M. S. CUMNER.

CLAMP.

APPLICATION FILED MAR. 30, 1914.

1,114,970. Patented Oct. 27, 1914.

Fig. 1.

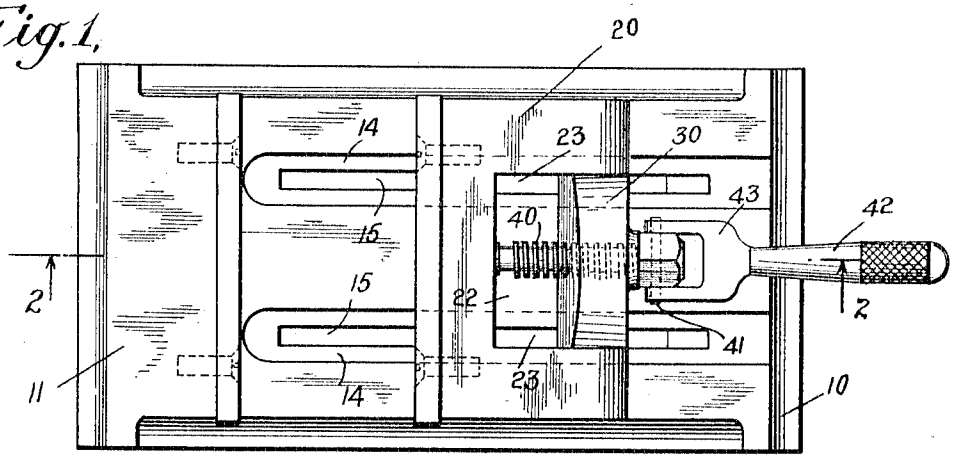


Fig. 2.

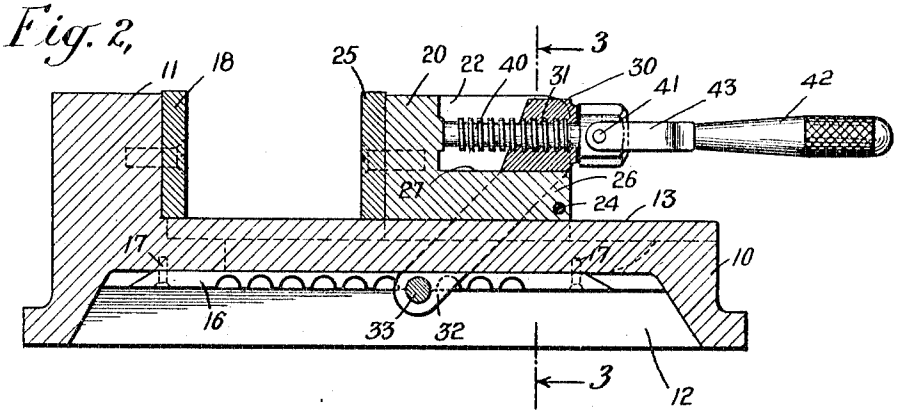
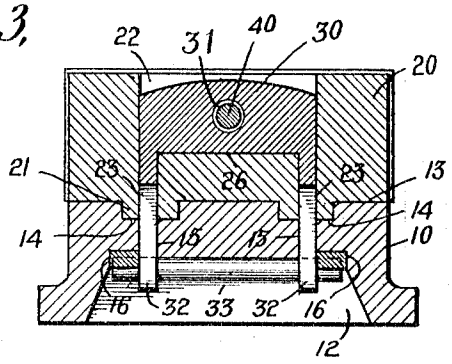


Fig. 3.



WITNESSES

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CLAMP.

1,114,970. Specification of Letters Patent. Patented Oct. 27, 1914.

Application filed March 20, 1914. Serial No. 826,059.

To all whom it may concern:

Be it known that I, MATTHEW S. CUMNER, a citizen of the United States of America, and a resident of New York, county and State of New York, have invented certain new and useful Improvements in Clamps, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

In my Patent No. 900,915 granted October 13, 1908, I have shown and described a clamp or vise.

My present invention relates to devices of the same kind and has for one of its objects to provide an improved clamp or vise in which the clamping pressure is exerted by a clamping screw which acts in the line of movement of the clamping jaws.

Other objects and advantages of my invention will be set forth hereinafter, and in order that my invention may be thoroughly understood I will proceed to describe the same in the following specification, and then point out the novel features thereof in appended claims.

