July 13, 1943. T. B. CHANDLER 2,324,362

PLATE CLAMP

Filed June 13, 1942

Fig. 1.

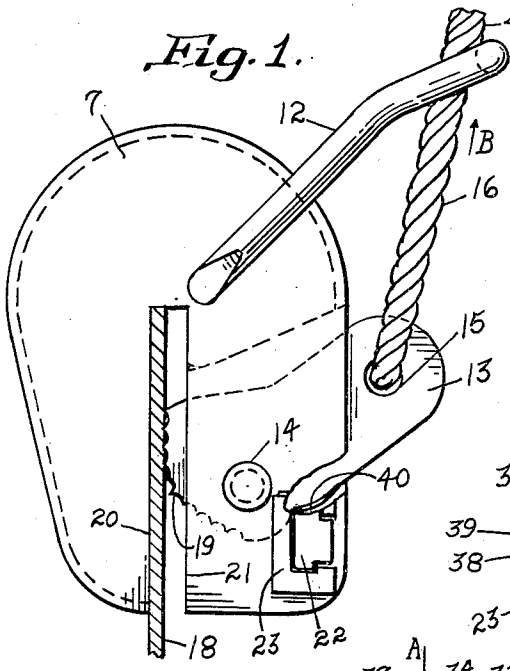


Fig. 2.

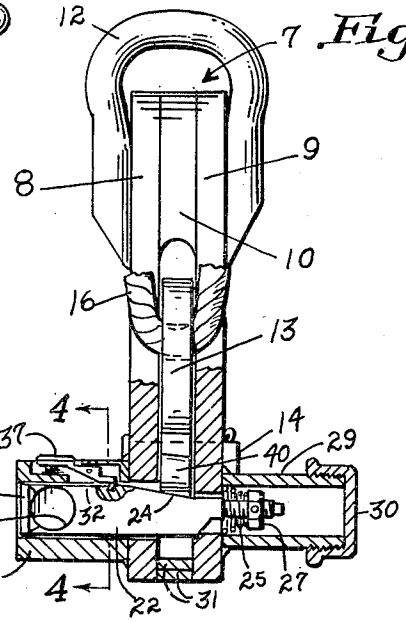
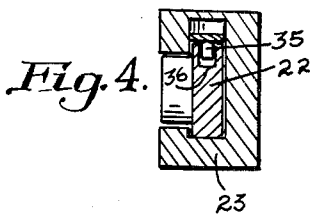


Fig. 4.



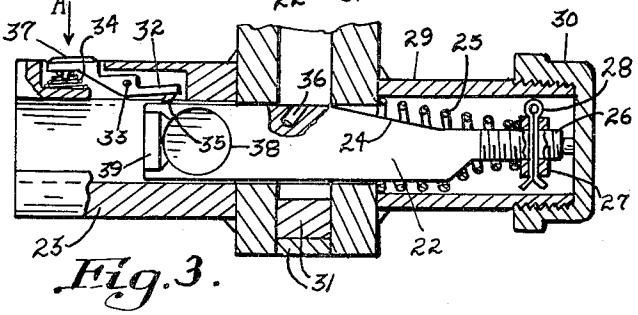
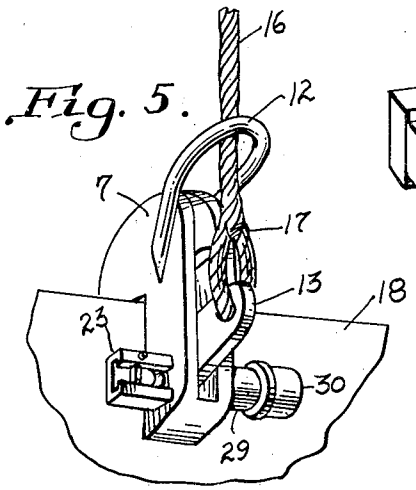


Fig. 3.

Fig. 5.



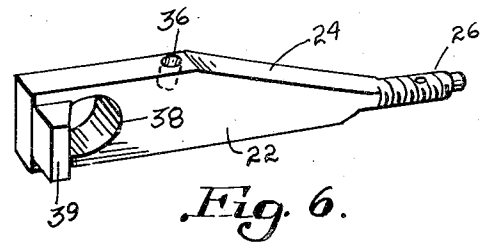


Fig. 6.

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Patented July 13, 1943 2,324,362

UNITED STATES PATENT OFFICE

2,324,362

PLATE CLAMP

Tommie B. Chandler, Compton, Calif.

Application June 13, 1942, Serial No. 446,969

6 Claims. (Cl. 294—104)

My invention relates to a plate clamp and more particularly to a cam type clamp for lifting heavy plates in ship building and in other industries.

It is an object of my invention to provide a lifting device that will maintain a clamping means against the plate, whereby the plate will not be accidentally dropped, even though the lifting means is temporarily released.

Heretofore, lifting means for steel plates have been released when the lifting cable is accidentally released, as when the plate accidentally strikes an object during the lifting operation. In such instances, the mechanism heretofore employed has released the plate, thereby dropping it and causing injury. It is an object of my invention to provide means to prevent the accidental dropping of the plate, even under the circumstances described.

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.

The 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, partly broken away, showing an embodiment of an invention carrying out the foregoing objects.

Fig. 2 is a side elevation of said embodiment, showing the lower portion in vertical section.

Fig. 3 is an enlarged section of the lower portion of Fig. 2, showing locking means in a different position than shown in Fig. 2.

Fig. 4 is an enlarged section taken on line 4—4 of Fig. 2.

Fig. 5 is a perspective view of said embodiment in an operative position.

Fig. 6 is a perspective view of the sliding lock member hereinafter more fully described.

