

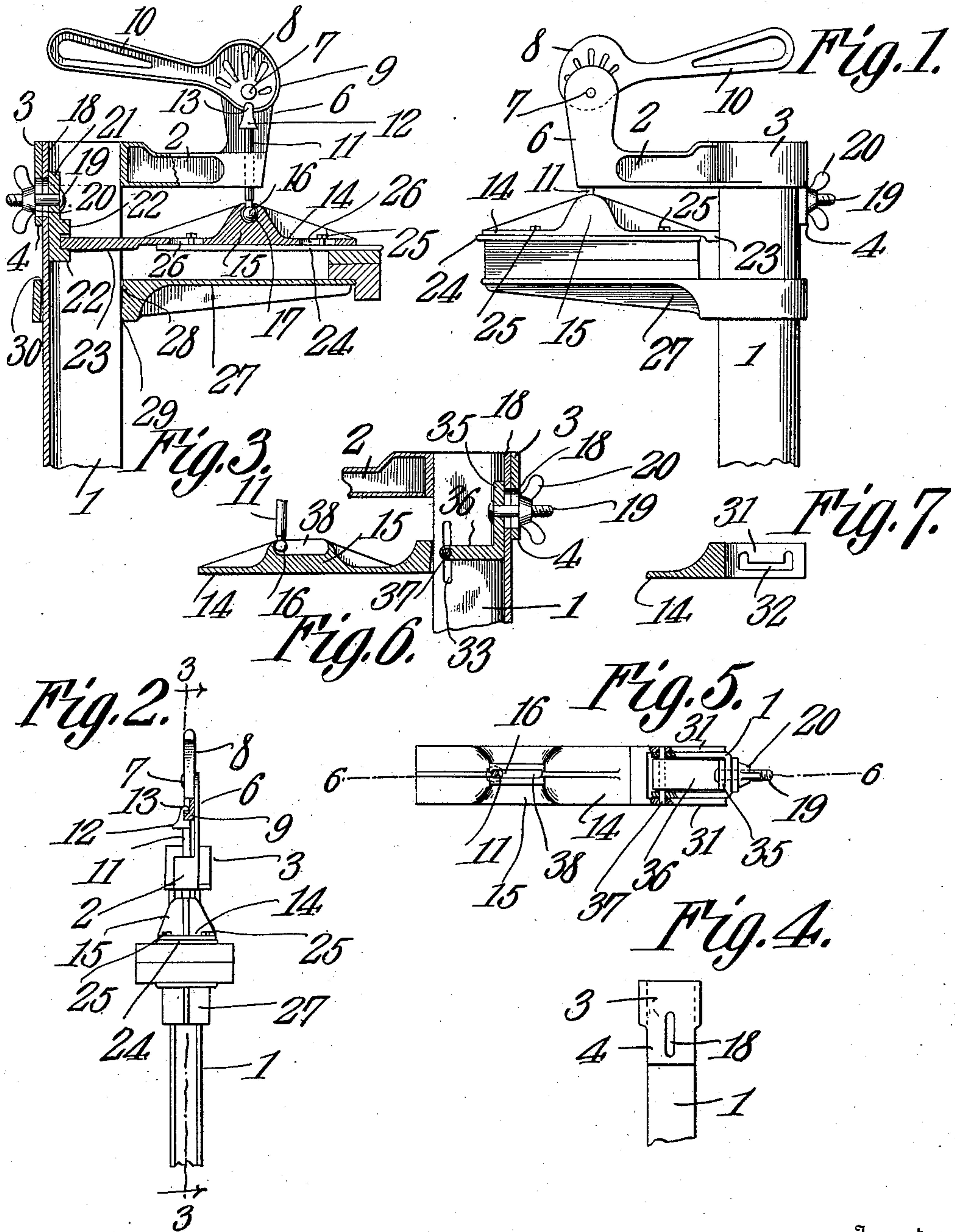
No. 889,842.

PATENTED JUNE 2, 1908.

H. J. ARNOLD.

CLAMP.

APPLICATION FILED JAN. 18, 1908.



Witnesses
E. J. Stewart
J. H. Hollingsworth

Inventor
Harry J. Arnold.
By *C. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

HARRY J. ARNOLD, OF LEBANON, PENNSYLVANIA.

