May 6, 1952 G. L. HAWKINS 2,595,579

HAND VISE

Filed Nov. 15, 1948 2 SHEETS—SHEET 1

Fig. 1.

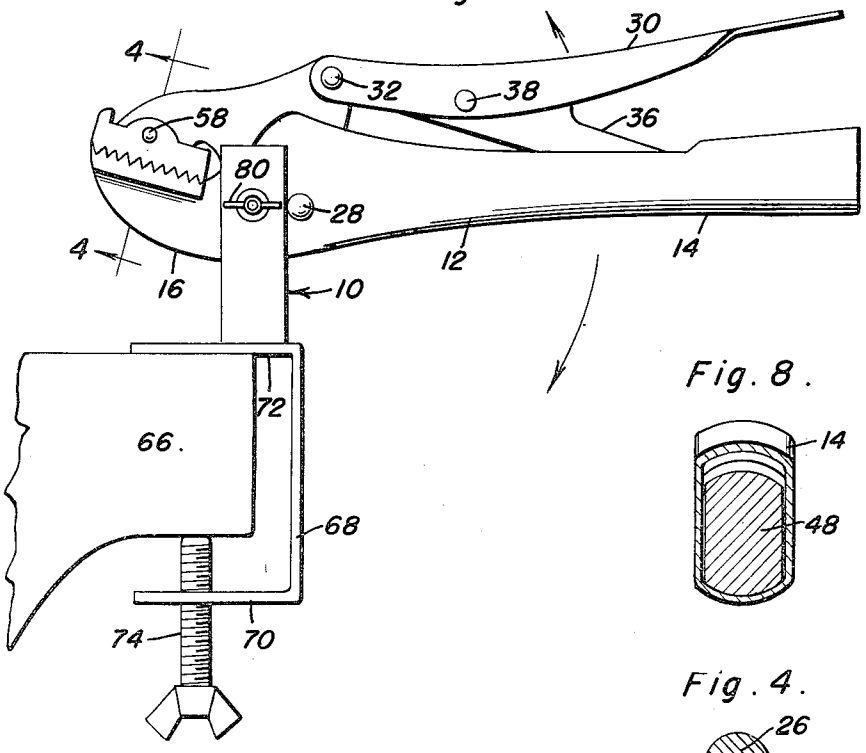
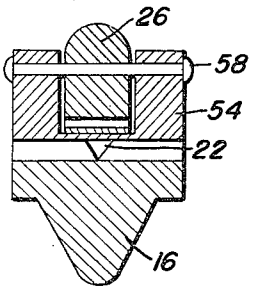



Fig. 8.




Fig. 4.



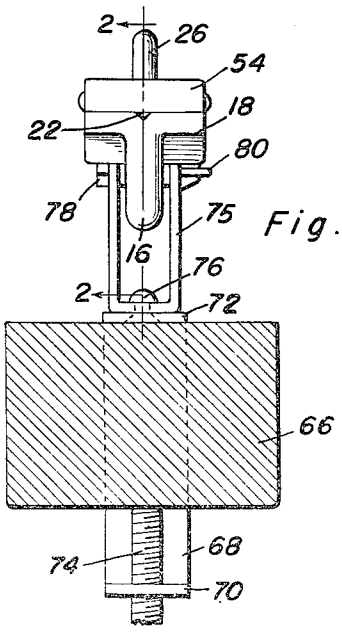




Fig. 5.

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Fig. 2.

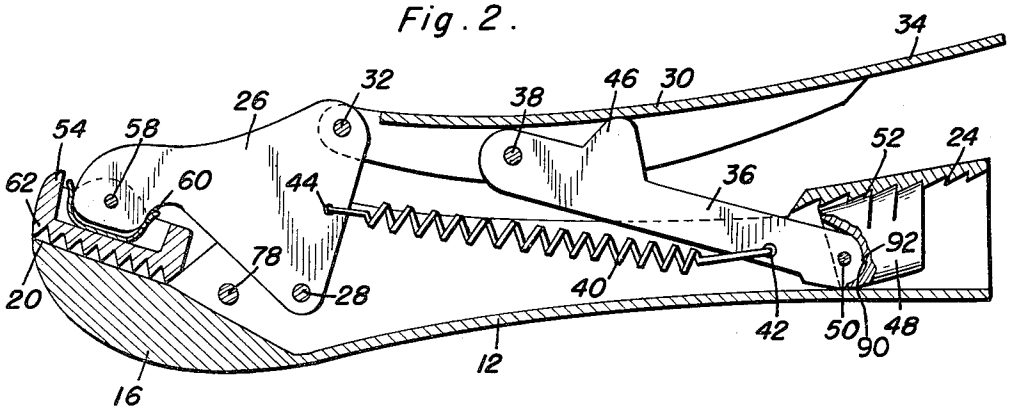



Fig. 6.

