

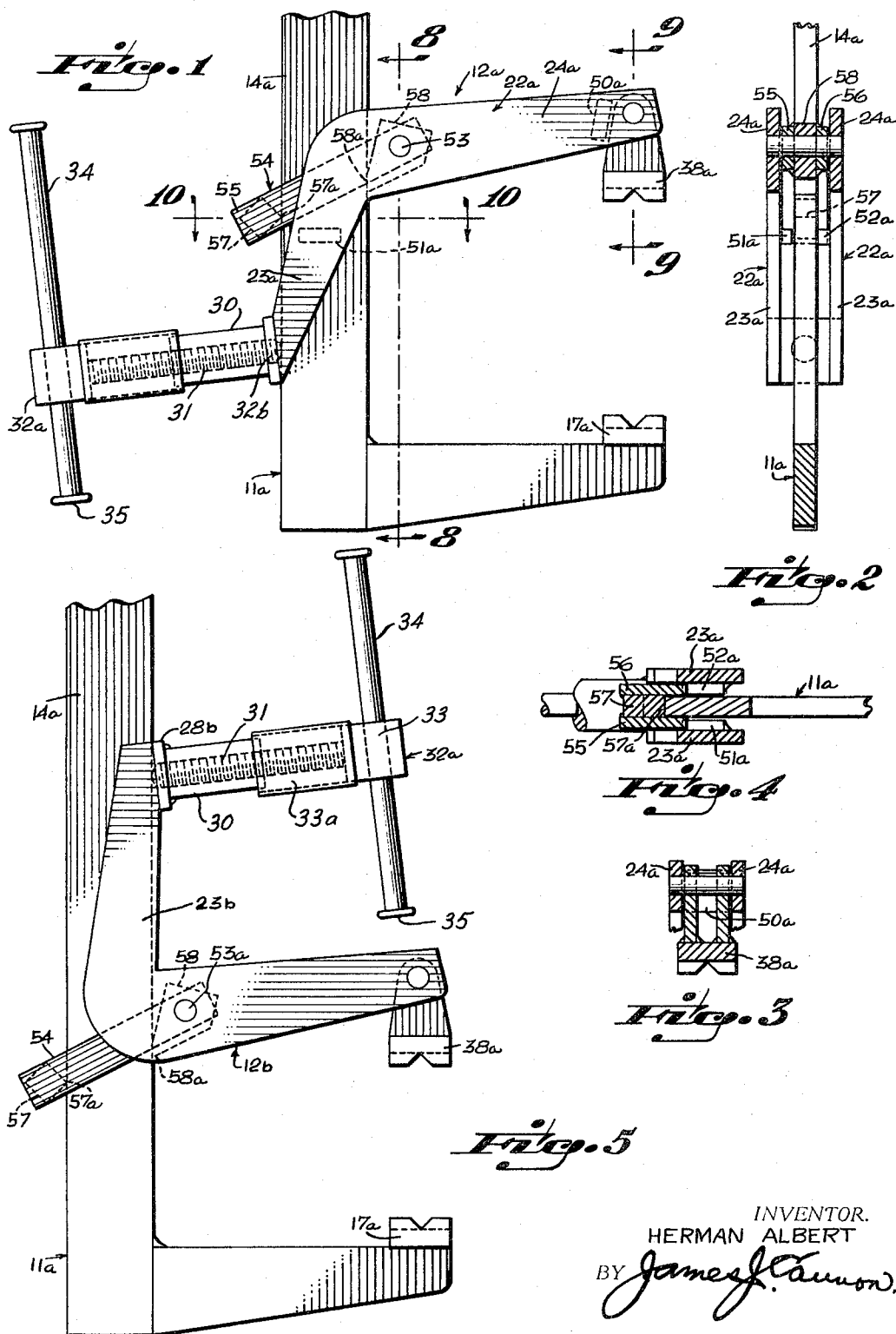
May 14, 1968

H. ALBERT

3,383,101

ADJUSTABLE CLAMP

Filed April 30, 1965



1

3,383,101

ADJUSTABLE CLAMP

Herman Albert, 4 Manor Road,
Paterson, N.J. 07514Continuation-in-part of application Ser. No. 437,151,
Mar. 4, 1965. This application Apr. 30, 1965, Ser.
No. 452,161

4 Claims. (Cl. 269-167)

ABSTRACT OF THE DISCLOSURE

An adjustable clamp having vertically arranged clamping jaws such that the spacing between said jaws is adjustable over a wide range of work piece sizes and which will afford substantially equal clamping pressure at any selected point of jaw spacing adjustment.

