(No Model.)

F. A. MOORE.

SCREW CLAMP.

No. 293,058. Patented Feb. 5, 1884.

Fig. 1.

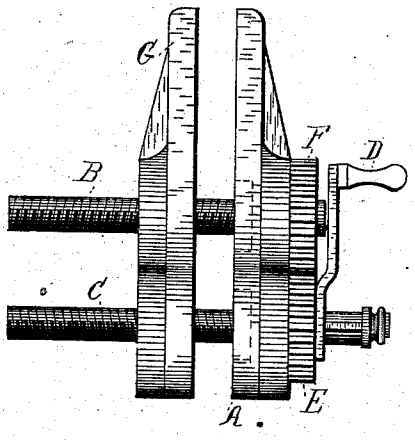


Fig. 3.

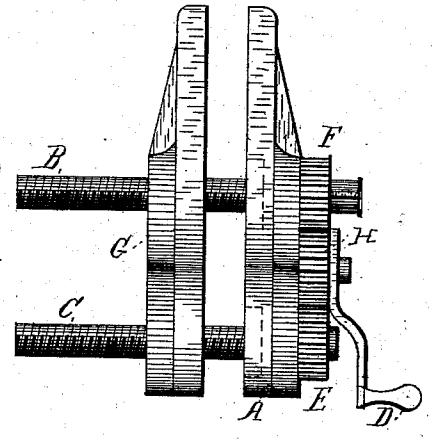


Fig. 4.

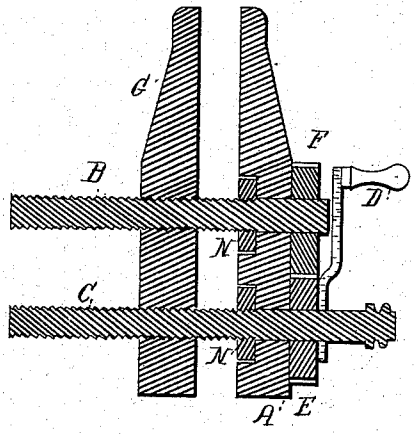
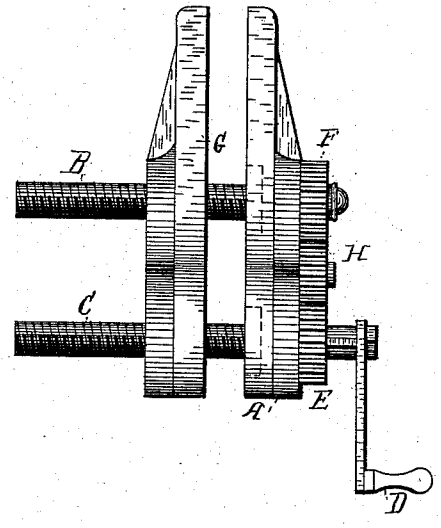


Fig. 2.



WITNESSES.

W. A. Jones

C. A. Neal

INVENTOR.

Frank A. Moore

Per W. K. Ewen Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FRANK. A. MOORE, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF TO EUGENE L. ELROD, OF SAME PLACE.

SCREW-CLAMP.

SPECIFICATION forming part of Letters Patent No. 293,058, dated February 5, 1884.

Application filed October 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANK. A. MOORE, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Screw-Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of screw-clamps used by harness-makers, cabinet-makers, carvers, machinists, and others to hold work upon their benches by placing one jaw of the clamp beneath the bench and the other jaw upon the work laid on the bench, and then turning the screws to force said jaws to approach each other as nearly as possible, thus binding or clamping the interposed parts together. The same clamps are also used for binding parts together, for gluing joints, and for various purposes where only a temporary juncture of parts is required.

My invention consists in a pair of clamp-jaws, a pair of screws connecting said jaws, and means for rotating said screws in unison with each other, or one independently of the other, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of one form of my screw-clamp. Figs. 2 and 3 are modifications thereof, and Fig. 4 is a section of the same in the central plane of the screws.

