Oct. 10, 1933. H. V. STEUERNAGEL 1,929,539

CLAMP

Filed Oct. 19, 1931

Fig. 1.

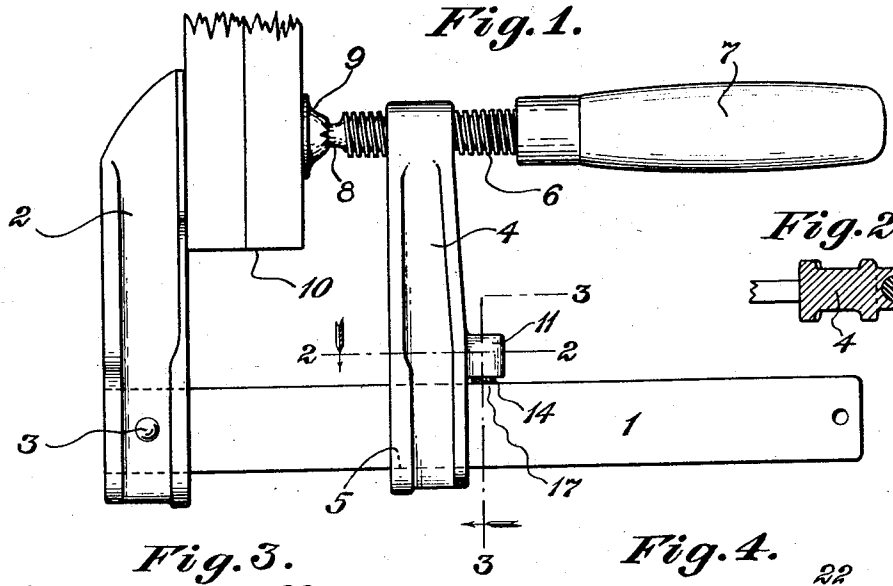


Fig. 2.

Fig. 3.

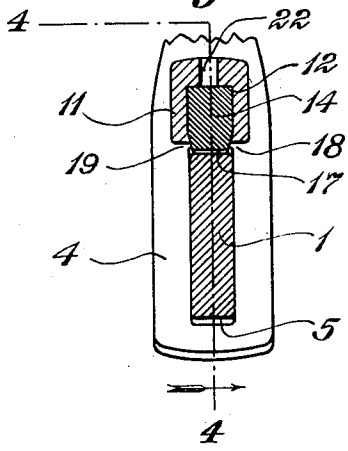


Fig. 4.

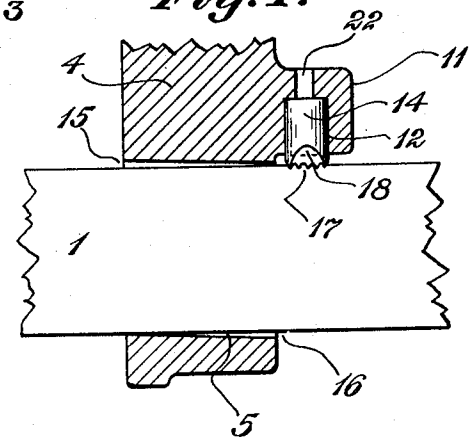


Fig. 5.

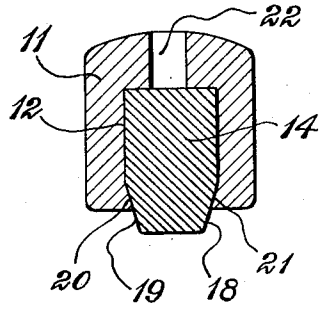


Fig. 6.

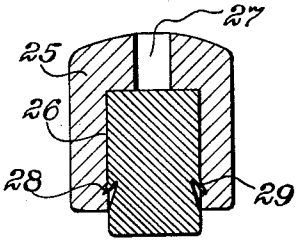
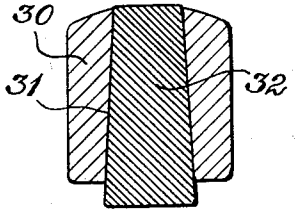


Fig. 7.



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Patented Oct. 10, 1933 1,929,539

UNITED STATES PATENT OFFICE

1,929,539

CLAMP

Hugo V. Steuernagel, East Hartford, Conn.

Application October 19, 1931. Serial No. 569,697

1 Claim. (Cl. 144—303)

This invention relates to clamps of the type comprising a bar, a clamp head fixed upon the bar, a support adapted at one end to engage the bar for movement longitudinally thereof, means, as a screw, associated with the outer end of the support and a jaw movable by said means to or from the clamp head. The operation of applying such a clamp to grip a piece of work involves initial movement of the support along the bar to secure approximate required adjustment of the work engaging parts of the clamp and subsequent manipulation of the screw or equivalent means to exert the final required degree of pressure. Heretofore there have been employed various devices designed to permit free movement of the support along its bar when there is no pressure upon the jaw, but which, when pressure is there applied tend to grip the bar and anchor the support thereto. These devices have been more or less complicated and expensive to manufacture and the provision of a more expedient form and arrangement of parts effective to accomplish the same purpose is the object of the present invention.

