ADJUSTABLY INTERLOCKABLE C-CLAMPS
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This invention relates to work holding C clamps and in particular to an improved assembly of a pair of C clamps for holding a piece of work in various positions relative to a work bench.

Hereofore, craftsmen such as cabinet makers and the like woodworkers have experienced difficulty in holding pieces of work at various angles and positions in relation to a work bench without the provision of at least several wood vises located at intervals about a work bench, each vise being disposed at a different angle in relation to the bench to permit approach to a piece of work from various positions as required. Not only did this require an excessive outlay in equipment but it frequently occurred that, with a plurality of vises arranged about the bench, interference would be encountered from those not in use.

Moreover, such an arrangement limited the craftsman to work in his shop where his bench was located as he was unable to remove and set up the required number of vises at a new location without incurring considerable expense both in time and labour.

The object, therefore, of the present invention is to provide a pair of C clamps which may be employed separately as wood clamps or may be interlocked in a novel manner so as to provide an inexpensive and quickly assembled vise-like implement which is attachable to any location on a work bench for holding a piece of work in spaced relation to the bench and at a selected angle thereto.

A further object is to provide a pair of separately formed C clamps which are adapted to be interlocked with one side of each C clamp disposed between the jaws of the other clamp in such a manner that the jaws of one clamp may be secured to a work bench with the jaws of the other directed outwardly from the first clamp to receive therebetween a piece of work at a selected angle relative to the work bench.

The above and other objects and features characteristic of this invention will be understood more readily from the following detailed description taken in connection with the accompanying drawings, in which—

Fig. 1 is a perspective view showing a pair of clamps interlocked in one position.

Fig. 2 is a fragmentary view in perspective showing the underside of the clamps of Fig. 1.

Fig. 3 is a perspective view showing the clamps interlocked in another position.

Fig. 4 is a sectional view taken along the lines 4—4 of Fig. 1.

Fig. 5 is a sectional view taken along lines 5—5 of Fig. 3.

Fig. 6 is a perspective view showing the clamps interlocked in still another position.

Fig. 7 is a sectional view taken along the lines 7—7 of Fig. 6.

Fig. 8 is a perspective view showing in detail one of the clamp members embodying my invention.

Fig. 9 is a perspective view showing in detail the other of the clamp members embodying my invention.

Referring more particularly to the drawings, 5 and 6 generally designate a pair of C clamps which are adapted to be interlocked in various positions so that, when one clamp is secured to a work bench or the like, the other clamp will serve as a vise for securing a piece of work at a predetermined angle and in spaced relation to the bench to facilitate working with said piece of work.

The clamp 5 comprises a pair of stationary jaw members 7 and 8 connected at one end by an integrally formed intermediate member 9 disposed at right angels to the jaws. The members 7, 8 and 9 are thickened adjacent their inner edges to provide flanges 10, 11 and 12 respectively, which extend laterally from either side of said members. The flange 10 of jaw 7 terminates at 14, a predetermined distance from the inner edge of member 9, and jaw 7 is recessed along its inner edge, as indicated at 15, from a point inwardly of the terminal 14 of flange 10 to a point within member 9 equal to the thickness of flange 12. That portion of jaw 7 between the inner terminal 14 of flange 10 and recess 15 provides a key 16. The outer edge of clamp 5 is provided at 17 at the portion of jaw 7 opposite recess 15, and has its rounded corner portion 18 between jaw 7 and member 9 inwardly offset to provide a shoulder 19 at the outer edge of member 9 adjacent said corner portion. The outer end 19 of jaw member 8 has a threaded opening through which a clamping screw 20 is threaded to travel longitudinally on its screw threads toward and away from the inner face of the opposing jaw member 7. The outer end of clamping screw 20 is preferably provided with a lever or handle 21 for rotating said screw and the inner end is provided with a work engaging head 22.

The clamp 6 comprises a pair of stationary jaw members 23 and 26 connected at one end thereof by an integrally formed intermediate member 27 disposed at right angles to the jaws 25 and 26. The members 25, 26 and 27 are thickened adjacent their inner edges to provide flanges 28, 29 and 30 respectively, which extend laterally from either side of said members. The flange 29 of member 27 terminates at 31, a predetermined distance from the inner edge of jaw member 25 and member 27 is recessed along its inner edge, as indicated at 32, from the terminal 31 of flange 27 to a point within member 25 equal to half the thickness of flange 28. That side of recess 32 remote from the terminal 31 of flange 27 is notched at 33. Notch 33 extends cornerwise into the clamp from said recess 32 along a line substantially bisecting the corner portion 34 and extending to an approximately disposed members 25 and 27. The surface of flange 28 remote from its inner face is provided with a stepped recess 35 adjacent its inner end, said recess 35 being provided on both sides of member 25. The outer edge of clamp 6 is also notched at 36, 37 and 38, notch 36 being in jaw 25 in line with recess 32, notch 37 being in corner portion 34 opposite notch 33 and notch 38 being in member 27 with its side wall adjacent corner portion 34 in the projected plane of the inner flanged face of jaw member 25. The outer end 39 of jaw member 26 has a threaded opening through which a clamping screw 40 is threaded to travel longitudinally on its screw threads toward and away from the inner face of the opposing jaw member 25. The outer end of clamping screw 40 is preferably provided with a lever or handle 41 for rotating said screw and the inner end is provided with a work engaging head 42.

The clamps 5 and 6 may be assembled in interlocking relation in eight positions.

