(No Model.)

G. A. LORING.

BENCH CLAMP.

No. 409,295. Patented Aug. 20, 1889.

FIG. 1.

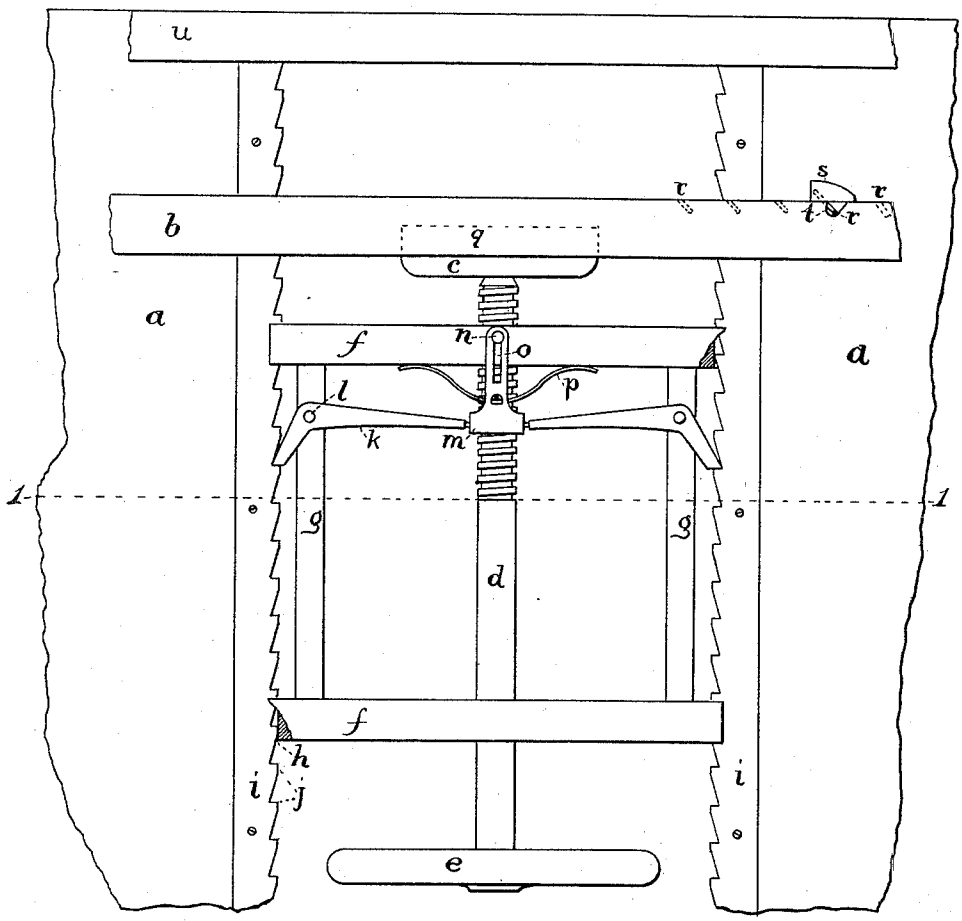
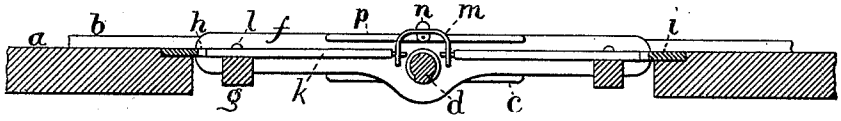


FIG. 2.



Witnesses:

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Inventor

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per atty,

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UNITED STATES PATENT OFFICE.

GEORGE A. LORING, OF PORTLAND, MAINE, ASSIGNOR TO PHILIP J. LARRABEE, OF SAME PLACE.

BENCH-CLAMP.

SPECIFICATION forming part of Letters Patent No. 409,295, dated August 20, 1889.

Application filed January 29, 1889. Serial No. 297,958. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. LORING, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Bench-Clamps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bench-clamps, and is especially designed for use in benches where the lengths of articles to be clamped vary considerably. It is therefore so made as to permit of rapid adjustment through long distances.

It consists of a bench or table with long central slot having ratcheted sides, a stationary jaw on the end of the bench, a frame sliding in said slot and carrying pivoted pawls adapted to engage the ratchet-teeth, a spring constantly tending to hold the pawls engaged, and a presser-screw bolt to give a more perfect adjustment, said bolt carrying the movable jaw.

It consists, also, in attaching to one or the other or both of the clamping-jaws an adjustable block, as hereinafter described, to prevent lateral movement of the article being operated on.

Referring to the accompanying drawings, Figure 1 is a plan with parts broken out, and Fig. 2 a cross-section of Fig. 1 on line 1 1.

