

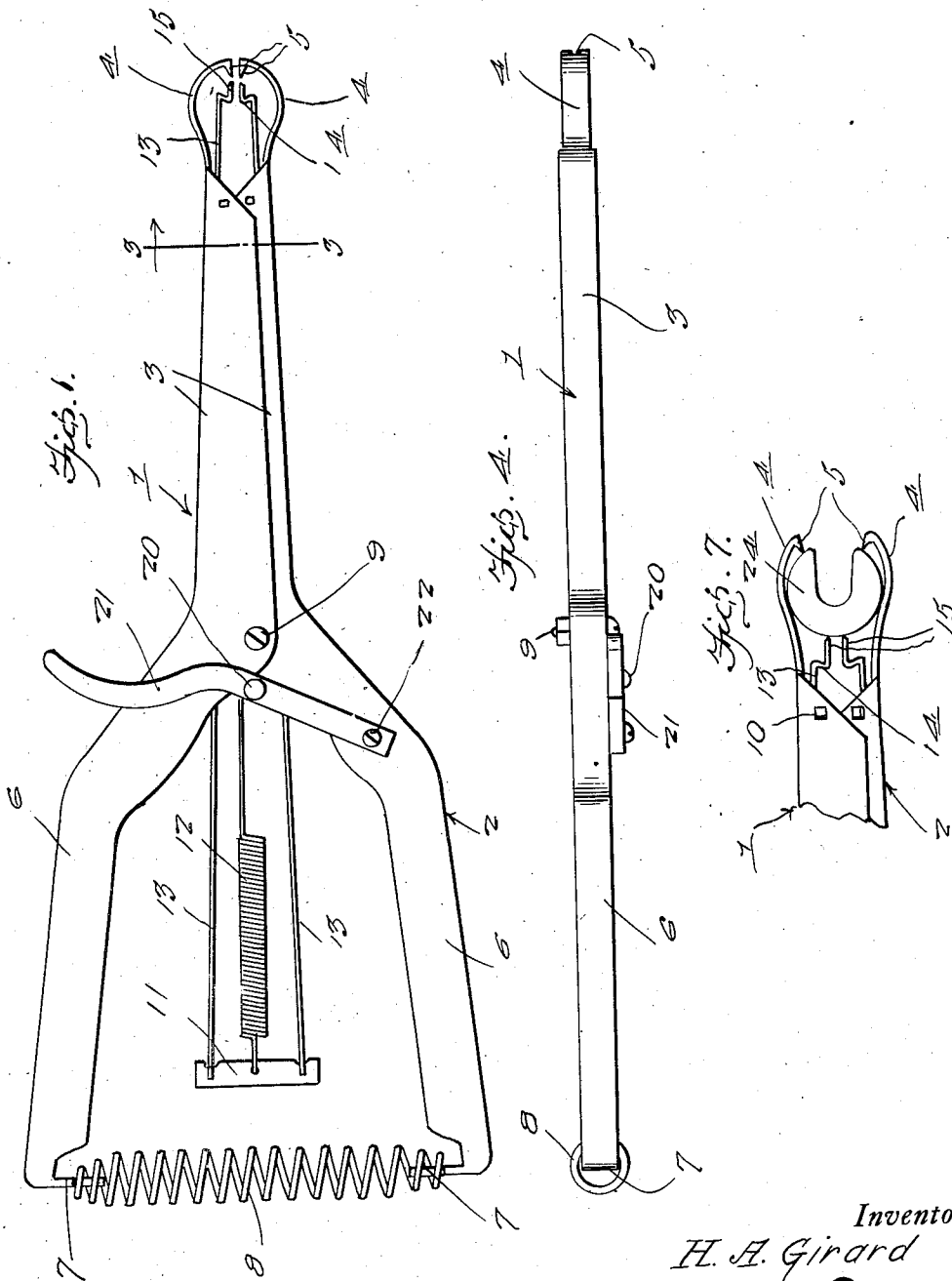
April 5, 1927.

