(No Model.) 2 Sheets—Sheet 1.

J. W. WEISER.

HAND CLAMP.

No. 305,989. Patented Sept. 30, 1884.

Fig. 2.

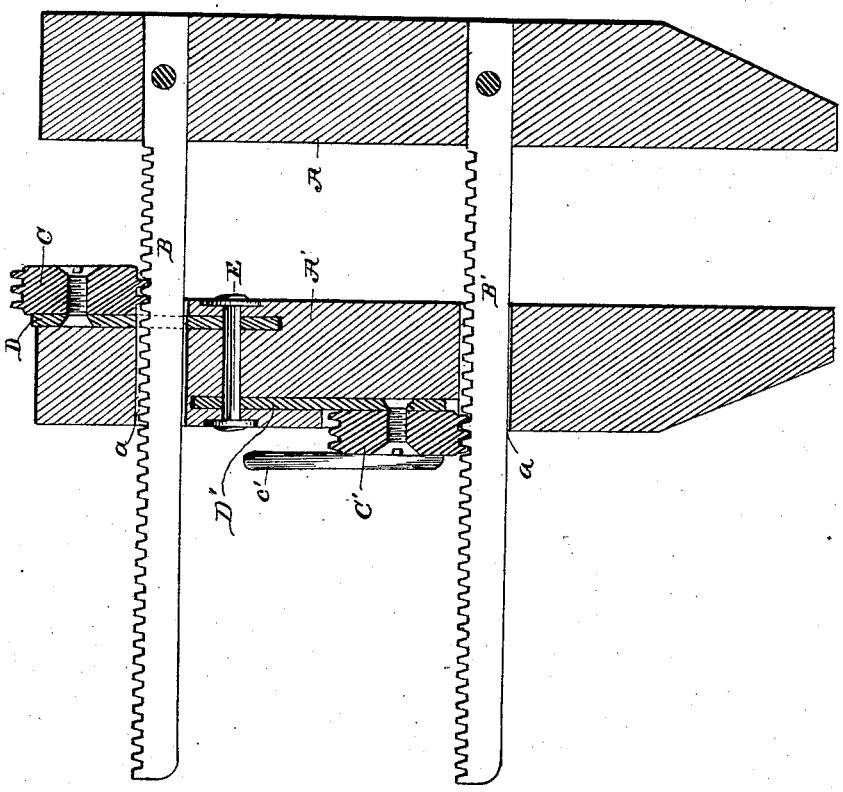
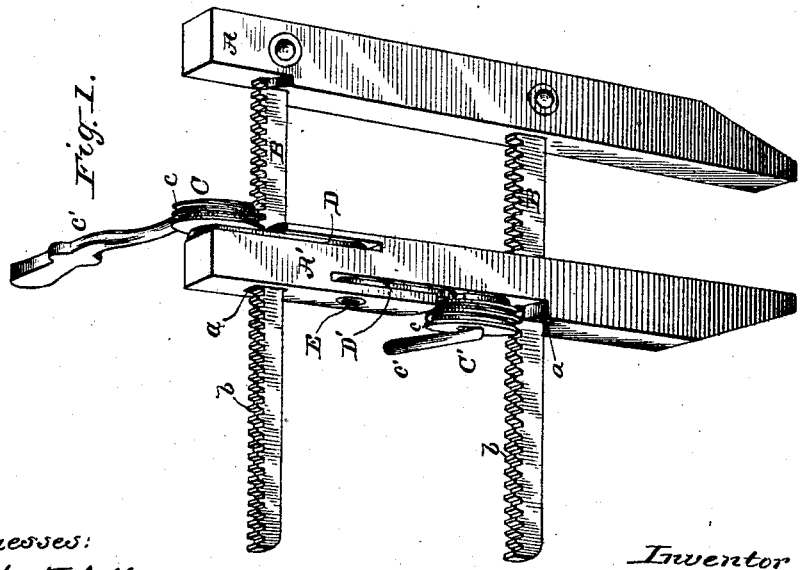


Fig. 1.



