July 13, 1943. T. B. CHANDLER 2,324,361

ANGLE IRON CLAMP

Filed June 13, 1942

Fig. 2.

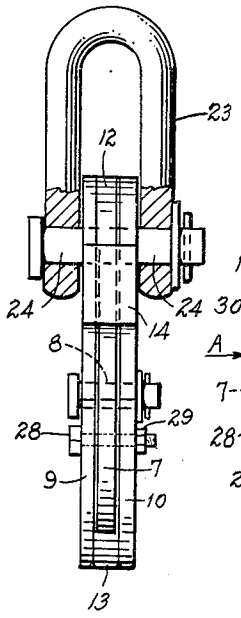


Fig. 1.

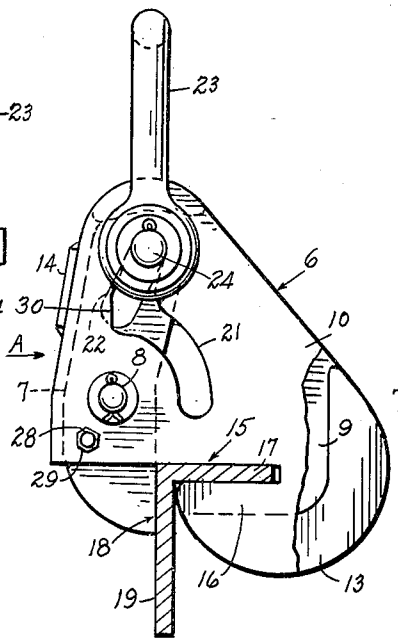


Fig. 3.

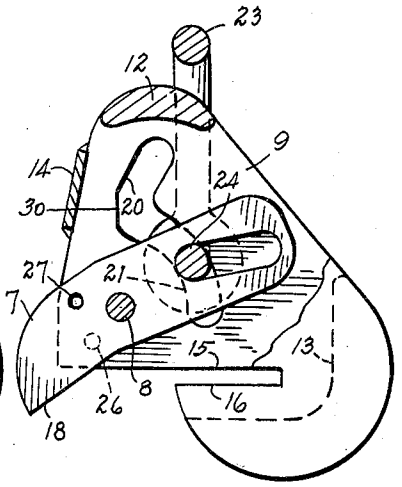


Fig. 4.

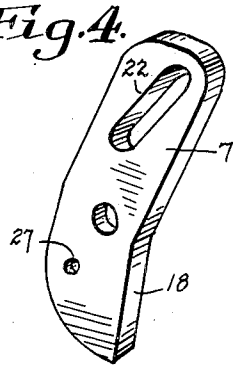
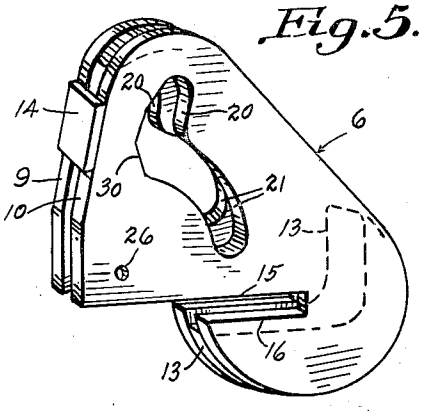


Fig. 5.



INVENTOR.

T. B. Chandler

BY Carlos G. Stratton

ATTORNEY.

Patented July 13, 1943 2,324,361

UNITED STATES PATENT OFFICE

2,324,361

ANGLE IRON CLAMP

Tommie B. Chandler, Compton, Calif.

Application June 13, 1942, Serial No. 446,968

3 Claims. (Cl. 294—104)

My invention relates to an angle iron clamp, and more particularly to a clamp for engaging and lifting elements having an angle thereon, as for example a pre-fabricated deck section in ship building, having angle irons thereon. The invention, of course, has many other uses.

An object of the invention is to provide means for gripping an angle shaped member to lift same without fear of accidentally dropping it.

Still another object is to provide locking means for such a clamp that will utilize the weight to be lifted as means for locking the clamp in position, and to provide means to prevent removal of the clamp without considerable displacement of a lifting member of the device, to avoid dropping the lifted element by slight accidental movement.

My invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

My invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is an elevational view of a device embodying the foregoing objects, shown partly broken away.

Fig. 2 is an end elevation, partly in section, looking in the direction of the arrow A.

Fig. 3 is an elevational view, partly in vertical section, showing a locking member in a different position than shown in Fig. 1.

Fig. 4 is a perspective view of the locking member.

Fig. 5 is a perspective view of a body member comprised in the invention.

Referring more in detail to the drawing, the reference numeral 6 generally designates the body member while the numeral 7 designates the locking member, which is pivoted on the body member at 8.

The body 6 comprises side members 9 and 10. Spacers 12 and 13 are disposed between the side members substantially at the top and bottom of the device. It is believed clear that the side members and spacer members may be a single, integral member. A plate 14 welded on the side of the body 6 affords a stiffening member. However, the plate 14 may be eliminated if desired.