H. A. GIRARD
AUTOMOTIVE TOOL

Filed May 17, 1926

2 Sheets-Sheet 1

1,623,786



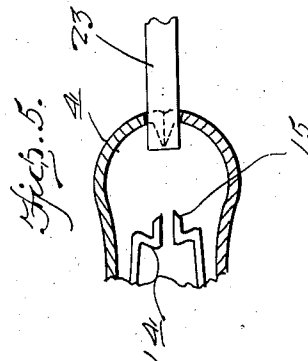
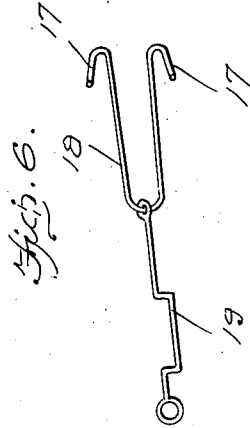
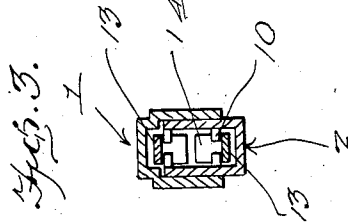
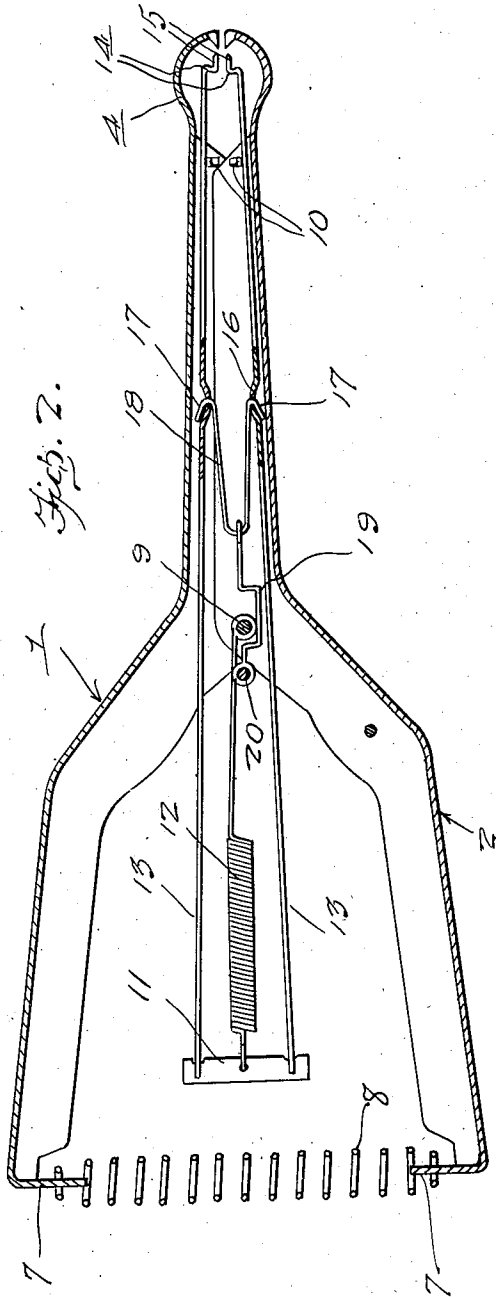
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2 Sheets-Sheet 2



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Patented Apr. 5, 1927.

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UNITED STATES PATENT OFFICE.

HENRY A. GIRARD, OF HARTFORD, CONNECTICUT.

AUTOMOTIVE TOOL.

Application filed May 17, 1926. Serial No. 109,665.

This invention relates to an improved tool adapted more particularly for use by automobile mechanics in removing and replacing valve spring pins, washers, and the like.

Briefly, the improved tool comprises a pair of pivotally connected members provided at their outer ends with pin engaging jaws and at their opposite ends with spring pressed handles. In addition, a spring returned device is associated with said members and is adapted to facilitate removal and insertion of said pin.

One feature of construction is the formation of the pivotally connected jaw carrying members of sheet metal, making this part of the tool exceptionally simple and inexpensive to manufacture.

Another feature of the invention is the specific construction of the plunger-like device which is employed in association with the sheet metal members, this device being operable by a lever which is pivotally mounted on said sheet metal members.

Other features and advantages of the invention will become apparent from the following description and drawings.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is a side view of a tool constructed in accordance with the invention.

Figure 2 is a longitudinal section through the major portion thereof with certain of the details shown in elevation.

Figure 3 is a cross section taken approximately upon the plane of the line 3-3 of Figure 1.

Figure 4 is a top plan view of the structure seen in Figure 1.

Figure 5 is a detail view of the jaws showing how they may be engaged with a valve pin.

Figure 6 is a perspective view of a coupling device between the plunger-like part and the operating lever.

Figure 7 is a detail view of the jaw equipped end of the tool showing the manner in which it may be used for removing and inserting a washer.

In the drawings, the reference character 1 designates one part and 2 the complementary part of the jaw carrying member. The part 1 is of the channel shaped cross section shown in Figure 3. Moreover, the part 2 is

of a similar cross section in shape and fits telescopically between the side walls of the part 1. The telescoping portions of the members as shown in Figure 1 constitute what may be conveniently designated as arms 3. The outer ends of these arms are provided with longitudinally bowed portions 4 terminating in pin gripping jaws 5. The opposite ends of the parts 1 and 2 are formulated into appropriate handles 6 which are provided at their free ends with inturned extensions 7 fitting into the opposite ends of a coiled spring 8. A pivot and connecting pin 9 passes through the portion forming the juncture between the arms 3 and the handles 6. It is yet to be pointed out that as shown in Figure 3, ears or lugs 10 are stamped inwardly from the side walls of the part 2 to provide stops which serve a purpose to be hereinafter described.

