

Aug. 11, 1925.

L. A. BALDWIN

1,549,567

CLAMP

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Fig. 1.

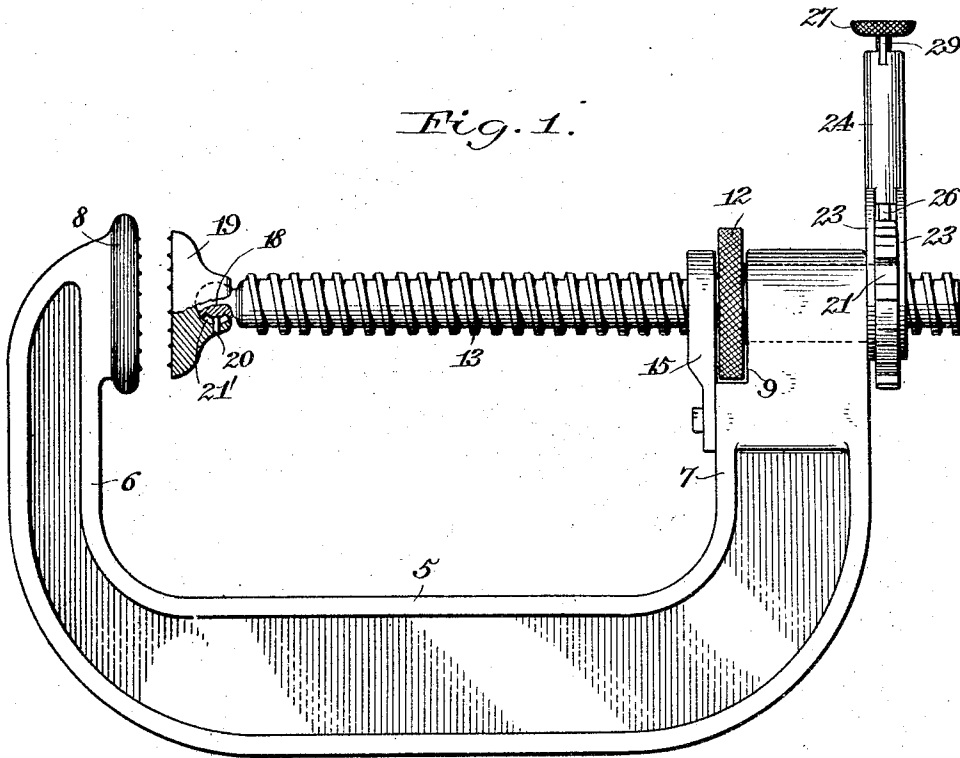


Fig. 2.

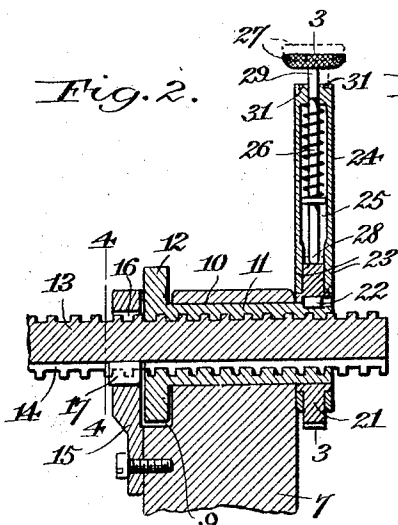


Fig. 3.

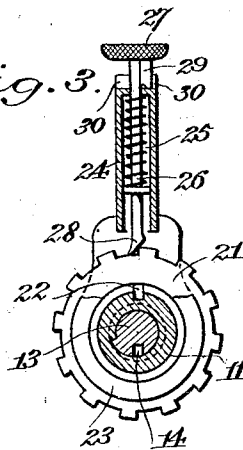
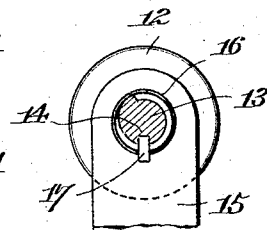


Fig. 4.



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UNITED STATES PATENT OFFICE.

LLOYD ALFRED BALDWIN, OF BOONTON, NEW JERSEY.

CLAMP.

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To all whom it may concern:

Be it known that I, LLOYD A. BALDWIN, a citizen of the United States, and a resident of Boonton, in the county of Morris and State of New Jersey, have invented a new and Improved Clamp, of which the following is a full, clear, and exact description.

This invention relates to improvements in tools, and has particular reference to a clamp.

An object of the invention is to provide an improved clamp of simple and practical construction wherein a movable jaw is adjusted relative to the fixed jaw, by means of a screw member, in such manner that when the movable jaw engages the work held between said jaws no twisting or torsional action will be applied to the work by said movable jaw.

Another object is to provide a simple and effective means for securely clamping the work between the jaws of the device and for maintaining the jaws in their clamping position.

The above and other objects will appear more clearly from the following detailed description, when taken in connection with the accompanying drawing, which illustrates a preferred embodiment of the inventive idea.

In the drawing—

Figure 1 is a side elevation of the clamp, partly broken away and shown in section;

Figure 2 is a fragmentary longitudinal sectional view showing the mechanism for operating the screw member of the clamp;

Figure 3 is a section on the line 3—3 of Figure 2; and

Figure 4 is a sectional view on the line 4—4 of Figure 2.

