July 15, 1924. 1,501,417

T. MANNA

VALVE LIFTING TOOL

Filed May 23, 1922

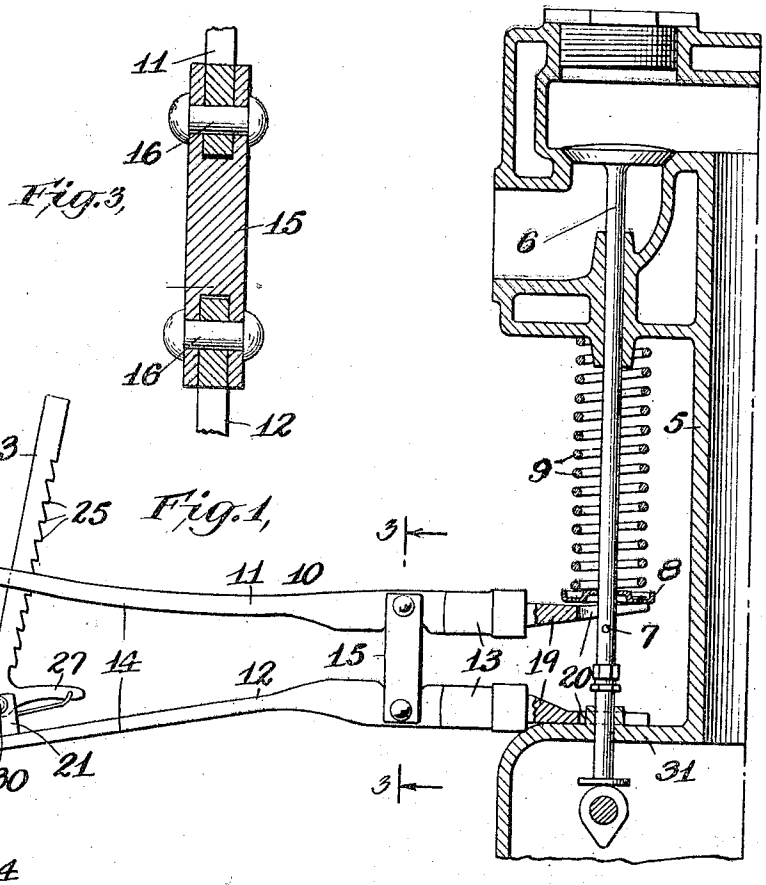


Fig. 3,

Fig. 1,

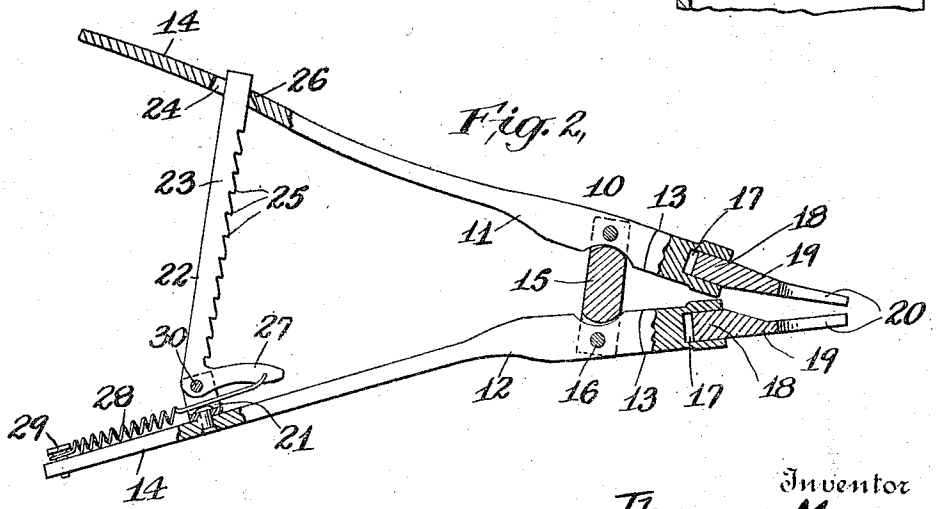


Fig. 2,

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UNITED STATES PATENT OFFICE.

THOMAS MANNA, OF JERSEY CITY, NEW JERSEY.

VALVE-LIFTING TOOL.

Application filed May 23, 1922. Serial No. 562,961.

To all whom it may concern:

Be it known that I, THOMAS MANNA, a citizen of the United States, and residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Valve-Lifting Tools, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to valve lifting tools or tools of this class designed for the purpose of removing poppet valves from gas engines and the like, and the object of the invention is to provide a tool of the class specified composed of movably connected handle members with means cooperating with said handle members for automatically locking the same in different positions of adjustment; a further object being to provide means for detachably mounting jaw members of different sizes in connection with said handle members whereby a tool may be used in removing poppet valves of various sizes and of different forms and construction; and with these and other objects in view the invention consists in a tool of the class and for the purpose specified which is simple in construction, efficient in use and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Fig. 1 is a side view of my improved tool with part of the construction broken away and in section, and indicating the method of its use;

Fig. 2 a view similar to Fig. 1 but showing the tool only and with the parts in a different position; and,

Fig. 3 a partial section on the line 3—3 of Fig. 1 and on an enlarged scale.