This is a continuation-in-part application of my prior application, Ser. No. 437,151, filed, Mar. 4, 1965, which was abandoned, Jan. 26, 1967.

My invention relates generally to clamping devices and is directed particularly to improvements in clamps of the type employed in holding workpieces in relatively fixed position for any purpose or operation in manufacture, such as for the welding or gluing together of parts.

The principal object of my invention is to provide a clamp of the above nature having vertically arranged clamping jaws the spacing between which is adjustable over a wide range for accommodating a correspondingly wide range of workpiece sizes, and which will afford substantially equal clamping pressure at any selected jaw spacing adjustment.

Another object of my invention is to provide an adjustable clamp of the character described that can readily and inexpensively be manufactured for the most part of plate steel, and which can be quickly and easily adjusted and locked in clamping position.

Still another object is to provide an adjustable clamp of the above nature which is simple and compact in structure while at the same time being powerful and durable in use.

Yet another object is to provide an adjustable clamp of the above nature which can conveniently be supported entirely from above, thereby leaving the floor space underneath unobstructed for other uses, and for free leg room for the operator.

Other objects, features and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

FIG. 1 illustrates, in side elevation, a preferred form of clamp embodying my invention;

FIG. 2 is a vertical cross-section taken along the line 8-8 of FIG. 1 in the direction of the arrows;

FIG. 3 is a vertical cross-sectional view taken along the line 9-9 of FIG. 1 in the direction of the arrows;

FIG. 4 is a transverse cross-sectional view taken along the line 10-10 of FIG. 1 in the direction of the arrows; and

FIG. 5 illustrates, in side elevation, still another form of clamp embodying the invention.

This adjustable clamp is portable and as such can easily be moved from place to place and never obstructs anything. It thus has many advantages over a fixed and immovable clamping means, and being portable it can be easily put aside when not in use and thus does not block or clog up a shop.

2

Referring now in detail to the drawings of FIGURES 1 through 5, which illustrate a preferred embodiment of the invention comprised of plates 22a of the movable jaw member 12a which are arranged in spaced parallel relation at each side of the slide bar portion 14a of the slide bar and lower jaw member 11a, being mutually fixed in such relation by a spacer 50a welded between the upwardly extending portions 24a of the said side plates, and spacers 51a and 52a welded at the insides of the downwardly-extending portions 23a, respectively, of the said side plates and in sliding contact with opposite side portions of said slide bar portion. Swingably arranged on a pivot pin 53 fitted between the upwardly-extending portions 24a of the side plates 22a near the inner edge of the slide bar portion 14a is a pinch sleeve member 54 having elongated side bars 55, 56 extending one each between said side plates and the opposite sides of the slide bar portion 14a. The sleeve member side bars 55, 56 are inclined downwardly from the front to the back of the slide bar portion 14a, and at their back ends are joined by a square spacer block 57 welded therebetween and so positioned that a sharp corner 57a thereof abuts the outer edge of the slide bar portion 14a. The front ends of the sleeve member side bars 55, 56 are joined by an angle plate 58 welded therebetween and having a sharp angular tip 58a in abutment with the inner edge of the slide bar portion 14a. The pivot pin 53 extends through a transverse bore extending through the inner ends of the side bars 55, 56 and the angle plate 58.

In use, a vertical force applied between the clamping jaws 17a, 38a causes the movable jaw member 12a to push up on the pivot pin 53, thereby tilting the pinch sleeve member 54 in the counter-clockwise direction, pinching the slide bar portion 14a of the lower jaw member between the angular points 57a, 58a of the spacer block 57 and the angle plate 58. The greater the pressure exerted between the jaws, the greater will be the pinching action, so that non-slip performance is assured. While in this embodiment of the invention notches are not shown along the outer edge of the slide bar portion 14a, they could be provided, especially if regular intervals of jaw separation are needed for a particular purpose. It will be understood that when the bolt 32a is released, the pinch sleeve member 54 can readily be swung clockwise about its pivot pin 53 to release it from its pinching action, whereupon the movable jaw assembly can be moved up or down in further use of the clamp.