Referring to the drawings: Figure 1 is a plan view of a clamp arranged and constructed in accordance with my invention. A longitudinal section of the clamp, taken on the line 2—2 of Fig. 1, is shown in Fig. 2. Fig. 3 is a transverse sectional elevation taken on the line 3—3 of Fig. 2.

Like characters of reference designate corresponding parts in all the figures.

The structure illustrated comprises a base 10 having a jaw projection 11 at one end, a movable clamping jaw 20, a stirrup 30, and a clamping screw 40. The base has a bottom recess 12, a plane finished top surface 13 in which are a pair of spaced longitudinal grooves or guideways 14, and slots 15 extending through the base in the middle of the guideways 14 and opening into the bottom recess 12. Adjacent to the slots on the depressed under surface of the base are a pair of notched rods or racks 16 which are preferably formed of steel and are attached to the base by screws 17. They may of course be integral with the base if desired and they constitute in either case a series of stops.

The movable clamping jaw 20 is mounted on the plane surface 13 of the base and has longitudinal ribs 21 which extend into the guideways 14. It has a notch or open recess 22 and a pair of spaced slots 23 which form a tongue 26 between them and are respectively in alinement with the slots 15 of the base. For convenience in manufacturing the device the slots 23 are open except for a transverse pin or rod 24 which is not essential but enables the clamp to be more easily adjusted. The jaws 11 and 20 are preferably provided with hardened surface blocks 18 and 25. The stirrup 30 consists of a nut block in which is a tapped hole 31, and a pair of shackle projections 32.

The nut block is fitted into the notch 22 of the movable clamping jaw and is arranged to slide on a plane top surface 27 of the tongue 26; the shackle projections 32 extending obliquely through the slots 23 of the jaw 20 and through the slots 15 of the base 10. A transverse bar 33 is provided near the outer ends of the shackle projections and is affixed thereto, and its ends are adapted to be seated in one pair of the rack notches. The length and inclination of the shackles 32 are such that the rod 33 may be seated in a pair of the rack notches as aforesaid, while the bottom surface of the nut block is parallel with and rests upon the surface 27 of the movable clamping jaw 20. The center line of the tapped hole 31 is substantially parallel to surfaces 27 and 13 and perpendicular to the engaging surfaces of the jaws. The screw or bolt 40 extends through the hole 31 and acts upon the back of the movable clamping jaw 20 to force it toward the relatively stationary jaw 11. Secured to the head of the screw or bolt 40 by a pin 41 is a handle lever 42 having a yoked end or clevis 43 which is arranged to be used conveniently for setting up the screw.

To set the clamp upon a piece of work the screw and stirrup are swung upwardly about the pin 33 as a pivot, thus making the shackles 32 more nearly vertical. A downward thrust in the stirrup then releases the pin 33 and permits the clamp to be roughly adjusted to the work by moving the pin 33 into engagement with a desired pair of stops of the racks 16. The final setting of the clamp is then accomplished by the screw 40 which acts directly in line with the advance movement of the jaw. The reaction of the screw on the nut block tends to swing the stirrup 30 downwardly about the pin 33 as a pivot and therefore the block is firmly seated on the surface 26 and holds the clamping jaw down on the surface 13 of the base.

It is not essential to my invention that the

sliding jaw 20 be guided by slots or guideways and in fact it may be mounted to turn and adjust itself automatically to work having non-parallel sides as for example, a taper plug. The whole structure may of course be mounted on a revolving base in a well known manner. It is also evident that more than one movable jaw may be arranged to coöperate with a single elongated stationary jaw or the two coöperating jaws may each be arranged and mounted as the jaw 20 of the structure illustrated. I therefore intend that only such limitations be imposed as are indicated in the appended claims.

What I claim is:

1. In a clamp, a base having a plane top surface, spaced slots therein, a clamping jaw projecting at right angles to said surface, and a series of stops adjacent to said slots on the bottom surface thereof, a movable clamping jaw, adapted to coöperate with the jaw projection, mounted to slide on said plane top surface and having a backwardly extending tongue, a stirrup mounted to slide on said tongue and having shackles extending through said spaced slots and adapted to be held in a predetermined position by the base stops, and a clamping screw extending through the body of the stirrup substantially parallel to the plane surface of the base and arranged to adjust the movable jaw on the base.