CLAMP.

No. 889,842.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed January 18, 1908. Serial No. 411,474.

To all whom it may concern:

Be it known that I, HARRY J. ARNOLD, a citizen of the United States, residing at Lebanon, in the county of Lebanon and State of Pennsylvania, have invented a new and useful Clamp, of which the following is a specification.

This invention relates to clamps, more especially to what are known as joiner's clamps; and has for its object to provide a quick acting clamp of this type having a jaw limited in its movement and a coacting jaw freely movable from end to end of the shank when its clamping face is at an acute angle thereto, but held rigidly in position when said clamping face is perpendicular to said shank.

A further object of the invention is to produce a clamp of the kind described which shall be perfectly reliable in operation and capable of rigidly clamping and holding the work firmly between the jaws, whether the faces of said work are parallel or at an angle to each other, or merely pinching the work between the ends of the jaws; and which is also provided with means for projecting endwise the bearing face of one of the clamps beyond the other.

With these and other objects in view the invention comprises the novel construction, combination and arrangement of parts hereinafter described, claimed and illustrated in the accompanying drawing, in which

Figure 1 is a side elevation of the improved clamp; Fig. 2 is a front elevation thereof; Fig. 3 is a central longitudinal section on the line 3—3 of Fig. 2 viewed in the direction indicated by the arrows; Fig. 4 is a rear view of the upper end of the shank; Fig. 5 is a plan view of a modified form of the upper clamp; Fig. 6 is a central vertical sectional view of the same on the line 6—6 of Fig. 5, and Fig. 7 is a detail view of the modified form of the upper jaw.

Similar reference numerals are used for the same parts on all the figures.

The shank 1 is made preferably of sheet metal of any convenient or desired length and approximately U-shaped in cross section, the sides of which are at right angles to the back and the connecting corners rounded. Firmly secured to the upper end of the shank 1 is a bracket 2 perpendicular to said shank and extending a suitable distance from the open side thereof. The bracket 2 has an enlargement 3 on one end with an opening

therethrough for the shank and a short downwardly projecting finger 4 on the rear of the enlargement 3 lying close to the shank. At the outer end of the bracket and in the longitudinal center thereof is a vertical guide opening and an upright arm 6 on one side of said guide opening.

Pivotally mounted on a bolt or rivet 7 projecting inwardly from the upper end of the arm 6 is a cam 8, having a lateral peripheral flange 9 and handle 10 for operating the cam. Slidably fitted in the guide opening is a stem 11 having a head 12 on its upper end provided with a hook shaped projection 13 adapted to engage with the lateral flange 9 on the cam 8 and be moved vertically as the cam is turned. Beneath the bracket 2 and separated therefrom a short distance is the upper clamping jaw 14 formed with a boss 15 on its upper surface just below the stem 11. The lower end of said stem is preferably finished with a ball 16 fitting a similarly shaped socket 17 in the top of the boss 15. It will thus be seen that by turning the cam on its pivot, the upper jaw 14 will receive a limited vertical movement.


Through the lower part of the enlargement 3 of the bracket 2, the finger 4 and the rear side of the shank 1 is a vertical slot 18 through which extends a bolt 19 provided with a thumb nut 20 on its outer end. Within the shank 1 and bearing against its rear side is a slide 21 held in place by the bolt 19 which passes through the slide. On loosening the thumb nut 20, the slide 21 can be moved the length of the slot 18. The lower end of the slide 21 is provided with two vertically disposed spaced lugs 22, 22 for a purpose now to be described.

The upper jaw 14 is substantially parallel to the bracket 2 and has a projection 23 on its rear end which extends freely between the sides of the shank 1 and into the space separating the lugs 22. Against the under face of the upper jaw 14 is a sliding plate 24 attached to said jaw by screws 25 passing through longitudinal slots 26 in the upper jaw, see Fig. 3. When required, the screws are loosened and the plate 24 moved endwise beyond the end of the jaw.

