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QUICK-ACTING VICE GRIPS

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3 Claims. (Cl. 81—367)

This application is a division of my prior application Serial No. 100,403 filed April 3, 1961, now Patent No. 3,124,347 and relates to improvements in quick-acting vice grips, and the principal object of the invention resides in the provision of attachments to and modifications of parts of adjustable toggle plier type wrenches to render the same much more versatile in use and application, with particular emphasis applied to the problem of quickly clamping a succession of pieces to a worktable such as for instance with drill presses, for engravers, and for anyone who must work on pieces which must be clamped to a worktable or bench.

Other objects of the invention include the provision of a new and improved vice grip having a single jaw and including means by which it may be utilized as a hold-down device at the edge of a working surface, for instance by the application of a C-clamp or similar clamp; the provision of means whereby the tool may be used as a hold-down or grip within the confines of the working surface of the worktable by the application of a fastener such a bolt inserted through a hole in the table and held by a nut or in conjunction with the usual T-slot as on a milling machine table; the provision of a special new and improved removable jaw in addition to and for cooperation with the said single jaw, such removable jaw taking the place of the conventional lower jaw of the tool when the device is not to be used as a hold-down on a table but is to be used in the normal manner.

The invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly set forth in the appended claims.

Reference is to be had to the accompanying drawings, in which:

FIG. 1 is a view in side elevation, part being in section, illustrating the invention as applied to a worktable;

FIG. 2 is a view looking in the direction of arrow 2 in FIG. 1 with part in section;

FIG. 3 illustrates an extension means for the upper jaw;

FIG. 4 illustrates the removable lower jaw in position;

FIG. 5 is a view in elevation of the new and improved removable lower jaw;

FIG. 6 is a view in side elevation illustrating an alternative form of extension for the upper jaw;

FIG. 7 is a view looking in the direction of arrow 7 in FIG. 6;

FIG. 8 is a view of a modification for use as a hold-down with magnetic chuck;

FIG. 9 is a view in elevation looking in the direction of arrow 9 in FIG. 8;

FIG. 10 is a side elevation of a supplementary jaw, and FIG. 11 is a top plan view thereof.

This invention contemplates basically the use of an adjustable clamping toggle type of plier or wrench as for instance shown in P.S. Patent No. 2,514,103 and other patents. This tool is well known in the art.

Referring now to FIG. 1, the lower jaw member of the wrench has been removed but the upper jaw at 10 is the same as in the well known type of adjustable wrench referred to, and is actuated as for instance by a handle or lever 12 having a release lever 14, the adjustment handle or lever 16 having the well known screw 18 by which the jaw 10 is adjusted with relation to the now removed lower jaw.
edge at 72 and at the opposite edge thereof a rearwardly extending relatively sharp spur 74. Adjacent spur 74 there is a recess 76 and an outwardly projecting portion at 78 which is relatively elongated. The removable jaw terminates rearwardly in another spur 80. These spurs are not always necessary and could be dispensed with if desired.

Referring to FIG. 4 it will be seen how this member is held removably in position with respect to the spaced plates 20, 20. The removable jaw is thrust spur 80 foremost through the front slot between the plates 20, 20, this being seen in FIG. 2. The spur 74 is accommodated at the sharp portion 26 of the web 24 and the elongated projection 78 extends down through the opening at 22, holding the parts in the position shown. In this form of the invention the device is used in the ordinary manner which is clear to those skilled in the art but if the removable jaw is desired to be separated, it is merely necessary to tap it in the region of the member at 74, 78, thus loosening it from its position as held in the wrench member 20, 20. It will be observed that the inner rounded end of jaw 10 indicated at 82 bears on the upper surface of the removable jaw near the spur 80 and aids in holding the same in the operative position shown.

Furthermore if the device is desired to be utilized to hold articles down to a magnetic chuck or the like, a steel base indicated at 84 may be utilized with a pivot pin 86 pivoting the entire wrench in position by means of the lower member 88 to which the upper jaw at 90 is attached in the conventional manner, the rest of the wrench being the same but with of course the lower jaw removed as before.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the appended claims, but what I claim is:

1. A wrench comprising a handle lever provided with a removable but relatively stationary jaw, said handle lever including a pair of spaced plates and a web joining the plates, there being an aperture in the web, a cooperating pivotally mounted jaw, a toggle arrangement including another pivotally mounted handle lever for operating the pivotally mounted jaw, one end of each handle lever being pivotally connected with the pivotally mounted jaw, and means on the removable jaw for engagement with and holding contact by a portion of its handle lever, said means including a projection extending into the aperture.

2. The wrench as recited in claim 1 wherein said removable jaw comprises a flat member having a jaw face at one edge thereof, an extending spur at an opposite edge thereof adjacent the projection for positioning the removable jaw with respect to its handle, said spur engaging the web.

3. The wrench as recited in claim 1 wherein said removable jaw comprises a flat member having a jaw face at one edge thereof, an extending spur at an opposite edge thereof adjacent the projection for positioning the removable jaw with respect to its handle, said spur engaging the web, and another spur spaced with respect to said projection and adapted to extend under and in removable holding contact with a portion of the pivoted jaw.

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