2. In a clamp, a base having a pair of spaced longitudinal slots, a recessed bottom surface, and a series of stops adjacent to said slots on the recessed bottom surface, a plane top surface having guideways into which said slots open, and an integral jaw projection extending upwardly at right angles to said plane surface; a movable clamping jaw mounted to slide on the surface of the base and having ribs to coöperate with said guideways, a pair of spaced slots in alinement with the slots in the base providing a tongue between them, a stirrup mounted to slide on said tongue and having shackle arms extending through said slots and through the base slots, a transverse pin engaging the ends of said shackles and adapted to coöperate with said base stops, and a screw extending through said stirrup and acting to force said movable clamping jaw toward said jaw projection.

3. In a clamp, an L-shaped base having a series of stops on its under surface, and a pair of spaced longitudinal slots, a movable clamping jaw adapted to slide on one arm of the L-shaped base and to coöperate with the other arm, a tongue projecting backwardly from said movable clamping jaw, a stirrup mounted to slide on said tongue in parallelism with the movement of said movable clamping jaw and having shackles extending on the respective sides of said tongue through said base slots, and a transverse rod connecting the ends of the stirrups and cooperating with the base stops; and a clamping screw extending through said stirrup and acting upon said movable clamping jaw.

4. In a clamp, a base having a plane top surface, a series of stops below the plane top surface, a fixed clamping jaw, a movable clamping jaw adapted to slide on said plane top surface and to coöperate with the fixed jaw and having a backwardly extending tongue, a stirrup mounted to slide on said tongue in parallelism with the movement of said movable clamping jaw and having shackles straddling said tongue and a portion of said base, and adapted to be held in a predetermined position by said base stops and a clamping screw extending through the stirrup and acting upon the back of the movable clamping jaw.

5. In a clamp, a base having a plane top surface, a series of stops below the plane top surface, a fixed clamping jaw, a movable clamping jaw adapted to slide on said plane top surface and to coöperate with the fixed jaw and having a backwardly extending tongue, a stirrup mounted to slide on said tongue in parallelism with the movement of said movable clamping jaw and having shackles straddling said tongue and a portion of said base, and adapted to be held in a predetermined position by said base stops, and clamping means acting in parallelism with said plane top surface, upon the back of the movable clamping jaw.

6. In a clamp, a base having a plane top surface, a series of stops below the plane top surface, a fixed clamping jaw, a movable clamping jaw adapted to move on said plane top surface and to coöperate with the fixed jaw and having a backwardly extending tongue, a stirrup mounted to move on said tongue and having shackles straddling a portion of said base and adapted to be held in a predetermined position by said base stops, and a clamping screw extending through the stirrup and acting upon the movable clamping jaw.

7. In a clamp, a base having a top surface, a series of stops below the top surface, a relatively fixed clamping jaw, a movable clamping jaw adapted to slide on said top surface and to coöperate with the relatively fixed jaw and having a backwardly extending tongue, a stirrup mounted to slide on said tongue and having shackles straddling said tongue and a portion of said base and adapted to be held in a predetermined position by said base stops, and clamping means acting upon the back of the movable clamping jaw.

8. In a clamp, a base having a top surface, a series of stops below the top surface, a relatively fixed clamping jaw, a movable clamping jaw adapted to move toward and

away from said fixed jaw and having a backwardly extending tongue, a member mounted to slide on said tongue and having a shackle extending below the top surface of the base and adapted to be held in a predetermined position by said base stops, and clamping means acting upon the back of the movable clamping jaw.

9. In a clamp, a base having a top surface, a series of stops below the top surface, a relatively fixed clamping jaw, a movable clamping jaw adapted to move toward and away from said fixed jaw and having a backwardly extending tongue, a member mounted to slide on said tongue and having a shackle extending below the top surface of the base and adapted to be held in a predetermined position by said base stops, and a clamping screw extending through said member parallel to the top surface of the base and acting upon the back of the movable clamping jaw.

In witness whereof, I have hereunto set my hand in the presence of two subscribing witnesses, this 6th day of March, 1914.

MATTHEW S. CUMNER.

Witnesses:
ALEX. B. WRIGHT,
HAROLD OSCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."