July 15, 1924. 1,501,816

A. B. SEPPMANN

TOOL FOR INSERTING AND REMOVING VALVE PINS

Filed April 23, 1923

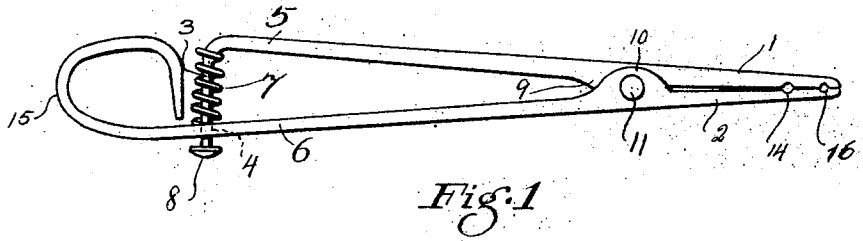


Fig. 1

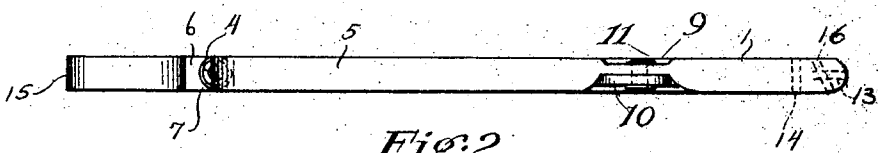


Fig. 2

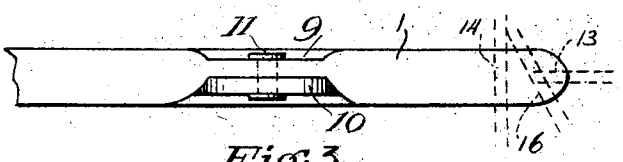


Fig. 3

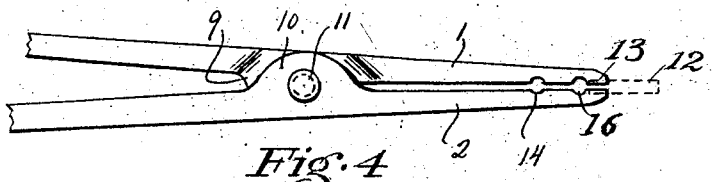
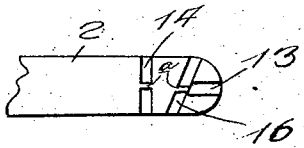


Fig. 4

Fig. 5.



Inventor

A. B. Seppmann

By Watson E. Coleman

Attorney

Patented July 15, 1924. 1,501,816

UNITED STATES PATENT OFFICE.

ALFRED BRUNO SEPPMANN, OF LAKE CRYSTAL, MINNESOTA.

TOOL FOR INSERTING AND REMOVING VALVE PINS.

Application filed April 23, 1923. Serial No. 634,038.

To all whom it may concern:

Be it known that I, ALFRED BRUNO SEPPMANN, a citizen of the United States, residing at Lake Crystal, in the county of Blue Earth and State of Minnesota, have invented certain new and useful Improvements in Tools for Inserting and Removing Valve Pins, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in tools and has relation more particularly to a device of this general character especially designed and adapted for use for inserting and removing valve pins.

In the various classes of poppet valve engines, it frequently becomes necessary to remove the valves of these engines for the purpose of replacing or re-grinding the valves. As is well known these valves are keyed in position by means of pins or horseshoe washers which are held in place by disc washers with flanged edges, said flanged edges extending over the ends of the pins or horseshoe washers when held snugly in position by valve springs. When it becomes necessary to remove the valves, valve spring removers are used to press the valve springs together with a valve spring washer which leaves the valve pins or horseshoe washers exposed. These valves are generally located in such positions difficult to reach with the hands and especially in the L head type motor. The openings or holes in the valve stems in which the pins are placed are not always in alignment with the operator and these valves are free to revolve or change position when in operation, and the pins are found in various positions. It is a purpose of the present invention to provide a novel and improved tool whereby such pins can be readily removed or replaced.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved tool whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of a tool constructed in accordance with an embodiment of my invention;

Figure 2 is a view in top plan of the device as illustrated in Figure 1;

Figure 3 is an enlarged fragmentary view in top plan illustrating the connection between the jaws of the tool;

Figure 4 is a view in side elevation of the structure as illustrated in Figure 3;

Figure 5 is a fragmentary plan view of one of the jaws as herein disclosed.