Witnesses:
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F. H. Dayton

Inventor
John W. Weiser
by W. E. Dayton
Attorney

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

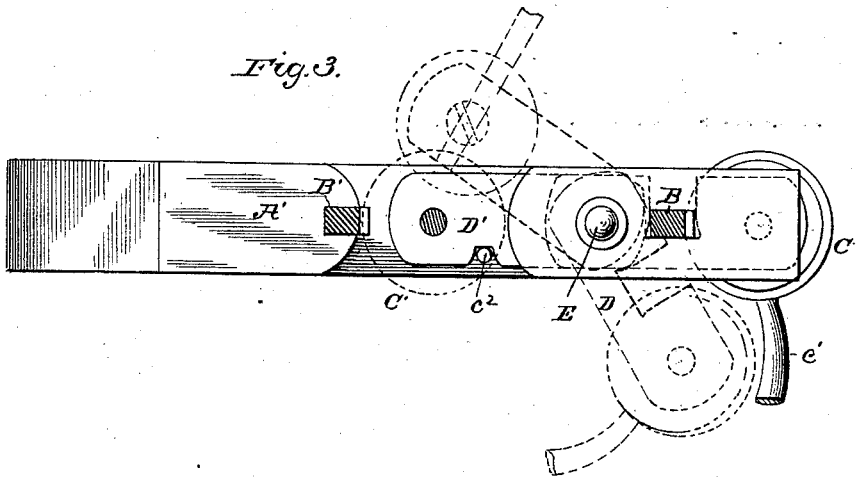

Fig. 4.

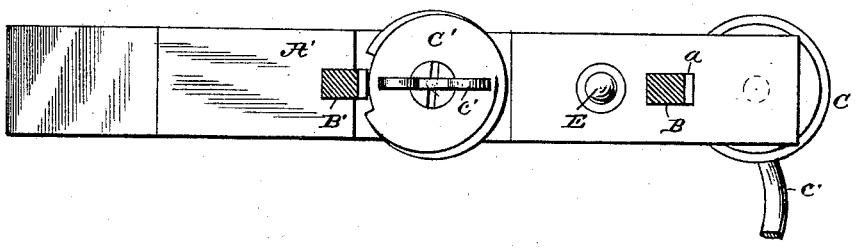

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN WILLIAM WEISER, OF CHICAGO, ILLINOIS.

HAND-CLAMP.

SPECIFICATION forming part of Letters Patent No. 305,989, dated September 30, 1884.

Application filed June 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. WEISER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hand-Clamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in cabinet-makers' hand-clamps, and has for its object to provide a construction whereby the jaws of said clamps may be more readily set at any desired distance apart, and then tightened upon the article to be clamped by a slight movement of the clamping devices.

Hand-clamps or implements of the class to which this invention relates have heretofore been constructed with screws uniting the jaws, and adapted to set said jaws at any desired distance apart, and also to produce the desired clamping effect when adjusted to a given article by so running the screws as to draw the inner or acting ends of the jaws together, or to force the outer ends of said jaws apart, or both.

In hand-clamps thus constructed with screws, it is a matter requiring a considerable waste of time to change the distance between the jaws widely; and it is a primary object of this invention to facilitate the operation, and to lessen the time required in the setting of the jaws at the desired distance apart, while also providing means for effecting the clamping action after the jaws have been so adjusted.

The invention consists in the several matters hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved hand-clamp. Fig. 2 is a central section taken longitudinally through the clamping-jaws. Fig. 3 is an outer view of the "movable" clamping-jaw. Fig. 4 is a similar view of the movable clamping-jaw, showing a modification of one of the clamping-screws. Fig. 5 is a face view of the lower screw of Fig. 4.

A and A′ are clamping-jaws.

B and B′ are two metal racks secured to the clamping-jaw A, and passing freely through mortises *a* in the clamping-jaw A′.

For convenience, the clamping-jaw A will be herein referred to as the stationary jaw, and A′ as the movable jaw, reference, of course, being had in this mode of designation to the racks B B′.

C and C′ are two short sections of screws, adapted to engage by spiral peripheral threads *c c* thereon with the teeth or serrations *b* of the racks B and B′. Said screws C and C′ are also so constructed or mounted that they may be disengaged at pleasure from the racks B and B′, in order that the jaws A and A′ may be readily moved toward each other for the purpose of initially adjusting them to the width of the article or articles to which the clamp is to be applied.

