

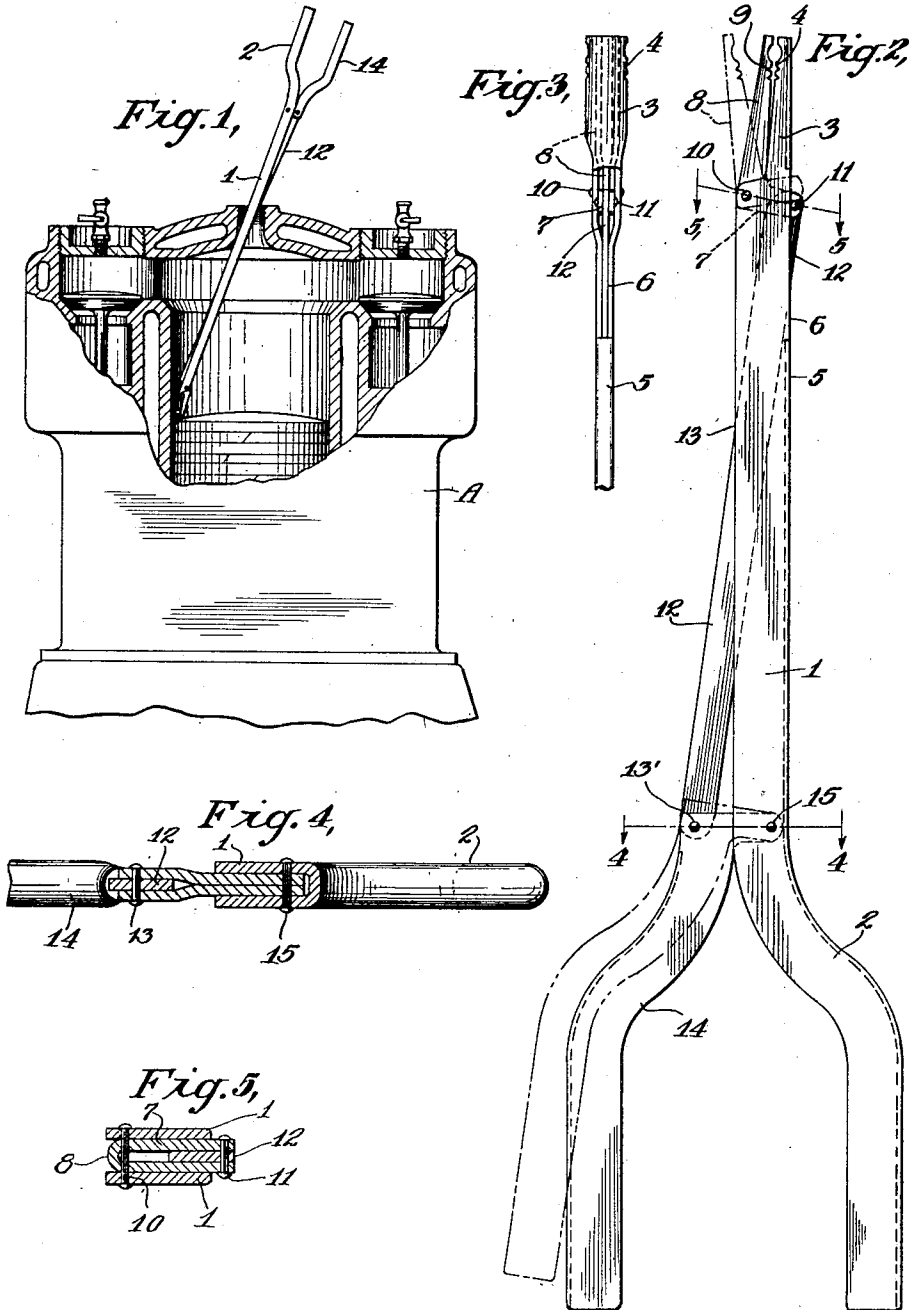
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TONGS.

APPLICATION FILED JUNE 18, 1919.

1,370,814.

Patented Mar. 8, 1921.



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TONGS.

1,370,814.

Specification of Letters Patent.

Patented Mar. 8, 1921.

Application filed June 18, 1919. Serial No. 305,044.

To all whom it may concern:

Be it known that I, WILLIAM HEHMANN, a citizen of Germany, (having obtained first citizenship papers for United States,) residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Tongs, of which the following is a specification.