Referring more in detail to the drawing, the reference numeral 7 generally designates a U-shaped body for said lifting device. As shown in Fig. 2, the body 7 may be made up of side plates 8 and 9 with a spacer plate 10 therebetween. However, it is believed clear without further illustration that the side plates and spacer member 10 may be a single, integral member. The body member 7 has a loop 12 extending at an angle therefrom. A cam 13 is disposed between the side members 8 and 9 of the body and pivoted thereon by means of the axle 14. The outwardly extending portion of the cam 13 has an eye 15 through which cable 16 is passed for operating the cam 13. The cable 16 extends through the loop 12. The end of the cable that passes through the eye 15 is joined to itself as shown at 17.

The loop 12 is so arranged laterally of the body 7 that when the cable 16 is drawn through same in a direction of the arrow B, the cable moves the cam to a locking position. After the cable extends through the loop 12, it may be practically drawn in any direction and still lock the cam.

A flat plate 18 is shown being gripped by the teeth 19 of the cam 13, between jaws 20 and 21 of the body 7.

To maintain the cam in a locked position, against accidental slippage, a wedge lock 22 is slidably supported in a channeled member 23. The lock 22 has a wedging face 24 for engaging the cam 13 in any locking position of the cam, within the limits of the wedging face.

A spring 25 coiled about a threaded end 26 of the wedge-shaped lock 22 abuts against a nut 27 on the threaded end 26 and against the side member 9, thus tending to move the wedge 22 toward a locking position with respect to the cam 13. A cotter pin 28 passing through the nut 27 and through the threaded end 26, holds the nut in adjusted positions. A tubing 29 provides a housing for the spring 25 and threaded end 26, and a cap 30 on the tubing affords a stop for outward movement of the threaded end 26. Filler members 31 brace the lower portions of the side members 8 and 9 in spaced relation.

A latch 32, having a pivot 33 and urged by a spring 34, retains the wedge lock 22 in a retracted position when its prong 35 engages a recess 36 in the wedge lock 22. The prong 35 is shown in such engaging position in Fig. 2. A button 37 on the latch 32 is depressed in the direction of the arrow A in Fig. 3 to release the wedge lock. Upon release, the wedge lock moves to the position shown in Fig. 3, unless the wedge face 24 sooner engages the cam 13. A thumb opening 38 in the wedge lock 22 provides means for an operator withdrawing the wedge lock 22 from the position shown in Fig. 3 to the position shown in Fig. 2. The end of the wedge lock

is built up, as at **39**, to facilitate this withdrawing operation. The cam **13** has a beveled portion **40** to conform with the wedge face **24** not only to increase the amount of friction between the cam and the wedge, but also to increase the size of the area of wear whereby to lengthen the life of the device.

In the operation of the device, the jaws **20** and **21** are slipped over an edge of a flat plate or other shape of plate **18**. The teeth **19** are then moved to a biting relation with respect to the plate **18**.

The button **37** is then depressed in the direction of the arrow A, releasing the wedge lock **22**, which moves, under the influence of the spring **25**, into contact with the cam **13**, thereby holding the cam **13** against accidental release of the plate **18**.

When it is desired to release the plate **18**, the wedge lock **22** is drawn back until the prong **35** is spring urged into the recess **36**, thus holding the wedge lock in a retracted position. The cam **13** may then be moved to a plate-releasing position.

The cable **16** is utilized in lifting the present device with its therein gripped plate, or in lifting the device alone, when it is removed from the plate.

It will be noted that as long as the cable **16** is drawn in the direction of the arrow B, the end **41** may be pulled around or through the loop **12** in almost any direction, without drawing the cam **13** in a releasing position.

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 jaws to be placed at either side of an element to be lifted, a cam pivoted on the device and movable into the space between the jaws to engage work therebetween, and wedging means arranged to maintain contact with the cam and hold the cam in any locked position, within the limits of effective work engaging range of movement of the cam.

2. A lifting device comprising jaws to be placed at either side of an element to be lifted, a cam pivoted on the device and movable into the space between the jaws to engage an element therebetween, means arranged to contact the cam and maintain the cam in any locked position, within the limits of such means, and spring means urging said means into contact with the cam in any of said positions.

3. A lifting device comprising jaws to be placed at either side of an element to be lifted, a cam pivoted on the device and movable into the space between the jaws to engage an element therebetween, wedging means arranged to contact the cam and maintain the cam in any locked position, within the limits of such means, spring means urging said wedging means into contact with the cam in any of said positions, and mechanism to releasably hold the first-mentioned means against the action of the spring means.

4. A lifting device comprising jaws to be placed at either side of an element to be lifted, a cam pivoted on the device and movable into the space between the jaws to engage an element therebetween, sliding wedge-shaped means arranged to contact the cam along the wedge-shaped face of said means maintaining the cam in any locked position, within the limits of such wedge-shaped face, and spring means urging said means into contact with the cam in any of said positions.

5. A lifting device comprising jaws to be placed at either side of an element to be lifted, a cam pivoted on the device and movable into the space between the jaws to engage an element therebetween, the cam having a beveled face at the rear thereof with respect to the direction of movement of the cam toward an element-engaging position, sliding wedge-shaped means arranged to contact the cam along the beveled face thereof, in any position of the cam within the limits of such means, and spring means urging said means into contact with the cam in any of said positions.

6. A lifting device comprising a work-engaging cam, a lifting cable connected to operate the cam, a loop on the device at the side of the cam in the direction of the cam-locking movement of the cable, the cable being passed through the loop, to effect locking movement of the cam even though the cable is drawn in almost the opposite direction and wedging means arranged to maintain contact with the cam and hold the cam in any locked position, within the limits of effective work engaging range of movement of the cam.

TOMMIE B. CHANDLER.