FIG. 5 illustrates still another important embodiment of my clamp invention which differs from that of FIGS. 1 through 4 described above only in that the movable jaw member 12b is of arcuate shape having upwardly and inwardly extending side plate portions 23b (only one illustrated) extending along the inner edge portion of the vertical slide bar portion 14a. A metal block 28b welded between the ends of the side plate portions 23b supports the clamp tightening mechanism described above in connection with the embodiment of the invention illustrated in FIGS. 1 through 3. Block 28b is welded to side plates 22a and nut 30 having a bore therein as shown. Threadably received in nut 30 is a threaded shank 31 of a bolt 32a, the outer end of which is provided with a head portion 33 cross-drilled to slidably receive therein a cylindrical handle 34, said handle being beaded at each end as indicated at 35 to prevent its falling out. The inside of bolt head portion 33 has preferably secured thereto, as by welding, a tubular sleeve 33a, coaxial with the shank 31 and greater in inner diameter than the outer diameter of the nut 30, said sleeve serving as a spatter shield to prevent the depositing of foreign materials on said threaded shank interfering with the free turning thereof in said nut. The inner end of the bolt shank 32b is rounded, and normally passes between the side plates 22a to bear against the

3

outer edge of the vertical slide bar portion 11a. In use, the inner end of the bolt 32a bears against the inner edge of the vertical slide bar portion 14a to rotate the movable jaw member 12b clockwise about the pivot pin 53 for clamping action. As in the embodiment of the invention illustrated in FIGS. 1 through 4 described above, clamping action of the clamp device in use serves to secure the pinch sleeve member 54 in locked adjusted position, so that no additional mechanism is needed for securing said sleeve member in place.

While I have illustrated and described herein only two forms in which my invention may conveniently be embodied in practice, it is to be understood that these forms are given by way of example only and not in a limiting sense. My invention, in brief, comprises all the modifications and embodiments coming within the scope and spirit of the following claims.

What I claim as new and desire to obtain by Letters Patent is:

1. An adjustable clamp comprising, in combination, a vertical slide bar, a lower jaw member fixed with respect to said vertical slide bar at a position laterally spaced therefrom and having an upwardly facing jaw block, a movable jaw member and a movable sleeve means slidably disposed on said vertical slide bar, said movable jaw member being pivotally mounted on said movable sleeve means, said movable jaw member having laterally extending arm portions opposed to said lower jaw member, a downwardly facing jaw block secured to said laterally extending arm portions in spaced relation above said upwardly facing jaw block, screw means threaded in said movable jaw member and bearing against said vertical slide bar, and said sleeve means having gripping edges on opposite sides of the vertical slide bar for gripping the vertical slide bar when tilted, said sleeve means, said movable jaw member, said screw means, and said vertical slide bar cooperating to move said downwardly facing jaw block towards said upwardly facing jaw block to grip work pieces of various sizes.

2. An adjustable clamp as defined in claim 1 wherein said sleeve means comprises side portions inclined down-

4

wardly from front to back at each side of said vertical slide bar, the inner ends of said side bar portions having fixed therebetween a first spacer member having a pointed tip portion in abutment with the inner edge of said slide bar, the outer ends of said side bar portions having fixed therebetween a second spacer member having a pointed tip portion in abutment with the outer edge of said slide bar, and pivot means comprising a pivot pin extending through an opening at the inner end of said sleeve means.

3. An adjustable clamp as defined in claim 2 wherein said movable jaw member comprises a downwardly and outwardly extending portion integrally formed with said movable jaw member, and said screw means including a bolt threadedly received in said downwardly and outwardly extending portion of said movable jaw member and engageable with the outside of said slide bar.

4. An adjustable clamp as defined in claim 2 wherein said movable jaw member comprises an upwardly extending portion integrally formed with said movable jaw member, and said screw means including a bolt threadedly received in said upwardly extending portion of said movable jaw member and engageable with the inside of said slide bar.

References Cited

UNITED STATES PATENTS

100,642	3/1870	Lambert	269—171
140,852	7/1873	Sinclair	269—166
828,113	8/1906	Hillebrant	269—238
1,186,671	6/1916	McKenzie	269—212
2,322,707	6/1943	Wetzler	269—209
2,884,821	5/1959	Schumacher	269—212

FOREIGN PATENTS

554,111	7/1932	Germany.
863,441	3/1961	Great Britain.
39,227	1956	Poland.

LESTER M. SWINGLE, *Primary Examiner*.

40 ROBERT C. RIORDON, *Examiner*.