The lower jaw 27 consists of an arm having a vertical opening 28 therethrough the front and rear walls of which opening incline from the vertical in the same direction to form a biting edge 29 at the bottom of the front wall and a similar edge 30 at the top of

the rear wall. When the front end of the lower jaw, which jaw is held in parallel relation to the upper jaw, is slightly tilted upward to an acute angle with the shank, the said jaw can be raised and lowered on the shank without interruption, but as soon as the jaw is dropped to a position perpendicular to the shank, the edges 29 and 30 grip the shank and hold the jaw fixed against downward movement.

The working faces of the jaws are normally parallel so that when two or more pieces of work are placed between them, and the lower jaw raised into position to clamp said pieces, the compression will be equally distributed when the cam is operated to lower the upper cam for applying the final pressure. When, as shown in Fig. 3, two short pieces are to be clamped and the lower one has a downward projection, the pressure of the upper jaw will be exerted at the outer ends of the jaws holding the work, because the inner end of the upper jaw is supported between the lugs 22. To enable the equal distribution of pressure over the entire upper surface of the work, the sliding plate 24 is projected endwise as shown.

A modified form of extending the upper jaw endwise is represented in Figs. 5, 6 and 7. As there shown the rear end of the upper jaw has a cheek plate 31 extending therefrom on each side of the shank. Through each cheek plate is made an approximately U-shaped slot 32 thus . In line with the anterior vertical arm of said slot 32 is a vertical slot 33 made in the shank. A slide 35 with a horizontal member 36 is substituted for the slide 21. A pin 37 extends through the end of said slide and through the slots in the shank and cheek plate 31 on each side. Working normally with a jaw of this type the pin 37 would extend through the slots 33 in the shank and the anterior arms of the slots 32 in the cheek plates, but when it becomes necessary to extend the upper jaw, the rear end thereof is raised until the ends of the pin 37 are in the horizontal portions of the slots 32, the jaw is then drawn forwardly as far as it will go and its rear end depressed to cause the ends of said pin to enter the posterior arms of the slot 32. The seat or socket 38 for the ball 16 is elongated to permit the movements of the jaw, just described.

What is claimed is:—

1. A joiner's clamp comprising a shank provided with a fixed head, a clamping jaw movable on said shank throughout its length and adapted to be automatically clamped to said shank when in adjusted position, a cooperating jaw having a limited movement in line with the shank and a tilting movement of the outer end, means for moving said cooperating jaw supported by said fixed head, and a slide adjustable on the shank for

movement to or from said fixed head supporting the inner end of the tilting jaw.

2. A joiner's clamp comprising a shank provided with a fixed head, a clamping jaw movable on said shank throughout its length and adapted to be automatically clamped to said shank when in adjusted position, a cooperating jaw having a limited movement, means of moving said cooperating jaw supported on said fixed head, and a slide adjustable to and from said fixed head on the shank having a slot therein for supporting a rearward extension on the inner end of said cooperating jaw.

3. A joiner's clamp comprising a shank provided with a fixed head, a clamping jaw movable thereon throughout its length, a cooperating jaw having a limited movement parallel to the shank and also a tilting movement at its outer end, a device for regulating the angle of said tilting movement, means for moving said jaw, supported on said fixed head, and a longitudinally slidable plate on the under side of said cooperating jaw adapted to be moved beyond the outer end thereof.

4. A joiner's clamp comprising a shank and a jaw movable thereon, a head fixed to said shank and projecting perpendicularly therefrom, a stem vertically slidable in an opening in the end of said bracket, means for imparting a limited movement to said stem, a cooperating jaw universally connected to the lower end of said stem, a guide mounted on the shank adjustable to and from said head and having a support for the rearward extension on the inner end of said cooperating jaw, a sliding plate on the operative face of said jaw adapted to move endwise beyond the cooperating jaw, and means for fastening said plate when moved to the position desired.

5. A joiner's clamp having a straight stock and a fixed head, a jaw movable longitudinally thereon, a cooperating jaw having a limited movement, means for moving said cooperating jaw supported on said fixed head and arranged to permit movement of the jaw transversely with respect to the shank, a rearward extension on each side of said jaw having a U-shaped slot therein, an adjustable slide on the shank having a forward extension and a pin passing through said extension, slots in the shank sides and the U-shaped slots in the jaw extensions whereby said cooperating jaw may be adjusted transversely of said shank.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HARRY J. ARNOLD.

Witnesses:

STEPHEN F. ARNOLD,
JACOB H. LIGHT.