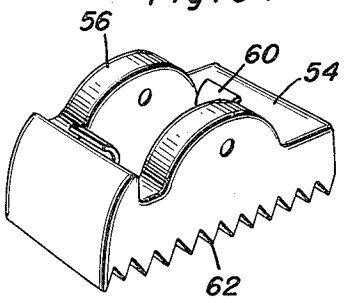
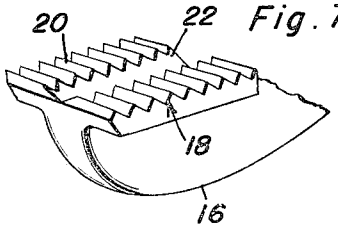



Fig. 3.




Fig. 7.




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# UNITED STATES PATENT OFFICE

2,595,579

## HAND VISE

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Application November 15, 1948, Serial No. 60,126

1 Claim. (Cl. 81—18)

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This invention relates to new and useful improvements in hand vises and has for one of its objects to provide means whereby a tool of this character may be adjustably mounted on a bench or similar support so that a rod or other metallic element may be secured for welding the same to another like element.

Another important object of this invention is to provide, in a hand vise comprising coacting stationary and pivoted jaws, novel means for actuating said pivoted jaw and for securing same in closed position.

These and ancillary objects and meritorious structural features are attained by this invention, a preferred embodiment of which is set forth in the following description and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevational view of an adjustable vise, constructed in accordance with the principles of the present invention;

Figure 2 is a vertical sectional view of the wrench-like structure, and is taken through the plane of line 2—2 on Figure 5, but omits the table-clamping support;

Figure 3 is a vertical sectional view, similar to Figure 2, but illustrating the vise jaws or clamping means in an open position;

Figure 4 is a sectional view taken on line 4—4 of Figure 1;

Figure 5 is a front elevational view of this invention, as seen from the left of Figure 1;

Figure 6 is a view in perspective of the gripping plate swivelly carried by the movable jaws;

Figure 7 is a view in perspective of the gripping plate formed on the fixed jaw; and

Figure 8 is a sectional view taken on line 8—8 of Figure 3.

It is to be noted in the accompanying drawings, wherein the preferred embodiment of the instant invention is illustrated, that the present invention is directed and pertains to an improved vise construction for use in welding. Thus, the same comprises a portable device having clamping means for attaching the same to a bench or similar support and is provided with relatively adjustable vise jaw members. Thus, the vise structure is adapted to clamp upon any work piece or object and securely hold the same between the jaw members. The jaw members are moved relative to each other to clamp upon the work piece by merely exerting a slight pressure on the movable handle member, the other handle member being held securely but being adjustable and movable to various angular positions relative to the clamping means adjustably and detachably associated with a support, such as an anvil or work bench.

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With reference more particularly to the drawings, this invention, generally designated by the character reference 10, includes a lever 12 having a handle 14 at one end and a jaw 16 at the other end, the jaw 16 constituting a fixed jaw. The lever 12 is preferably channel shaped and may be pressed from sheet metal or the like material. The jaw 16 is formed at its free end with a gripping plate 18 having suitable transversely disposed teeth 20 formed in its gripping surface. A centrally disposed, longitudinally extending, V-shaped notch 22 is formed in the gripping surface to divide the teeth into opposed parallel sections, for holding a round work piece or stock.

The handle portion 14 of the lever is preferably of a circular cross sectional configuration, so that the same constitutes a circular tubular end section on the lever. The inner surface of the upper portion of the tubular handle or handgrip 14 is formed with a plurality of longitudinally extending aligned ratchet teeth 24.