The body 6 has jaws 15 and 16 between which may be inserted a flange 17 of an angle iron. The locking member 7 may then be swung to the position shown in Fig. 1, with its face 18 contacting another flange 19 of the angle iron.

The side members 9 and 10 have alined, irregular slots having upwardly inclined portions 20 and downwardly curved portions 21. The locking member 7 has a substantially straight slot 22 that is not parallel with the slot portion 20, in fact, the slot 22 is more inclined than the slot portion 20, as perhaps best shown in Fig. 1. Beyond the end of the slot 20, the beginning of the slot 21 is beveled, as shown at 30.

A bail 23 pivots on a pin 24 that extends through the slots in the body and in the locking member. For bolting the locking member 7 in place, apertures 26 and 27 are provided in the side members and in the locking member 7.

A bolt 28 passed through the apertures 26 and 27 fastens the locking member 7 in a locked position, as best shown in Fig. 1. A nut 29 on the bolt maintains the bolt in position. To be able to swing the member 7, the bolt 28 is, of course, removed.

It is to be understood that the shape of the faces of the jaws 15 and 16, which are opposed to each other, may be changed for different types and shapes of work, as desired.

In the operation of my device, the locking member 7 is released by allowing the pin 24 to descend in the slots. After the pin 24 is moved out of the slot 20, it strikes the bevel 30, thus initiating movement of the pin 24 down the slot 21, to the position shown in Fig. 3.

The jaws 15 and 16 may then be slid over a flange 17 of an angle-shaped member and as the pin is raised in the slots, the locking member 7 is moved to the closed position shown in Fig. 1. Movement of the pin 24 lengthwise of the slots 21 effects the maximum closing or opening movement of the locking member 7. Movement of the pin 24 lengthwise of the slots 20 and 22 toward the upper ends thereof provides progressive clamping action by the locking member 7, due to the greater incline of the slot 22 than the slots 20.

To release the device, there must be sufficient movement of the pin 24 to free it from the slots 20. Since the slots 20 are of some length, slight accidental movement of the bail 23 or of the pin 24 will not release the locking member 7 and drop the engaged angle iron. Before the angle iron

can be released, the pin 24 must be moved entirely out of the slots 20. For angle irons having a flange as relatively wide as the flange 17, the locking member 7 must be moved substantially above the lower face of the upper jaw 15, before such a flange can be removed from between the jaws 15 and 16. The arcuate slots 21 permit swinging movement of the locking member 7 above the lower face of the jaw 15, as such jaw is shown in the drawing.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A lifting device comprising a body having in its lower portion fixed upper and lower jaws defining between a laterally opening throat approximately normal to the effective perpendicular axis of the body for receiving a portion of flanged work, a locking member pivoted intermediate its ends on said body to swing laterally with respect thereto, the lower portion of which member is shiftable in its closed position to a perpendicular position spaced from, and relative to the work receiving throat, said body having above the jaws a generally upright slot including an upper approximately straight portion and a lower generally angular portion, said locking member having a generally straight, lengthwise slot in its upper portion approximately coextensive in length with the upper straight portion of the body slot and spaced from its pivot to swing across the angular lower portion of the body slot, and an upper bail member for the body having a pin extending through the body and locking member slots which, when the device is unloaded, is movable in the lower angular portion of the body slot to effect quick opening swing of the locking member.

2. A lifting device comprising a body having in its lower portion fixed upper and lower jaws defining between a laterally opening throat approximately normal to the effective perpendicular axis of the body for receiving a portion of flanged work, a locking member pivoted intermediate its ends on said body to swing laterally with respect thereto, the lower portion of which member is shiftable in its closed position to a perpendicular position spaced from, and relative to, the work receiving throat, said body having above the jaws a generally upright slot including an upper approximately straight portion and a lower generally angular portion, said locking member having a generally straight lengthwise slot in its upper portion approximately coextensive in length with the upper straight portion of the body slot and spaced from its pivot to swing across the angular lower portion of the body slot, and an upper bail member for the body having a pin extending through the body and locking member slots which, when the device is unloaded, is movable in the lower angular portion of the body slot to effect quick opening swing of the locking member, the slot of the locking member being inclined out of line with the upper portion of the body slot to effect a slow movement of the lower portion of the locking member toward the jaws of the body by the movement of the bail pin when the device is under load.

3. A lifting device comprising a body having in its lower portion fixed upper and lower jaws at one side of its perpendicular axis defining between them as inwardly opening throat normal to said perpendicular axis for receiving a portion of flanged work, a locking member pivoted intermediate its ends on said body at the opposite side of the perpendicular axis of the latter, and swingable on its said pivot to project its lower portion, in the closed position, normal to the said body jaws and spaced from the throat opening, the upper portions of said locking member and said body having non-aligned generally upright slots and the slot of the body having a lower angular portion arranged to be crossed by the slot of the locking member during swinging movement of the latter between open and closed positions, and a bail at the upper portion of the body having a pin extending through the slots of the body and locking member.

TOMMIE B. CHANDLER.