As disclosed in the accompanying drawings, 1 and 2 denote a pair of opposed jaws movable one toward the other and which are provided adjacent their inner ends with the flanges 9 and 10 and through which flanges is directed a rivet or pivot member 11. The pivotal connection of the flanges 9 and 10 permits the jaws 1 and 2 to have relative swinging movement. The jaws 1 and 2 are continued to provide elongated handle members 5 and 6 respectively. The outer end portion of the handle member 5 is continued by a substantially perpendicularly related extension 3 which is freely disposed through an opening 4 in the handle member 6 and terminating in an enlargement or button 8. Encircling the extension 3 is a coil spring 7 which has one end portion in contact with the handle member 6 and the opposite end portion in engagement with the handle member 5, said spring 7 serving to automatically and constantly urge the jaws 1 and 2 one toward the other. The free end portion of the handle member 6 outwardly of the extension 3 is returned to provide a loop 15.

The opposed faces of the jaws 1 and 2 adjacent their outer ends are provided thereacross with the angularly related grooves 14 and 16 and the outer groove 16 of each of the jaws 1 and 2 has in communication therewith a longitudinally disposed groove 13. The grooves 13 and 14 are indicated by broken lines in Figures 2 and 3 of the accompanying drawings. The grooves 13 and 14 are arranged in angular relation to provide different positions in which a pin 12, indicated by broken lines in Figure 4, can be placed in the jaws.

When a pin 12 is engaged within the grooves 13 and pressure is brought to bear

upon the pin 12, the inner closed ends of said grooves limit the extent of inward movement of the pin 12 and thus assuring sufficient force to engage the pin within a snug fitting opening.

By provision of the grooves 13, 14 and 16 the pins may be easily drawn and replaced at whatever angle may be found by the operator, the groove 13 being employed for a directly opposed pin and the grooves 14 or 16 as the angle at which the pin is located from the operator may require.

Each of the grooves 14 and 16 at substantially its center is provided with an intersecting ridge *a* which serves as a back stop for a pin for making it firm during an insertion operation.

In extracting or drawing the pin, if undue resistance should be offered requiring greater grip on the part of the jaws 1 and 2, pressure by the thumb may be had on the head or button 8 while the first finger of the hand can be placed on the loop 15. By this means sufficient grip can be applied to extract the most snugly fitting pin. The tool in its entirety is slender and sufficiently long to reach with ease within the most out of the way places.

From the foregoing description it is thought to be obvious that a tool constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. A tool of the class described comprising a pair of pivotally connected jaws, the opposed faces of each being provided with pin receiving grooves, each of said jaws being continued by a handle member, one of said handle members having an angular extension slidably disposed through the second handle member, and a spring interposed between said members and encircling said angular extension.

2. A tool of the class described comprising a pair of pivotally connected jaws, the opposed faces of each being provided with pin receiving grooves, each of said jaws being continued by a handle member, one of said handle members having an angular extension slidably disposed through the second handle member, and a spring interposed between said members and encircling said angular extension, said angular extension terminating in a button.

3. A tool of the class described comprising a pair of pivotally connected jaws, the opposed faces of each being provided with pin receiving grooves, each of said jaws being continued by a handle member, one of said handle members having an angular extension slidably disposed through the second handle member, and a spring interposed between said members and encircling said angular extension, the second handle member outwardly of the extension of the first named handle member being provided with a loop.

In testimony whereof I hereunto affix my signature.

ALFRED BRUNO SEPPMANN.