Nov. 25, 1952 J. D. NASH 2,619,136

RECTANGULAR FRAMEWORK CLAMP

Filed July 10, 1950

Fig. 1

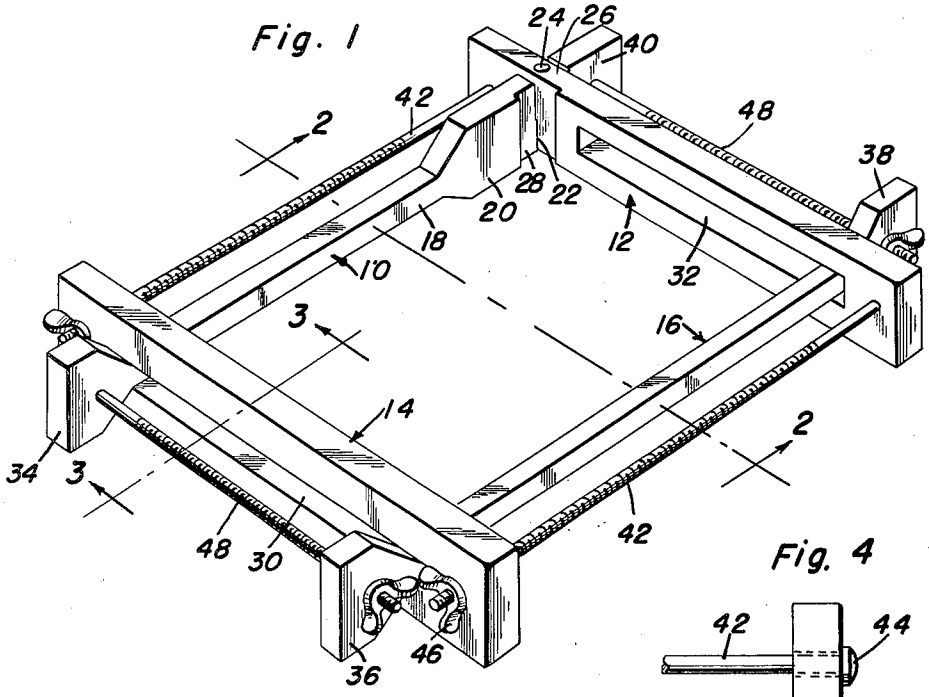


Fig. 4

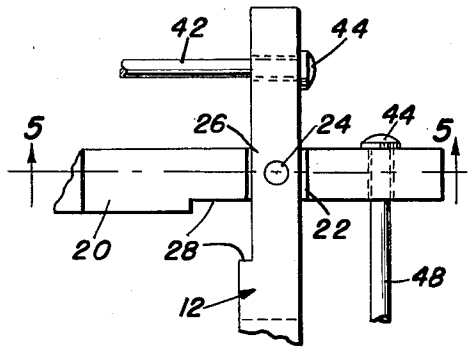


Fig. 5

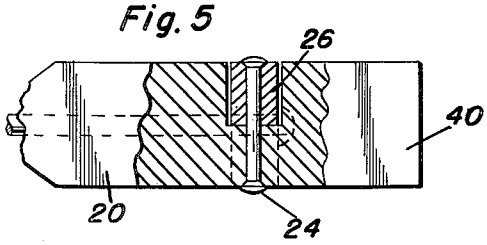


Fig. 2

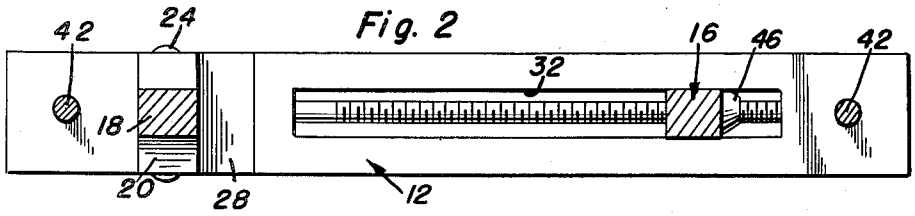
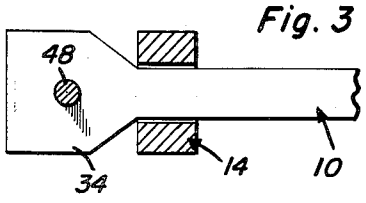


Fig. 3



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Patented Nov. 25, 1952

2,619,136

UNITED STATES PATENT OFFICE

2,619,136

RECTANGULAR FRAMEWORK CLAMP

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Application July 10, 1950, Serial No. 172,802

2 Claims. (Cl. 144—291)

1

This invention relates to tools generally, and more particularly to a rectangular clamp for the use of cabinet makers, woodworkers and the like.

A primary object of this invention is to provide a clamp which can be used for grasping an object on two opposing sides or all four sides of a rectangular object.

Another object of this invention is to provide a clamp of rectangluar form, two of the main bar members being hinged together, while two more bar members are slidably mounted on the first mentioned bar member for movement relative thereto and substantially normal thereto, and the hinged members have reduced inside corner portions adjacent the hinge connection, so that the corresponding corner of work clamped in the clamp will not be damaged.

Another object of this invention is to provide a rectangular clamp in which all the parts are connected together, thus preventing the making of the clamp inoperative by the loss of a component part.