Although this invention may be said to relate to that class of devices known as "tongs," yet it has particular application to a peculiar form of tool capable of uses and functions unattainable with tongs and pliers of known construction.

In working around or upon modern machines, engines and other mechanical structures, much annoyance, inconvenience and delay is frequently experienced in handling small parts, such as cotter pins, nuts, bolts, washers, small springs, and the like. Especially is this so where a small part is to be placed in or removed from a section of the machine or engine which is inaccessible or at least difficult of access, when the engine or machine is assembled. For instance, in removing or inserting a pin in the stem of a valve in an internal combustion engine, the operation must usually be performed while the valve spring is held contracted under tension and as the hole through the stem of the valve is difficult of access under such conditions it is practically impossible to manipulate the pin with the naked hand. With my improved implement however, the pin may be readily and firmly grasped and manipulated as desired. Furthermore, my implement will be found peculiarly adapted for picking up bolts, screws, nuts and the like that may accidentally fall into the dust or oil pan of an automobile engine or that may drop into the cylinders thereof when the latter are open for cleaning or repair. The implement will also be found useful for gripping a piece of cotton waste of suitable size to form a swab for wiping out or cleaning the interior of the cylinders of an engine.

It is also my purpose to provide a tool of this character, and capable of performing these functions, which is of relatively great length with relation to its width and which is provided with powerful, small and compact gripping jaws at one end operable by a lever handle from the opposite end so that the tool may be readily actuated to insert and remove small articles to and from

places inaccessible to the hands of the operator.

Another object of my invention is to provide a tool which may be economically manufactured and marketed inasmuch as the body portion of the tool may be fashioned from sheet metal, and as the tool is composed of but very few and simple parts, the same may be made in great quantities at a relatively low cost of production.

Another object of my invention is the provision of a tool which will embody the desired features of simplicity, efficiency and reliability and which may be readily and easily manipulated with one hand.

With the above recited objects and others of a similar nature in view my invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claims.

In the accompanying drawings:

Figure 1, is a view partially in section and partially in elevation of a conventionally illustrated engine cylinder and showing the manner of employing my tool to remove a small article, such as a bolt, therefrom.

Fig. 2, is a view in side elevation of my improved tool.

Fig. 3, is an edge view of a portion thereof and illustrating particularly the construction of the stationary clamping jaw.

Fig. 4, is a cross sectional view taken on the line 4—4 of Fig. 2.

Fig. 5, is a similar view taken on the line 5—5 of Fig. 2.

Referring now to the accompanying drawing in detail, numeral 1 indicates the shank of the tool which is preferably made from a relatively long strip of sheet metal doubled upon itself so that the shank is approximately U-shaped in cross section throughout. The rear end of this shank is preferably offset to form the stationary handle 2 while the forward end of the shank has formed integral therewith the clamping jaw 3 which is concavo convex, and of slightly greater width but of less depth than the shank, this stationary jaw being formed by cutting away and spreading the metal at the end of the shank. The edges of the stationary jaw 3 are preferably serrated or toothed as at 4 to increase the gripping and holding capacity of the jaw. Directly back of jaw 3 the rounded back edge 5 of the shank is cut away

or slotted as at 6. In this slot, and directly in rear of the stationary jaw is pivoted the stem 7 of the movable jaw 8 of the tool. This movable jaw with this stem is also preferably
 5 formed of a single piece of blank or sheet metal bent to concavo convex form and decreasing or tapering from the stem toward its outer end, the side edges of this movable jaw being serrated or toothed as at 9. Of
 10 course this movable jaw is assembled to constitute a companion of the stationary jaw, and it is pivoted to the shank by the pivot bolt 10 passing through the shank directly in the rear of stationary jaw. The free end
 15 of the stem 7 of the movable jaw extends through or beyond the slot in the back of the shank and to the parts of the stem so extended is pivoted as at 11 one end of the relatively long flat sheet metal link bar 12.
 20 This bar runs diagonally substantially the length of the shank proper, that is, it runs from the end of the stem 7 diagonally down and between the sides of the shank so that its rear end projects or extends beyond the
 25 open edge 13' of the shank, and at the opposite side to the pivot pin 11. The rear end of this link bar 12 is pivoted as at 13 to the off-set lever handle 14 the latter in turn being pivoted as at 15 to the shank, or between the
 30 walls of such shank, the construction being such that the lever handle 14 forms a companion of and is oppositely disposed to the stationary handle 2.