Considering now the plunger-like device which cooperates with the parts 1 and 2, this will be more clear by referring to Figure 2. In this figure, it will be seen that the device comprises a cross head 11, through the central portion of which one end of a coiled spring 12 is connected. The opposite end of this spring is in turn connected to the aforesaid pivot pin 9. In addition, a pair of elongated strips of metal 13 are in turn connected to the end portions of the cross head 11 and extend forwardly through the channel portions of the arms 3, and terminate in close spaced proximity to the aforesaid jaws 5. It will be noted however that the strips are bent at right angles as indicated at 14 and terminate in spaced parallel extensions 15 which are in alignment with the aforesaid jaws 5. Moreover, the central portions of the strips 13 are provided with inbent portions 16 having openings through which are inserted hooks 17 formed on a substantially U-shaped member 18 which is located between the metal strips 13. A link of appropriate design 19 is connected to the right portion of the U-shaped member 18 and has an eye at its outer end which is in turn connected to a cross pin 20 carried by the central portion of a lever 21, disposed on one side of the tool and pivotally mounted as at 22.

In practice it will be seen that the coil spring 8 which is of the expansion type, tends to maintain the aforesaid jaws 5 in close spaced gripping relation. Hence, by engaging these jaws 5 with the projecting

end of a valve pin located in an opening in the valve stem, it will be easy to withdraw the pin in an obvious manner. If the pin becomes stuck, and can be withdrawn slightly so that a portion of the end projects into the jaws 5 as indicated in Figure 5, the plunger like device which is there shown in the retracted position may be moved upwardly and the ends 15 engaged with the valve pin 23 as there shown. Then by pushing the lever 21 about its pivot, the plunger like device can be moved in a direction to pull the pin out while resting the jaws 5 against the valve stem. However, the plunger like device is more particularly adapted for use when inserting the pin in the valve stem opening. To this end it will be seen that the pin will be forced between and beyond the jaws 5 and the end portion 15 of the plunger like device will be engaged therewith. Then the lever 21 will be rocked to pull the pin in between the jaws 5, leaving one end portion projecting slightly. Then this projecting end can be aligned with the valve stem opening and the plunger device released to force the pin into the opening, thus making it convenient to accomplish this otherwise difficult task. I would also direct attention to the fact that the device can be used for placing a washer 24 in place (see Figure 7).

It is believed that by considering the description in connection with the drawings, persons familiar with tools of this class will be able to obtain a clear understanding of the specific structure and manner in which the same is used. Therefore a more lengthy description is thought unnecessary.

While the preferred embodiment of the invention has been shown and described, it is to be understood that minor changes coming within the field of invention claimed may be resorted to if desired.

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

1. In a tool of the class described, a pair of pivotally connected handles provided with arms having jaws formed at their outer ends,

a plunger-like device including gripping elements associated with said jaws, and a pivotally mounted operating lever connected with said plunger like device for moving it in one direction.

2. In a tool of the class described, a pair of sheet metal parts stamped into channel shaped formation, said parts including opposed spaced handles and arms, said arms being disposed in telescoping relation, being pivotally connected together, and being provided at their outer ends with strap-like extensions which are longitudinally bowed and terminate in pin gripping jaws, and spring means interposed between the free ends of said handles.

3. In a tool structure of the class described, a pair of pivotally connected jaw equipped members, and a plunger-like device associated therewith, said device comprising a cross head, a pair of spaced parallel strips connected at one end to the cross head and provided at their other ends with gripping elements, spring means connected with said cross head and adapted to be connected with one of the first named members, and manually operated means for actuating said plunger.

4. In a tool structure of the class described, a pair of pivotally connected handle members including arms terminating in pin gripping jaws, and a plunger like device associated with said handle members, said device comprising a pair of spaced parallel metal strips provided at one end with gripping elements, a cross head extending between and connected with the opposite ends of said strips, a coil spring connected with the intermediate portion of the cross head and adapted to be connected at its opposite end with the aforesaid members, a substantially U-shaped member, the arms of which are connected with said strip, a pull link, a lever pivotally mounted on one of the aforesaid handle members, and a connection between said link and the intermediate portion of said lever.

In testimony whereof I affix my signature.
HENRY A. GIRARD.