

G. W. INGRAM.
VALVE REMOVER.
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1,323,476.

Patented Dec. 2, 1919.

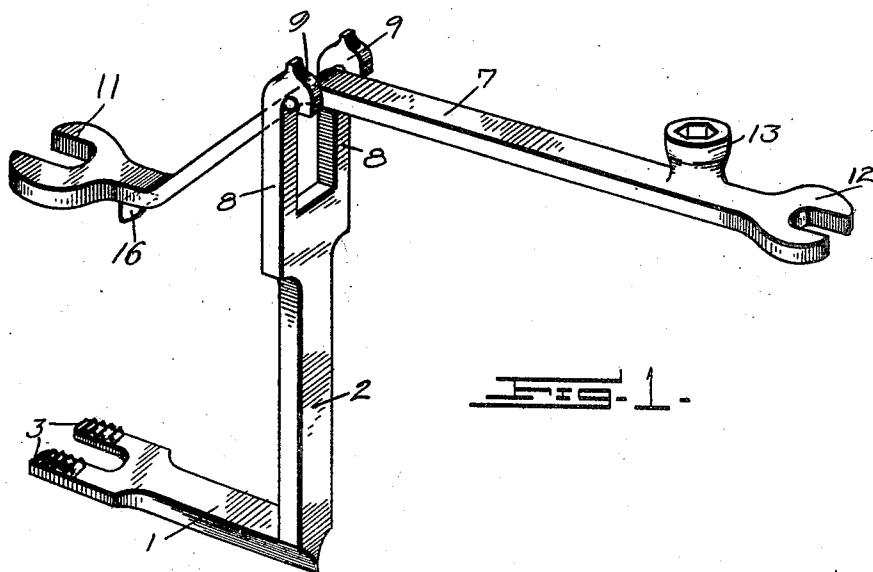


FIG. 1.

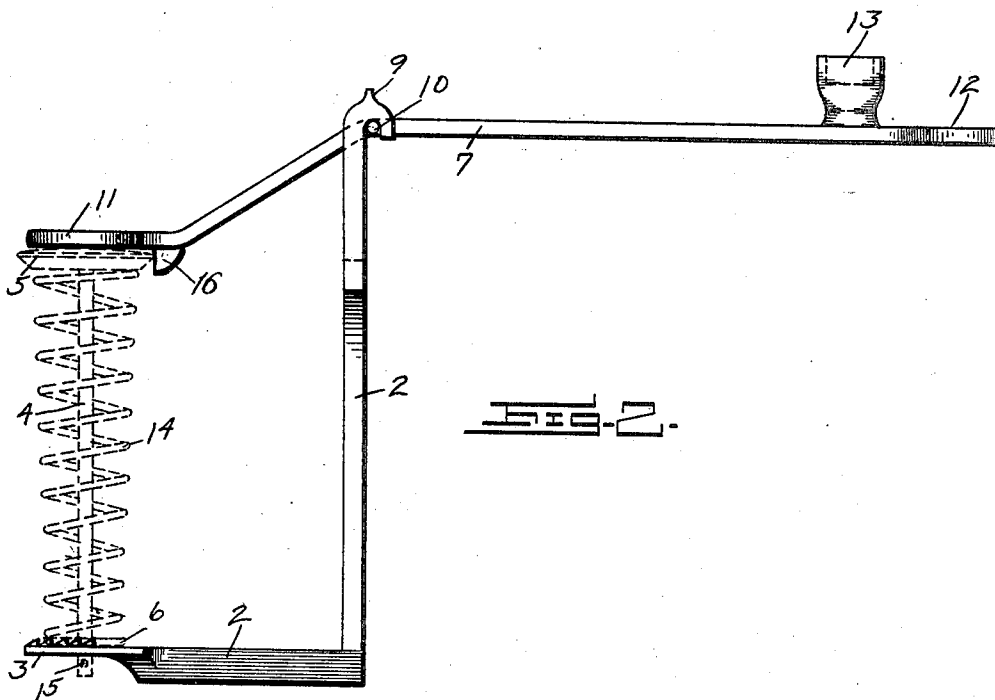


FIG. 2.

WITNESSES

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VALVE-REMOVER.

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To all whom it may concern:

Be it known that I, GEORGE W. INGRAM, a citizen of the United States, and a resident of Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Valve-Removers, of which the following is a specification.

My invention is an improvement in combination tools, and has for its object to provide a tool of the character specified especially adapted for use with internal combustion engines, wherein a powerful yet simple mechanism is provided for assisting in valve removing, and having means in connection therewith for handling nuts and spark plugs.

In the drawings:

Figure 1 is a perspective view of the improved tool;

Fig. 2 is a side view.

In the present embodiment of the invention, an angle piece is provided, the said piece consisting of an arm 1 and an arm 2, the arm 1 having at its end a fork, the arms 3 of which extend parallel with each other and in spaced relation. The arm 2, which is at right angles to the arm 1, is adapted to extend parallel with the stem 4 of a valve 5, with the stem passing between the arms 3 of the fork and with the washer 6 at the lower end of the spring resting on the arms.

A lever 7 is detachably connected with the arm 2, the said arm having at its upper end a fork between whose arms 8 the lever is adapted to pass. As shown, each of the arms 8 has a downwardly facing hook 9 at its top, and the lever has pins 10 which are engaged with the hooks. Each end of the lever 7 is provided with a wrench 11 and 12, respectively, and at that end adjacent to the wrench 12 a socket 13 is connected with the lever, the said socket being polygonal in cross section for engaging a bolt or nut.

The wrench 11 is, offset laterally with respect to the body of the lever, and is adapted, in addition to its function as a spark plug wrench, to engage the valve as shown in Fig. 2.

In removing the valve, the parts are arranged as shown in Fig. 2, and upward pressure is made upon that end of the lever 7 adjacent to the wrench 12. The valve and pin are thus forced downwardly against the resistance of the spring 14 and the pin 15 may be easily removed from the stem. The wrench 12 is of a size to fit manifold and side plate nuts.

Referring to the drawings, it will be noticed that the lever 7 is provided at the end adjacent to the wrench 11 with a projection or heel 16, which is adapted to engage the valve to prevent the tool slipping forward, and that the arms of the fork of the arm 1 have teeth for preventing slipping on the washer.

I claim:

1. A device of the character specified, comprising an angle plate composed of arms extending at approximately a right angle, each of the said arms being forked at its free end, a lever received between the forks of one arm, the arms having hooks and the lever having journal pins for engaging the hooks, said lever having at that end adjacent to the fork of the other arm a head for engaging a valve for the purpose specified, said head being offset toward the other arm of the angle plate, the lever forming a hand grip at the opposite end.

2. A device of the character specified, comprising an angle plate composed of arms extending at approximately a right angle, each of said arms being forked at its free end, a lever received between the forks of one arm, said last mentioned forks having hooks and the lever having journal pins for engaging the hooks, said lever having at that end adjacent to the fork of the other arm a head for engaging a valve for the purpose specified.

3. A device of the character described including an angle plate composed of arms extending at approximately right angles, each of said arms being forked at its free end, the fork of one arm being toothed and the forks of the other arm being formed into downwardly facing hooks, a lever received between said last mentioned forks, journal pins extending laterally from said lever and having bearings in said hooks, a valve-engaging head carried by the end of said lever adjacent said toothed forks, said head being offset toward the other arm of the angle plate and a projection carried by said lever adjacent said head for engagement against the valve to be removed, said projection being provided to prevent the slippage of the lever relative to the valve.

GEORGE W. INGRAM.

Witnesses:

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