This handle 14 is also preferably made of a
 35 single piece of sheet metal bent or doubled into approximately U-shaped form to correspond to the construction of the stationary handle 2.

From the above description taken in connection with the accompanying drawings the construction and manner of employing my improved tool will be readily apparent. It is to be noted that the tool is of relatively great length, with wide spaced handles providing a powerful leverage or grip, and that
 40 the link bar 12 running diagonally to opposite sides of the shank, and connected with the handle 14 and the stem of the movable jaw 8, when operated through the pressing
 45 of the handle 14 toward the handle 2 will exert great leverage or force upon the movable jaw 8 bringing the latter into coöperative gripping relation with the stationary jaw so as to firmly clamp the article to the handle. By reference to Fig. 1, wherein I
 50 have conventionally illustrated the engine cylinder A, the manner of using my tool to remove small articles from engine cylinders will be readily understood. Inasmuch as the
 55 tool while of great length and power is in general appearance flat, thin and attenuated, with no pronounced laterally extending projecting parts, it may be thrust into small restricted openings and into positions or places
 60 between machinery where it is practically

impossible to reach with the ordinary pliers, tongs, wrenches, and the like and I have found this tool by experience to be of the greatest convenience in working around and about automobiles and engines for by its use and other small parts may be accurately and quickly handled and placed without the tedious and annoying operation usually incident to such work.

While I have herein shown and described
 75 one particular embodiment of my invention, I wish it to be understood that I do not confine myself to all precise details herein set forth by way of illustration, as modification and variation may be made without departing from the spirit of the invention or exceeding the scope of the appended claims.

I claim—

1. A tool of the class described comprising a relatively thin shank U-shaped in cross
 85 section having a clamping jaw, a handle pivoted adjacent the rear of the shank between its walls, a pivoted jaw coöperatively associated with the clamping jaw and a thin connecting bar snugly fitting between the
 90 walls of the U-shaped bar and linking the pivoted jaw with the handle, the construction being such that a relatively long, thin tool devoid of pronounced projecting parts and capable of being inserted through small
 95 restricted openings is provided.

2. A tool of the class described comprising an elongated shank terminating at one end in a handle section and at the opposite end in a clamping jaw, said shank having a
 100 longitudinally extending slot therein back of the clamping jaw, a pivoted jaw associated with the clamping jaw and fulcrumed on the shank and provided with a stem extending through the slot in the shank, a link
 105 bar pivoted at its forward end to the stem of the pivoted jaw at one side of the shank and extending longitudinally and diagonally of the shank to the opposite side of the latter, and a lever handle pivoted to the
 110 shank in association with the handle section of the latter and also pivotally connected with the rear end of the link bar.

3. A tool of the class described comprising a shank formed from sheet metal folded
 115 to approximate U-shaped form in cross section, one end of said shank terminating in a handle, the opposite end of said shank terminating in a stationary jaw, a pivoted jaw associated with the stationary jaw and having
 120 a stem pivotally connected with the shank back of the stationary jaw, a lever handle pivotally connected with the shank adjacent the handle section of the latter, and a link pivoted at one end to the lever
 125 handle and extending through a slot in the back of the U-shaped shank and pivoted at its other end to the stem of the pivoted jaw.

4. A tool of the class described comprising a shank section formed from an elongated

gated strip of approximated U-shaped form in cross section, one end of said shank terminating in a grooved jaw, a pivoted grooved jaw coöperatively associated with the first mentioned grooved jaw, a pivoted handle connected with the shank, and a link bar snugly fitting between and within the confines of the walls of the shank and connecting the pivoted jaw and the pivoted handle.

5. A tool of the class described comprising a shank section formed from an elongated strip of sheet metal doubled to approximate U-shaped form in cross section, one end of said shank terminating in a handle section and the opposite end of said shank being cut away and spread to consti-

tute a stationary jaw integral with the shank, a sheet metal jaw pivotally associated with the stationary jaw and having a stem projecting through a slot in the back of the shank and at the rear of the stationary jaw, a handle pivoted to the shank adjacent the stationary handle section of the latter, and a sheet metal bar connected to the pivoted handle and running diagonally between the walls of the shank and projecting through the slot in the back of the shank and pivotally connected at its opposite end to the stem of the pivoted jaw.

In testimony whereof I have hereunto set my hand.

WILLIAM HEHMANN.