In the drawing,—

Figure 1 is a side view of a clamp constructed in accordance with my invention.

Figure 2 is a sectional view on line 2—2 of Fig. 1.

Figure 3 is a sectional view on line 3—3 of Fig. 1 with the scale of the drawing enlarged.

Figure 4 is a sectional view on line 4—4 of Fig. 3.

Figure 5 is an enlarged sectional view similar to Fig. 3 showing an anchor pin and its socket and indicating in an exaggerated degree a method of securing the pin in its socket.

Figures 6 and 7 are views similar to Fig. 5 showing respectively other ways of securing an anchor pin in its socket.

Referring to the drawing, parts of a clamp of a type in which my invention may be advantageously embodied may be briefly described as follows. To one end of a preferably flat bar 1 a clamp head 2 is secured as by a pin or rivet 3. A jaw support 4 is recessed adjacent one end, as at 5, to slidably receive bar 1 and in the outer end of this support is threaded a screw 6 having at one end the manipulating handle 7 and formed at the other end to engage the socket 8 of a jaw 9 the latter being thus opposed to clamp head 2 so that it will squarely engage work as 10 introduced between the clamping members. As already stated approximate adjustment of the jaw relative to the clamp head to effect engagement of the work therebetween is obtained by sliding jaw support 4 along bar 1 after which clamping pressure is applied by the jaw through manipulation of screw 6. For the purpose of holding the support upon the bar in opposition to pressure applied by the screw, means are provided which will now be described.

The support 4 has extended therefrom in the flatwise plane of the recess 5 and adjacent to one side of the recess, a lug 11. This lug has formed therein a socket 12 to receive a pin 14 in a manner to present the pin in endwise relation to bar 1 when support 4 is mounted thereon. The recess 5 is formed of sufficient width to provide a certain amount of clearance at sides thereof adjacent the edges of the bar, as at 15 and 16, and this clearance permits the support to be tilted slightly upon the bar in the plane of its flatwise extent. Tilting the support in one direction carries the anchor pin 14 away from the bar; tilting it in the opposite direction moves the anchor pin into engagement with the bar. Obviously with the pin free of the bar the support may be readily moved thereon to any desired location. Then at any point in its range of movement upon the bar the support may be secured by tilting it to carry the anchor pin into engagement with the bar. Subsequent pressure applied by operation of the clamp causes the anchor pin to grip the bar thereby holding the support securely. Any tendency of the pin to slip along the bar may be guarded against by roughening the bar engaging end of the pin as by knurling, or as shown, it may be provided with serrations as at 17.

The anchor pin 14 shown in Figs. 1 to 5 is cylindrical in form and likewise the socket 12 for receiving it is cylindrical. Thus the pin may be readily formed from bar stock and the socket readily produced as by drilling in the lug 11. Simple means are provided for holding pin 14 securely seated in its socket and against such rotation as would result in displacement of spurs or serrations at the bar engaging end of the pin from an angle best suited to engage the bar for resistance of thrust imposed thereupon. For this purpose the pin is beveled on opposite sides as at 18 and 19, adjacent its outer end so that when seated in its socket the walls of the latter adjacent the beveled faces of the pin may be peened over as at 20 and 21, see Fig. 5. While this method of holding the pin in its socket is entirely adequate it will readily permit the pin to be driven out from the rear should occasion require its removal for replacement. To provide access to the pin for thus removing it an opening 22 is formed through the bottom of the socket.

In Fig. 6 there is shown a lug 25, having a socket 26, and socket opening 27 like the respective features shown in Fig. 5, but the pin in this form of the invention is provided with spurs as 28 and 29 for engaging walls of the socket for holding the pin in place. These spurs, which for the purpose of illustration are drawn to exaggerated proportion, may be formed as by upsetting with a chisel. Fig. 7 shows another manner of seating an anchor pin in its socket. In this arrangement the lug 30 is provided with a tapered socket 31 to receive a tapered pin 32. Each form of pin and socket illustrated is circular in cross section. They may be either cylindrical or tapered. In either case the circular form is well suited to economical production in hardened steel. Assembly of the pin and socket in each form shown is simple and effective and the matter of holding either form of pin within its socket requires no additional parts as in certain constructions heretofore employed.

Having thus described my invention, what I claim is,—

A clamp of the type wherein a flat bar has associated therewith a fixed jaw and a movable bracket, the latter being recessed to receive the bar for sliding movement therein, said recess having sufficient clearance in the flatwise plane of the bar to permit the bracket to be tilted slightly in said plane, characterized by having in combination therewith, a pin of circular cross section interposed between an edge of the bar and the bracket, said pin being seated in a circular recess extending through a wall of the bracket, said circular recess being of greater diameter adjacent the bar than at its opposite end, said pin being provided with serrations on its end adjacent the bar, and means to prevent rotation of the pin in its socket.

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