Dec. 16, 1930. S. PETERSEN 1,785,596

ADJUSTABLE SHIM HOLDER CAP

Filed Oct. 2, 1929

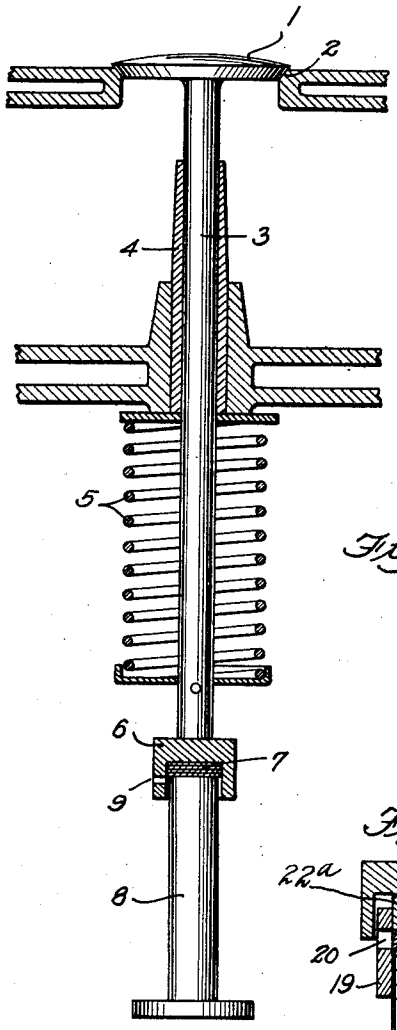


Fig. 1.

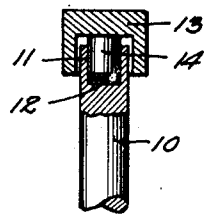


Fig. 2.

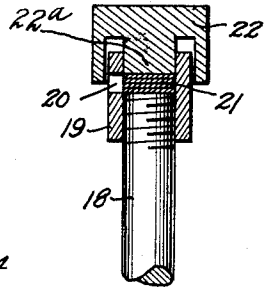


Fig. 4.

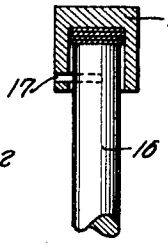


Fig. 3.

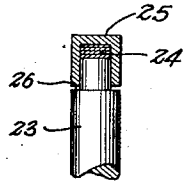


Fig. 5.

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UNITED STATES PATENT OFFICE

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ADJUSTABLE SHIM-HOLDER CAP

Application filed October 2, 1929. Serial No. 396,744.

This invention relates to shim holder end caps for push rods or valve tappets, and comprises the special construction and arrangement of the parts herein set forth.

The invention has for its object the production of simple and durable devices constituting effective means for use in connection with the ends of valve tappet rods in gasoline motors and the like, whereby the necessary shims to attain the exact adjustment of the valve rod may be introduced or withdrawn without disconnecting the connection as a whole.

The construction and arrangement of the parts of this invention are illustrated in the accompanying drawings, of which Figure 1 represents partly in vertical section a valve, valve seat and the valve stem and valve push rod to which this invention has been applied, showing all parts assembled.

Figure 2 shows the end of a valve push rod partly in section, and having a modified form of this invention applied thereto.

Figure 3 represents a view similar to Figure 2 showing another modified form of this invention.

Figure 4 illustrates a valve push rod having another form of this invention carried thereon and shown in section.

Figure 5 shows the end of a push rod partly in section and having a modified form of this invention applied thereto.

Throughout the drawings and description the same number is used to refer to the same part.

Considering the drawings, Figure 1 shows a valve 1 upon its seat 2, having the valve stem 3 movable up and down in the usual guide boss 4 below which is the customary coil spring 5 encircling the valve stem. At the end of the stem 3 is a cap 6 and within the cap are placed the plurality of shims 7 needed to effect the exact contact between the end of the stem 3 and the valve tappet 8. It will be noted that the cap 6 has an opening 9 in its side wall, and through this opening the shims may be introduced or withdrawn. The cap may also be constructed without the opening 9 and when this construction is used the cap 6 is lifted up above the end of the valve tappet and the desired shims placed directly on the end of the tappet and the cap then lowered down into place. The uppermost solid part of the cap may also be made in various thicknesses so that the desired adjustment may be acquired by changing caps. The cap may also be made so that its outside diameter is the same as the diameter of the tappet and in this construction the upper end of the tappet or push rod which the cap fits down over is diminished in size sufficient for the cap to be placed over it.

Considering Figure 2 the modification illustrated shows the end of the tappet 10 provided with a cavity 11 for the shims 12, and the cap 13 has a centrally disposed depending plug 14 which extends into the cavity of the tappet as is thought to be plainly discernible from the Figure 2. In using this plug method in combination with shims the plug may be used alone without the illustrated cap part. These plugs may also be made in various lengths so that the desired adjustment may be gained by changing the plugs.

Figure 3 illustrates a modification of the cap set out in Figure 1. The cap 15 in Figure 3 on the end of the tappet 16 is constructed with a somewhat longer skirt or downwardly extending wall, and the opening 17 in the wall is also lower placed than in Figure 1. This modification is very useful in motors which are intended for unusually heavy work, as it is a particularly strong and lasting construction.

In Figure 4 the end of the tappet rod 18 is provided with a fixed screw threaded cuff 19. This cuff may be secured to the end of the rod 18 in any manner. The cuff has the opening 20 in its wall through which the shims 21 may be introduced or withdrawn. The cap 22 shown in Fig. 4 is similar to the cap illustrated in Figure 2 in that it is provided with a center plug 22^a which engages the interior of the cuff and makes the contact with the shims which contact may be adjusted in the customary manner by introducing the requisite number of shims.

In Figure 5 the end of the tappet rod 23 is provided with a shoulder or reduced end

26 and a cap 25 placed thereon with a plurality of shims 24 located therein, the external diameter of the cap being the same as the external diameter of the tappet rod.

The operation of the form of this invention illustrated in Figure 1, and of the other forms set forth is the same. The valve and its rod or stem may be lifted for a distance found necessary, and any number of shims can be inserted until the desired contact is attained which will enable the tappet to operate the valve properly.

Having now described this invention and explained the mode of its operation, I claim:—

1. A shim holder end cap for push rods, comprising a cap adapted to fit upon the end of a push rod, said cap having an opening through which shims may be introduced between the cap and rod end without disconnecting the rod and cap, said opening being displaced from the plane of contact of the cap and push rod terminal to prevent displacement and loss of the shims.

2. A termination for push rod ends, including a rod part, and a cap part adapted to pass over the end of the rod part, the end of the rod part being formed to enter and engage the cap and one of said parts having an opening through which shims may be introduced between the rod and cap parts, said opening being displaced from the plane of contact of the cap and rod parts terminals to prevent displacement and loss of the shims.

3. A shim holder end cap for push rods including a body portion adapted to abut the terminal of a push rod and a depending flange portion adapted to surround a portion of the push rod, said flange having an opening therein to permit introduction of shims, said opening being displaced from the body portion to prevent the displacement and loss of the shims.

In testimony whereof I affix my signature.

SVEND PETERSEN.