A represents the stationary jaw or body of the clamp. B and C are two screws journaled to be revolved therein by means of a crank-handle, D, which is secured to a toothed wheel, E, mounted on a squared or splined portion of screw C, engaging a similar toothed wheel, F, which is mounted on screw B.

G is the traveling jaw of the clamp, screw-threaded to receive both screws B and C. When crank D is revolved in one direction, the jaw G will approach jaw A. When said crank is revolved the other way, jaw G will recede from jaw A.

In order that right-handed turning of the crank may close the jaws, screw C is right-hand threaded in Fig. 1, and screw B is left.

In Fig. 2 an intermediate wheel, H, communicates between wheels E and F, so that both screws are right-handed.

In the modification shown in Fig. 3 the crank D is attached to the intermediate, thus requiring both the screws to be left-handed to fulfill the conditions before stated.

It is intended that the jaws A and G shall be rigidly stiff, yet in heavy work they are sure to be sprung. I therefore provide means for bringing the clamping ends thereof parallel under strain, thereby increasing their vise-like grasp, as follows: The shank of the screw-rod C is made out of round in some manner—as, for instance, it may be square, or it may be round and provided either with a spline or a groove, and the gear-wheel E fitted to it to turn it, and yet to slide longitudinally on it, in order that said wheel may be disengaged from its mate gear-wheel, as shown in Fig. 4, and allow the crank to turn its own screw independently of the other wheel and screw.

The operation is as follows: The clamp-jaws, being separated, are placed upon the work, the gears are engaged, and the crank is turned, bringing the jaws to bear on the work. Now the parts of the work will be rapped or otherwise adjusted to exactly correspond with each other, as desired. Then the crank-gear is disengaged from its mate wheel, and its screw is turned to separate the rear ends of the jaws, thus pressing the forward ends upon the work with great force, the forward screw acting as a fulcrum for the jaws. This same effect is accomplished to some extent by the common cabinet-maker's wooden screw-clamps, but in them only the forward screw ever acts to draw the jaws together. The rear screw is threaded in the stationary jaw to press its end against the inner side of the rear end of the movable jaw, while both my screws are threaded in the movable jaw, and may coact to traverse said jaw either way. The screws may be geared together in various ways, as shown in the different figures. In Fig. 1 the crank and gear-wheel are secured together as one piece, and slide upon the screw-shaft. In Fig. 2 the crank is permanently secured to the screw-shaft, while its gear-wheel may be slid along the shaft on a spline to disengage the two wheels. In Fig.

3 the crank is secured to the intermediate wheel, which is journaled on a stud fixed in the body jaw A, and the forward wheel is adapted to be disengaged in order that the crank-gear may continue to act on the rear screw, as before described.

By means of my geared screws and crank the clamp may be quickly fixed upon work of different thicknesses, and will hold the work in most places sufficiently firm by that means, yet when great pressure is required my coacting yet disengagable geared screws are very serviceable.

N N represent nuts forming shoulders on the screws to bear against the inner face of jaw A, or within countersunk spots, as shown in dotted lines, to resist the action of said screws in forcing jaw B away from jaw A.

What I claim as my invention, and wish to secure by Letters Patent, is—

1. The combination, with the jaws of a clamp and two screws journaled in one jaw and screw-threaded into the other jaw, of a crank mounted on one screw to revolve it, and gear-wheels mounted on both screws to communicate rotary motion from one screw to the other, substantially as and for the purpose specified.

2. The combination, with the two jaws of a screw-clamp, having two screws journaled in one jaw and screw-threaded in the other, of toothed wheels mounted on said screws, means, substantially as described, for disengaging one of said toothed wheels from the other, and a crank, mounted substantially as described, whereby the two screws may be simultaneously rotated, or one may be rotated independently of the other.

3. The clamp-jaw A, the screws B and C, journaled therein, the jaw G upon and engaging the thread of said screws, the shoulder-nuts N, fixed on said screws, the toothed gear-wheels E and F on said screws, and the crank D, mounted on one of said screws, one of said gear-wheels being longitudinally adjustable on its screw, as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK. A. MOORE.

Witnesses:
W. X. STEVENS,
JAMES MAXWELL.