In position No. 1, the jaw 25 of clamp 6 is disposed between jaws 7 and 8 of clamp 5 with the inner face of jaw 25 opposite the inner face of member 9 of clamp 5 and with the outer ends of jaws 25 and 26 extending laterally from one side of member 9. The clamps are interlocked with the jaw 25 of clamp 6 fitted in recess...
15 of the jaw 7 and the corner portion 17 adjacent member 9 of clamp 5 fitted in recess 32 of clamp 6. In this position it will be seen that key 13 is fitted in slot 36 of the outer edge of jaw 25 substantially butted against terminal 14 of flange 10. Also the inner end of flange 12 at one side is received in the stepped recess 35 of flange 28. With corner portion 17 of member 9 in recess 32 the terminal 31 of flange 36 overlaps the outer edge of corner portion 17 with one side edge of flange 30 bearing on shoulder 18. With this interlocking arrangement clamp 5 may be secured to one end of a work bench 45 so that a piece of work can be secured in a vertical position outwardly of that end of the work bench to facilitate working on said piece of work.

Position No. 2, constitutes an arrangement substantially identical to position No. 1 except that the jaws 25 and 26 of clamp 6 extend laterally from the opposite side of member 9. This arrangement permits of securing clamp 5 to the other end of a work bench when it is more convenient to approach the work from that side.

In position No. 3 the clamps are interfitted so that the web of member 27 is disposed in the recess 15 of the jaw 7 with key 13 in slot 36 and the inner face of recess 32 of member 27 butted against the inner side wall of recess 15 at the inner end of flange 12. In this position one side of the web of member 12 is flush with the inner face of the flange 26 of jaw 25. The clamp 5 may then be secured to a work bench so that a piece of work can be held away from the bench and at one side of clamp 5.

Position No. 4 provides for the interfitting of clamps 5 and 6 substantially as illustrated in connection with position No. 3, except that clamp 6 will be disposed with its jaws reversely arranged for holding a piece of work on the opposite side of clamp 5.

In position No. 5, jaw 7 of clamp 5 lies across the corner portion 34 of clamp 6 the corner portion 34 being fitted in recess 15 with the inner side of member 9 defining one wall of recess 15 fitted in slot 36 so that the terminal portion of flange 12 adjacent thereof underlies the inner margin of corner portion 34. The key 13 is also fitted in the slot 37 in the outer edge of said corner portion 34. With this arrangement, when clamp 5 is secured to a work bench, the jaws 25 and 26 of clamp 6 extend to one side of clamp 5 to permit holding of a piece of work in a vertical position and at an angle to the vertical plane of the bench.

In position No. 6, assembly of the clamps is substantially as described in connection with the assembly of position No. 5, except the jaws 25 and 26 of clamp 6 extend to the opposite side of clamp 5.

In position No. 7 jaw 25 of clamp 6 underlies jaw 7 of clamp 5 with the jaw 7 fitted in the recess 32 of member 27 and the terminal portion 31 of flange 36 fitted in slot 16 in the outer edge of jaw 7. The marginal portion of jaw 7 adjacent its recess 15 is fitted in the end of recess 32 with the inner terminal of flange 28 butted against one side thereof. In this position, when clamp 5 is secured to a work bench, the jaws 25 and 26 extend to one side of the clamp 5 to hold a piece of work above and in a horizontal plane to the bench.

Position No. 8 is substantially as described in connection with position No. 7 except that the jaws 25 and 26 extend to the opposite side of clamp 5.

What I claim is:

1. A clamp assembly comprising a pair of separately formed C clamps, each comprising a fixed jaw member, a spaced parallel screw carrying jaw member, an intermediate member integrally connecting a corresponding end of said fixed and screw carrying jaw members, and a screw threaded through the free end of said screw carrying jaw member, one of said clamps being provided along the inner edge of its fixed jaw member with a recess extending into the adjacent inner edge of its intermediate member and the other clamp being provided along the inner edge of its intermediate member with a recess extending into the adjacent outer edge of its fixed jaw member, said C clamps being interfitted with one member of each clamp disposed between the jaws of the other clamp and with a section of at least one clamp between its inner and outer edges lying within the recess of the remaining clamp.

2. A clamp assembly as set forth in claim 1, including a shoulder member on the outer edge of said first clamp intermediate member engageable with a marginal portion of said second clamp adjacent the recess therein.

3. A clamp assembly as set forth in claim 1, including a key member extending inwardly of the fixed jaw of said first clamp adjacent the recess therein, said clamps being interfitted with the defining edge portion of said first clamp recess adjacent the intermediate member received in said carnivorous slot, said key received in said second slot opposed to said carnivorous slot and that section of said second clamp between the said carnivorous and opposed slots received in the recess of said first clamp.

4. A clamp assembly as set forth in claim 1, including a slot extending carnivorous from the inner edge of said second clamp substantially at the juncture of its intermediate member and its fixed jaw member, a second slot in the outer edge of said second clamp and opposed to said carnivorous slot, and a key member extending inwardly of the fixed jaw of said first clamp adjacent the recess therein, said clamps being interfitted with the defining edge portion of said first clamp recess adjacent the intermediate member received in said carnivorous slot, said key received in said second slot opposed to said carnivorous slot and that section of said second clamp between the said carnivorous and opposed slots received in the recess of said first clamp.

5. A clamp assembly as set forth in claim 1, including a slot in the outer edge of said second clamp intermediate member opposed to the recess in the inner edge thereof and a key member extending inwardly of the fixed jaw of said first clamp adjacent the recess therein, said key being fitted in said slot with that section of said second clamp intermediate member between the recess and the opposed slot fitted in the recess of said first clamp.

6. A clamp assembly as set forth in claim 1, including a slot in the outer edge of said first clamp fixed jaw member opposite the recess therein, said clamp being interfitted with that section of said first clamp fixed jaw between the said recess and slot received in the recess of said second clamp and with a marginal edge of the recess of said second clamp intermediate member fitted in said slot.

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