A movable jaw 26 is pivotally mounted between the opposed parallel flanges or side walls of the channel-shaped lever 12 by means of a transverse pivot pin 28. A lever 30 is pivoted to the jaw as at 32 and terminates in a substantially flat handle section 34. A stub link 36 is pivotally associated with the lever 30 by means of a transverse pivot pin 38 and a spring 40 is connected between the movable jaw and the link through the medium of anchoring ends inserted in an aperture 42 in the link and an opening 44 in the jaw. The link and lever pivot pin 38 is well spaced from the pivot 32 of the movable jaw and forms therewith a toggle operated by the handle portion of the lever 30. To prevent inward jaw cooperating movement of the lever 30, after the toggle has passed its dead-center position, the stub link 36 is provided with a laterally extending stop lug 46 adapted to engage the lever 30. The rear end of the stub toggle link is slidably disposed in the tubular handle and has a dog or pawl 48 pivotally thereto at 50, teeth 52 on said pawl being engageable with the ratchet 24. Coacting abutments 90 and 92 on the link 36 and the pawl 48 connect said pawl to said link for engagement thereby with the ratchet 24 after an initial independent downward swinging movement of said link toward jaw closing position. The coil tension spring 40 is adapted to urge or bias the jaws apart, relative to their jaw-open positions. The rearwardly extending tongue portion 48 of the stub link 36 is adapted to react against the teeth

24 of the handle and functions to stop rearward movement of the tongue after the toggle system has been moved downwardly past its dead center position.

The movable jaw 26 is provided with a movable gripping plate 54, as seen in Figure 6. The gripping plate 54 is swivelly carried by the movable jaw and is provided with a pair of opposed complementary apertured ears 56. The ears 56 are disposed on opposite sides of the extending neck portion of the jaw and a pivot pin 58 is transversely disposed therethrough. A U-shaped or arcuate spring guard 60 is mounted in the upper surface of the gripping plate and is adapted to engage on the movable jaw, as seen in Figures 2 and 3. Thus, as seen in Figure 3, when the movable jaw is moved relative to the fixed jaw, the gripping plate 54 and the teeth 62 in its gripping surface are held in a fixed position.

Means is provided for attaching the jaw structure aforedescribed to an anvil, work bench or similar support 66. The means preferably includes a detachable support engaging frame which comprises a substantially U-shaped frame member 68 having a pair of substantially parallel arms 70 and 72 adapted to engage on the lower and upper surface of the support. A clamping screw 74 is adjustably carried by the arm 70 and is adapted to bear against and engage the lower portion of the support 66. A U-shaped support or bracket member 75 is secured to the arm 72 by means of a rivet 76 and its upper free ends are adapted to engage on the sides of the fixed jaw 16, adjacent the pivot 28. A bolt 78 is transversely disposed therethrough and secured thereto by means of a wing nut 80 so that the fixed jaw may be adjustably positioned and secured in various angular planes relative to the supporting frame 68.

Thus, it can be seen that a work piece may be positioned between the gripping plates, and the opposing handles 14 and 34 are then gripped and brought together. The handle 12 is held in a fixed position on the bracket 74 and the handle 30 is moved relative thereto, moving the jaw 26 about its pivot.

The toggle link 36 correspondingly is moved rearwardly into the tubular handle 14 and the pivotally associated tongue or extension 48 is tilted or moved upwardly until the teeth or notches 52 engage in the teeth 24 in the handles. The extension 46 prevents the handles from coming completely together and, at the same time, allows the jaws to come together enough so that the direct line of pressure is past the center and



the handles are locked together in a tight, secure position, with the power of the coil spring overcome. When the handles are opened so that the toggle link is brought past center, the spring is rendered operative and contracts to move the jaws open.

Thus, it can be seen that there has been provided a dependable and useful device, which will render more convenient and easier the task of welding metallic elements or members together. If desired, a plurality of the devices could be detachably secured to a support in alignment for supporting an elongated work piece.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claim.

Having described the invention, what is claimed as new is:

A tool comprising a tubular handle, a longitudinal ratchet in said handle, a fixed jaw on the handle, a pivoted jaw on the handle cooperable with said fixed jaw, an operating lever pivotally connected to said pivoted jaw, a supporting link for the lever having one end pivotally connected to said lever at an intermediate point, a pawl pivotally connected to the other end of the link and rockable and slidable in the handle, and normally spaced abutments on the pawl and the link, said abutments engaging one another after initial independent movement of said link in one direction, so that continued movement of said link in said one direction rocks said pawl into engagement with said ratchet.

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