A last object to be mentioned specifically is to provide a clamp of the character mentioned above, which is relatively inexpensive and practicable to manufacture, which is safe, simple and convenient to use under many different conditions, and which will give generally efficient and durable service.

With these objects definitely in view, this invention resides in certain features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claims, and illustrated in the accompanying drawing which forms a material part of this application, and in which:

Figure 1 is a view of the assembled clamp, in perspective;

Figure 2 is a vertical sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a fragmentary vertical sectional view taken on the line 3—3 in Figure 1;

Figure 4 is a fragmentary top plan view of one corner portion of the device; and

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 4.

Similar characters of reference designate similar or identical elements and portions throughout the specification and throughout the different views of the drawing.

Referring now to the drawing in detail, this invention includes four main bar members, which will be referred to as the first bar member 10, the second bar member 12, the third bar member 14 and the fourth bar member 16. The first bar

2

member has a reduced portion 18 intermediate its ends, and a portion 20 of the first bar member 10 has a half lap hinge connection, indicated at 22, with an end portion of the second bar member 12. A pivot pin 24 extends through the lapped portions, that is, through the portions 20 and 26. It should be carefully noted that the hinging action is very limited, however, and that the first and second bar members will at all times be retained substantially normal to each other.

The first and second bar members have relieved coacting end portions providing a corner clearance pocket 28 adjacent said hinge connection, so that the corresponding corner of the work clamped in the device will not be jammed and thus damaged. The second and third bar members 12 and 14 are provided with longitudinally extending slots 30 and 32, closed at each end, and the first and fourth bar members are provided with enlarged headed ends 34 and 36 while the reduced portions intermediate the ends of the first and fourth members are received in the slots 30 and 32, it being noted that a similar enlarged headed end 38 on the end of the fourth bar member remote from the terminal 36 is arranged in opposing relation to a terminal portion 40 of the first member 10. Elongated threaded clamping bolts 42, having heads 44 and wing nuts 46 extend through apertures provided in opposing pairs of ends of the second and third bar members 12 and 14. Similar clamping bolts 48 extend through apertures in the headed ends 34 and 36 and the headed ends 38 and 40, respectively.

The bar members may be said to comprise two pairs and those of the first pair are denoted by the numerals 12 and 14 while those of the second pair are denoted by the numerals 10 and 16. The slot 32 accommodates the reduced and headed end 38 while the slot 30 accommodates the respective heads 34 and 36 and their adjacent reduced ends. The enlarged headed ends of the bar members 10 and 18 of the second pair are such as to permit the assembling as well as the disassembling of the over-all clamping frame; that is, each headed end (34, 36 and 38) is enlarged in only one transverse direction or dimension, the other transverse dimension or cross-section being slightly less than the width of the coacting assembling and retaining slot.

The clamp operates in the following manner. For the purpose of this explanation it is assumed that a rectangular object (herein referred to as "the work") is to be clamped with pressure on each of its four sides, although, if desired, two or more plates, or in fact any similar objects,

could be clamped together while utilizing only two of the four sides of the clamp.

The work is introduced into the clamp so that all four sides or bars of the clamp surround the work. One corner of the work is then moved into the point where the bars or sides **10** and **12** are joined by the rivet-bolt at **24**. The corner of the work does not come into contact with the clamp, thus protecting it from damage. Side bar **16** is then moved in until it meets the work and the wing nuts are run up to fix the position of this side. The triple-threaded action of the wing nuts and bolts speed up this operation measurably. Side bar **14** is then moved to the desired position, and in like manner its position is also fixed. Then, with a carpenter's framing square, try-square or some similar tool, exact adjustments may be made by tightening or loosening one or more of the wing nuts.

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

1. A work clamp comprising a clamping frame characterized by four complemental bar members arranged in two distinguishable pairs, the bar members of the first pair being commensurate in length with each other and disposed in opposed spaced parallelism and each bar member having a guide and assembling slot therein terminating at its ends inwardly of the respective outer ends of said bar member, a second pair of spaced bar members also opposed to each other and disposed in substantial parallelism with each other but at right angles to the bar members of the first named pair and having reduced intermediate body portions and enlarged headed ends, one end portion of one of the bar members of the first named pair having a notch therein and the corresponding end of one of the bar members of the second named pair having a notch therein, the respective notched ends being overlapped and interlocked by way of the cooperating notches and providing a hinging connection between the respective notched bar members, the reduced portion of said one bar member at the end opposite to said notch extending through the slot in

the second one of said first named pair of bar members with the headed end projecting outwardly of the face of said latter bar member, the reduced end portions of the second bar member of said second named pair of bar members extending through the slots in the respective bar members of said first named pair of bar members with the cooperating headed ends projecting outwardly of the faces of latter bar members, said headed ends being enlarged only in one transverse dimension and the other transverse dimension being less than the widths of said slots to facilitate assembling and disassembling of said frame, and manually regulable means connecting the respective bar members of the first and second pairs with one another.

2. The structure defined in claim 1 wherein a hinge pin serves to permanently join the respective notched ends of the stated bar members and wherein the coacting interior surfaces of the corner provided by said hinged ends are relieved and thus reduced to define the work corner clearance pocket, and wherein the adjustable connecting means between the bar members of the respective pairs comprises, in each instance, a bolt connected at one end with a coacting end of a coacting bar member and having its opposite end provided with a thumb nut and operatively connected with a corresponding end of the complemental bar member.

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