Same letters refer to like parts.

My invention and its use may be more fully and particularly described, as follows:

In a table or bench is made a long central slot, in each side of which is placed a plate or strip *i*, having teeth *j*. Sliding on these plates *i* is a frame composed of side bars *g* and end bars *f*. The ends of the end bars *f* have grooves *h*, into which the plates *i* enter, thereby supporting the frame in the slot, as seen in Fig. 1, and at the same time allowing freedom of movement backward and forward in the slot.

Pivoted to the side bars *g* of the frame are pawls *k*, the outer ends of which are adapted to engage with the ratchet-teeth *j*, and the inner ends connected with a spring in such manner that the spring constantly tends to hold the pawls engaged with the ratchet-teeth, as shown in Fig. 1. The spring and its connection with the pawls may be variously arranged, a very convenient way being that illustrated in the drawings. In this a link *m*, having slot *o*, is attached to the top of the end bar *f* of the frame by a headed bolt *n* passing down through the slot *o*, said slot *o* allowing of the backward and forward movement of the link. The inner ends of the pawls are inserted in or attached to the links, and a bent spring *p* placed between the bar *f* and the body part of the link *m*. This particular way is, however, not essential, as the element of this part of my invention is a tension flexible but always operating to hold the outer ends of the pawls against the ratchet-teeth.

Passing through the end bars *f* is a presser-screw bolt *d*, having on one end the arm or lever *e* and on the other the block *c*. The block *c* may serve for the movable jaw of the clamp directly or it may have attached to it the bar *b*, which then forms the movable clamping-jaw. When the bar *b* is used, the block *c* may have the finger *q*, which serves to add stability to the jaw. On the end of the bench is a stationary jaw *u*, arranged parallel with the moving jaw. On the faces of the jaws *b* and *u*, or either of them, may be placed a side brace to prevent lateral motion if there should be any necessity to plane across the table. The brace-block should be adjustable, and for convenience should not project above the top face of the jaw. A series of inclined holes *r* is made in the clamping-face of the jaw. The brace S is then fitted with an inclined tongue *t*, adapted to enter the holes *r*, as shown in the drawings. The inclined tongue and holes prevent the brace from turning.

The operation of my improved clamp is as follows: The article to be clamped is placed on the bench against jaw *u*. To adjust the jaw *b*, take hold of link *m*, press it back toward the jaw, thus disengaging the pawls from the ratchet. The frame may now be moved back and forth in the slot at pleasure.

Move it forward until the jaw *b* strikes the article to be clamped. Release the link and the pawls at once engage in the ratchet-teeth and hold the frame. The ratchet-teeth being of necessity some distance apart renders a perfect grip sometimes impossible by this means alone. Hence the necessity of some device to complete the work of the pawls and ratchet. This is done by means of a few turns of the screw-threaded presser-bar, the inclined thread admitting a perfect and firm adjustment of the gripping-jaws.

To release the jaw, first turn in the reverse direction the screw-bolt, press on the link, thus releasing the pawls. Long range and rapid adjustment are thus secured.

Having thus described my invention and its use, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a bench-clamp, the combination, with a bench having a stationary jaw at or near one end and projecting above the plane of the top of the bench and a central longitudinal slot therein with ratcheted sides, of a carriage adapted to move in said slot, pawls pivoted to the carriage and adapted to engage the ratcheted sides of the slot, a spring constantly tending to hold the pawls in engagement with the ratchet, and a screw-threaded rod adapted to travel in a female screw in the cross-bars of the carriage, and having on the end a swiveled jaw adapted to slide upon and over the top of the bench, as set forth.

2. In a bench-clamp, the combination, with a bench having a stationary jaw at or near one end projecting above the plane of the top of the table, and central longitudinal slot with ratcheted sides, a carriage adapted to move in said slot and carrying a screw-threaded bolt having on the end a swiveled jaw adapted to slide upon and over the top of the table, of pawls pivoted to the carriage, a link connecting the ends of said pawls and having a slot therein through which passes a spur set in the cross-bar of the carriage, and a spring, substantially as set forth.

3. In a bench-clamp, the combination, with a bench having a stationary jaw at one end, central longitudinal slot with ratcheted sides, a carriage adapted to slide in said slot and carrying a screw-threaded rod having on the end a swiveled jaw adapted to slide upon and over the top of the bench, and pawls adapted to engage with the said ratchets, of a brace-block having a spur adapted to enter any one of a series of holes in the clamping-face of the jaws, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature, in presence of two witnesses, this 22d day of January, A. D. 1889.

GEORGE A. LORING.

Witnesses:
M. T. FRANK,
ELYM C. VERRILL.