Referring more particularly to the accompanying drawing the numeral 5 indicates the body portion of the clamp which terminates in laterally extending ends 6 and 7, the former being provided with a fixed jaw 8. The end 7 is reduced, as indicated at 9, and formed therein with a transverse opening 10. Mounted for rotation in the opening 10 is a worm nut or bushing 11, the ends of which project beyond the ends of said opening and one end of the bushing having an enlarged head 12, preferably milled, and disposed in the recess 9. The bushing 11 is internally screw threaded to receive the threads of a screw member 13 having a longitudinally extending slot or

keyway 14 therein. The bushing 11 is held against longitudinal movement in the opening 10 by means of a retaining plate 15 secured to the end 7 and provided with an opening 16 therein through which the screw member 13 extends. Disposed in the opening 16 is a key 17 which engages in the slot 14 of the screw member to prevent rotation of the latter when the bushing 11 is rotated by means of the head 12. This rotation of the bushing 11 will, however, impart a longitudinal movement to the screw member 13 to adjust the same toward and away from the fixed jaw 8 of the device.

The end of the screw member 13 adjacent the fixed jaw 8 is provided with a ball 18 upon which is mounted for rocking movement the movable jaw 19. This movable jaw carries a pin 20 engageable in an arcuate slot 21 formed in the ball 18 and through this connection with the screw member the jaw 19 is enabled to move about the ball as a pivot in two planes at right angles to each other. This rocking movement is provided for the purpose of permitting the clamping face of the jaw to securely engage the surface of a piece of work which might be diagonally disposed relative to the plane of the clamping face of the jaw 8. The clamping faces of the jaws 8 and 19 are milled or corrugated to better enable the jaws to grip the work.

An auxiliary mechanism is provided for adjusting the screw member 13 longitudinally when the head 12 is inaccessible, or when it is desired to force the jaw 19 into very tight engagement with a piece of work after said jaw has been moved into contact with said work by rotation of the head 12. This mechanism is carried by the end of the bushing 11 opposite the head 12 and consists of a ratchet 21 keyed to the bushing at 22 and having arranged on opposite sides thereof the opposed plates 23 of an operating handle 24. This operating handle 24 may be rotated in either direction to impart rotation to the bushing 11 for the purpose of adjusting the screw member 13, or the handle 24 may be disconnected from its operative relation to the ratchet 21 so that when the bushing 11 is being operated by rotating the head 12 the handle 24 will remain relatively stationary. To this end the handle 24 is formed with a recess 25 therein in which is slidably mounted the spring-pressed pawl 26 having a head 27 at its outer end and

having its inner end 28 beveled, as indicated, and adapted for engagement with the teeth of the ratchet 21. Referring to Figure 3 with the pawl 26 in the position shown, it will be obvious that the movement of the handle 24 in a counterclockwise direction will cause a rotation of the ratchet 21 and, consequently, of the bushing 11, and a movement of said handle in a reverse direction will permit the pawl to ride freely over the teeth of said ratchet so that no movement will be imparted to the latter. The pawl 26 is capable of being adjusted to a reverse position in order to permit of the ratchet being rotated in a clockwise direction, if desired, and to this end the pawl 26 carries a latching pin 29 which, when the pawl is in operative relation to the ratchet, engages in a transverse groove 30 formed in the outer extremity of the handle 24. By withdrawing the pawl 26 outwardly and then rotating the same to a position diametrically opposed to that shown in Figure 3 and then permitting said pawl to restore to its normal position, it will be obvious that the beveled end 28 of said pawl may be reversed to accomplish the reverse rotation of the ratchet. In order to permit of the bushing 11 being rotated without movement of the handle 24, that is, when said bushing is being rotated by actuating the head 12, the pawl 26 may be withdrawn and given a quarter turn in either direction to engage the latching pin 29 with either of the recesses 31 (Figure 2) formed in the outer extremity of the handle 24. In this position the extremity 28 will be retained out of engagement with the ratchet and, consequently, a rotation of the bushing 12 will not affect the handle 24.

What is claimed is:

1. A clamp including a body having a fixed jaw at one end, a screw member mounted in the opposite end of said body, a movable jaw carried by said screw member cooperating with said fixed jaw, means preventing rotation of said screw member, a bushing rotatably mounted in said opposite end of the body and operable to move

said screw member toward and away from said fixed jaw, a ratchet carried by said bushing, a sliding and rotatable pawl for engaging the ratchet, means for holding the pawl in the position to which it is turned, and means for locking the pawl out of engagement with the ratchet.

2. A clamp including a body having a fixed jaw at one end, a screw member mounted in the opposite end of said body, a movable jaw carried by said screw member cooperating with said fixed jaw, means preventing rotation of said screw member, a bushing rotatably mounted in said opposite end of the body and operable to move said screw member toward and away from said fixed jaw, a ratchet carried by said bushing and rotatable therewith, an operating handle for said ratchet, a reversible pawl slidably and rotatably mounted in said handle and engageable with said ratchet to impart rotation thereto in either direction when said handle is rotated and means for locking the pawl out of engagement with the ratchet.

3. A clamp including a body having a fixed jaw at one end, a screw member mounted in the opposite end of said body, a movable jaw carried by said screw member cooperating with said fixed jaw, means preventing rotation of said screw member, a bushing rotatably mounted in said opposite end of the body and provided with a head to move said screw member toward and away from said fixed jaw, a ratchet carried by said bushing and rotatable therewith, an operating handle for said ratchet, a reversible pawl slidably and rotatably mounted in said handle and engageable with said ratchet to impart rotation thereto in either direction when said handle is rotated, and means carried by said pawl and engageable with said handle when the pawl is moved longitudinally and rotated to prevent engagement of said pawl with said ratchet whereby said bushing and ratchet may be rotated independently of said handle.

LLOYD ALFRED BALDWIN.