In Fig. 1 of the drawing, I have shown for the purpose of illustrating the use of my improved tool a part of an explosive engine 5 with a poppet valve 6 mounted therein through the shank of which is passed a pin 7 for retaining a spring seat 8 in a predetermined position on the shank, and at 9 is shown a spiral spring adapted to operate in connection with the seat 8.

My improved tool 10 comprises two members 11 and 12 provided at one end with socket members 13 and at the other end with handle members 14, and adjacent to said socket members the members 11 and 12 are movably connected by a link member 15 preferably of the construction shown in Fig. 3 of the drawing, and the ends of which are forked to receive the members 11 and 12, and rivets 16 are passed through the forked ends of the link 15 and through the members 11 and 12.

The socket members 13 are provided with angular recesses 17 which open outwardly through the ends of said socket members and are adapted to receive angular shanks 18 of detachable jaw members 19, the outer or free ends of which are forked as shown at 20. It will be understood that the jaw members 19, the forked portions of which may be of different sizes, may be mounted in connection with the socket members 13, or the members 11 and 12, the angular shanks 18 of said jaw members being of the same size so as to fit the recesses 17 of said socket members.

Mounted upon the inner face of one of the handle members 14 is a U-shaped block 21 within which is pivotally mounted a lever 22 which is substantially L-shaped in form, and one part 23 thereof extends upwardly and is adapted to pass through an aperture 24 in the other handle member 14, and the part 23 is provided on one side edge thereof with a plurality of spaced teeth or projections 25 adapted to cooperate with a beveled edge 26 of the aperture 24 to retain the handle members 14 in predetermined positions of adjustment with respect to each other.

The other part 27 of the lever 22 extends forwardly in the direction of the movable connection of the members 11 and 12, and one end of a spiral 28 is connected with the part 27, the other end of said spring being connected with a suitable part 29 secured to the free end of the first named handle member 14, as clearly shown in Fig. 2 of the drawing.

The pivotal connection of the lever 22 with the U-shaped block 21 is preferably made by a bolt 30 so that said lever may be detached, whenever desired, to compactly fold the complete tool together for shipment or other purposes.

The use of my improved tool will be readily understood from the foregoing descrip-

tion when taken in connection with the accompanying drawing and the following statement. It will be understood that when it is desired to use the tool, the handle members 14 are separated to bring the jaw members 19 together as shown in Fig. 2 of the drawing, and one of said jaw members preferably the lower jaw member, is placed upon a fixed support 31 of an engine cylinder and the other jaw member 19 is placed between the spring seat 8, after which the handle members 14 are moved toward each other, or the upper handle member is moved toward the lower handle member, in which operation the jaw members 19 are separated and the spring seat 8 is raised out of engagement with the pin member to permit of the removal of such pin from the shank of the poppet valve 6. It will be understood that when the jaw members 19 are in the position shown in Fig. 1 of the drawing that the part 23 of the lever 22 will operate to retain the handle members 14 in position, and this will enable the operator to use one or both hands in the removal of the pin 7, after which the lever 22, or the part 23 thereof, may be moved backwardly out of engagement with the upper handle 14 to allow the jaws 19 to again come together.

It will be apparent that the spring 28 operates to hold the part 23 of the lever 22 normally in engagement with the beveled edge 26 in the wall of the aperture 24 in the upper handle member 14 to automatically lock said handle member in predetermined positions of adjustment. It will also be understood that while I have shown certain details of construction for carrying my invention into effect, that I am not necessarily limited to these details, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A valve lifting tool of the class described comprising two substantially similar members provided at one end with angular sockets, a link pivoted to said members adjacent to the sockets thereof for movably connecting the same, one of said members being provided adjacent to the other end thereof with a U-shaped part, a substantially L-shaped lever pivotally mounted in connection with said part, one member of the lever being adapted to extend through an aperture in the other of said members and provided with teeth or projections adapted to retain said last named member in predetermined position with reference to the first named member, and fork-shaped jaw members detachably mounted in connection with the sockets of said members.

2. A valve lifting tool of the class described comprising two similar handle members provided at one end with sockets, fork-shaped jaw members adapted to be detachably mounted in connection with the sockets of said handle members, a link pivoted to both of said handle members adjacent to the sockets thereof for movably connecting said members and for spacing the same one from the other, and means mounted in connection with the other end portion of one of the handle members and cooperating with the corresponding end portion of the other of said handle members for interlocking the same and retaining said handle members in spaced relation.

3. A valve lifting tool of the class described comprising two similar handle members provided at one end with angular sockets, U-shaped jaw members adapted to be detachably mounted in connection with the angular sockets of said handle members, a link provided with fork-shaped extensions spaced between the handle members adjacent to the sockets thereof and into the forks of which the handle members are pivoted for connecting said handle members one with the other, and means carried by and movably mounted on one of said handle members and cooperating with the other for interlocking the same and retaining said handle members in spaced relation.

In testimony that I claim the foregoing as my invention I have signed my name this 20th day of May, 1922.

THOMAS MANNA.