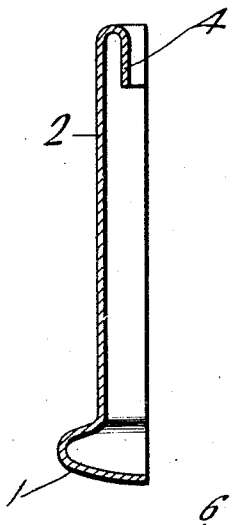


Fig. 4.

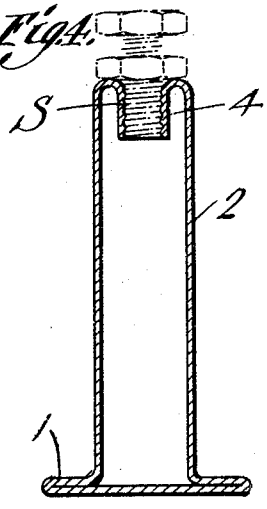


Fig. 5.

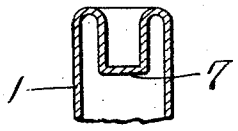


Fig. 7.

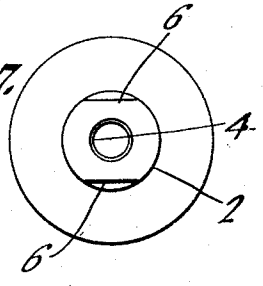


Fig. 6.

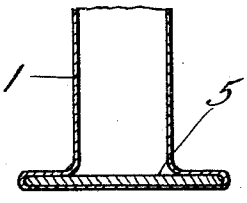
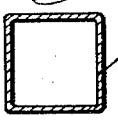


Fig. 8.



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UNITED STATES PATENT OFFICE.

GUY E. GRABLE, OF MOLINE, ILLINOIS, ASSIGNOR TO JOHN DEE, OF ROCK ISLAND, ILLINOIS.

VALVE-TAPPET.

1,366,788. Specification of Letters Patent. **Patented Jan. 25, 1921.**

Application filed February 23, 1918. Serial No. 218,832.

To all whom it may concern:

Be it known that I, GUY E. GRABLE, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented a new and useful Valve-Tappet, of which the following is a specification.

This invention relates to valve lifters or tappets for use in shifting the valves of internal combustion engines.

It has been the practice heretofore to make devices of this kind out of solid rods which, in order to deaden the sound, have been bored out for a portion of their length. Such devices, however, are expensive because of the amount of metal contained in them and the amount of labor involved in making them.

It is an object of the present invention to provide a valve lifter formed of sheet metal parts stamped or pressed to proper shape and subsequently joined by welding, the resultant product being of greater diameter, if desired, than the ordinary tappet without, however, being as heavy or expensive.

A further object is to provide a tappet or valve lifter of ample strength, which can be provided with a case hardened exterior surface thus to resist wear and which can be left with a soft metal interior surface so that danger of breaking will be reduced.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims, it being understod that changes may be made in the arrangement and proportions of the parts without departing from the spirit or sacrificing any of the advantages of the invention as set forth in the appended claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings—

Figure 1 is a face view of one of the blanks of which a tappet is made, showing its first form.

Fig. 2 is a central longitudinal section therethrough on line 2—2, Fig. 1.

Fig. 3 is a view similar to Fig. 2 and showing the shape of the blank at the completion of the second step in its formation.

Fig. 4 is a section through the completed tappet.

Fig. 5 is a section through the top portion of a modified form of tappet such as used with the overhead type of valve.

Fig. 6 is a section through the bottom portion of another modified form of tappet.

Fig. 7 is an end view of a tappet having flattened faces for engagement by the jaws of a wrench.

Fig. 8 is a section through another form of tappet.

In forming the tappet two or more similar members are stamped or pressed from sheet metal of any desired gage. When two members make up the tappet they are first stamped out in the form shown in Figs. 1 and 2 with a bulged base 1, a semicylindrical stem 2, and the tapered end 3. The end 3 is then bent back so as to extend parallel with the stem and is curved transversely to lie concentric with the stem. This position of the end has been shown in Fig. 3, said end, when in this position, forming one half of a socket member 4. The two blanks are subsequently brought together with their corresponding edges in contact and all of said edges are united by electric welding. Subsequent to this operation the bulged base is flattened as shown in Fig. 4 after which the entire device is heat treated so as to produce a hard exterior surface, the interior surface being left comparatively soft. The socket member 4 is interiorly screw threaded after which a screw S can be positioned therein as ordinarily.

As shown in Fig. 6 a metal disk 5 can, if desired, be placed within the base portions of the blanks before they are joined, thus to thicken the base of the tappet. Also, if desired, and as shown in Fig. 7, the stem portion of the tappet can be provided with flat faces for engagement by the jaws of a wrench, these faces being shown at 6.

When the tappet is to be used with the overhead type of valve the socket member can be closed by forming a bottom 7 thereon as shown in Fig. 5.

By making the tappets in the manner de-

scribed it becomes possible to form them of any desired cross sectional contour. In Fig. 8 a rectangular tappet has been illustrated in section and obviously other cross sectional forms could be made.

The tappet is advantageous because of the great saving of material and labor in its manufacture. As it is hollow throughout its extent, it acts to deaded the noise of operation and as the inner portion of the tappet is of comparatively soft metal while the outer surface is very hard, the tappet will withstand wear to the maximum extent and resist breakage.

What is claimed is:—

1. A tappet consisting of opposed similar members welded together along their meeting edges, each of said members including a stem in the form of a half tube, an enlargement at one end of the stem constituting a bulged base, and an inturned transversely curved socket member at the other end of the stem, said socket members coöperating to form an interior tubular socket and said bulged portions coöperating to form a hollow head.

2. A tappet consisting of opposed similar members, each member including a stem, an inturned end portion transversely bowed, and a bulged portion, said members being joined at their meeting edges to form a tubular stem, an interior tubular socket at one end, and an enlargement or head at its other end.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GUY E. GRABLE.

Witnesses:
DELLA CLELAND.
JOHN DEE.