As a preferable way of providing for thus throwing the screws C and C′ into or out of engagement with the racks B and B′, said screws are shown in Figs. 1, 2, and 3 as being mounted, respectively, on the free ends of arms D and D′, pivoted at their opposite ends to the movable jaw A′, so as to swing transversely to the racks. Said arms may be pivoted by a single and common pin or bolt, E, passing through said arms D and D′, and through the jaw A′ at a point between the rack-mortises *a*. The arms D and D′ may be attached externally to the jaw A′; but preferably they are set in slots and recesses in said jaw, as shown in Figs. 1, 2, and 3. Each of the screws C and C′ is provided with a suitable projection, *c′*, in the nature of a lever, by which the screw may be turned with sufficient force after its engagement with the rack to give the desired clamping effect.

In the operation of the device constructed as illustrated in Figs. 1, 2, and 3, if it is desired to shift the jaws to afford a narrower or wider space between them, the screws C and C′ are disengaged from the racks B and B′ by swinging the arms D and D′ on the pin E, so as to carry the screws laterally outward and free from engagement with the racks, as indicated by dotted lines in Fig. 3. The jaws are then moved into position to fit at their lower ends upon the article to be compressed, and the upper ends of said jaws are pressed inward, so as to bring said jaws approximately parallel or preferably inclined toward each other at their upper ends preparatory to the application of the compressing force to be ap-

plied by the clamp. When the jaws are in this position, the arm D′ is swung inward, so as to engage the screw C with the rack B′, the lever c' of said screw C′ being in such a position with reference to the rack B′ as to allow said screw to be turned in a manner calculated to draw the jaws together, or to apply some degree of pressure to the article embraced by the lower ends of the said jaws. The screw C′ having been turned in the manner and for the purpose just stated, the upper arm, D, is next swung on the pivot-pin E, so as to bring the upper screw, C, into engagement with the rack B, the lever c' of said screw C being also given such position at the time of said engagement of the screw with the rack as to permit said screw to be rotated in a manner calculated to separate the upper ends of the jaws A and A′. By these operations of the screws C and C′ precisely the same movements of the jaws are effected as are produced in the operation of the ordinary screw-clamp heretofore in use, but with the advantage of usually obtaining greater power by the action of the screw C and lever c', in conjunction with the rack B, than would ordinarily be obtained by the upper hand-screw of such former construction of clamp.

In order to arrest the lower arm, D′, in proper position to fairly engage the adjacent rack B′, or, in other words, to bring the pivot of the screw C′ in a direct line between the racks B and B′, a pin, c^2, may be set in the jaw A′ in proper position to strike against said arm, the arm being shown as notched to give room for the proper placing of said pin in Fig. 3 of the drawings. The arm D is cut away at one side to allow the screw C to swing into proper position over the rack B, and said rack, by striking against the arm D, may serve as a suitable stop for the latter for the purpose of arresting the screw in its proper position with reference to the rack. The direction of the spiral thread on each of the screws C and C′ is such that in rotating said screw when engaged with the rack the friction of the rack upon the screw-thread tends to throw the arm upon which the screw is mounted into bearing against its appropriate stop, and to hold said screw in engagement with the rack.

In Fig. 4 another means of disengaging the screw from the rack is shown in connection with the screw C′. Said construction consists in providing a notch in all of the threads of the screw at one point on the face of the latter, so that in one position of said screw the rack may slide freely through the jaw A′ without engaging the screw. After the jaws are brought into position, the screw constructed as last above described is engaged with the rack simply by rotating the screw on its axis. In this construction of the screw it will be desirable to make the ends of the threads, where they are severed by the notch, thin or tapered, as indicated in Fig. 5, in order that they may more readily enter the notches of the rack. Both screws of the clamp may of course have the notched construction described.

It will be practicable for some purposes to omit the lower screw, C′, and to simply engage the jaw A′ with the rack B′, as, for example, by the swinging arm D′ directly, the latter being prolonged to enter at its free end one or more notches of the rack B′. This last-mentioned construction will differ from that shown in the drawings only in wanting the function of partial tightening of the clamp before bringing the upper screw into engagement with the rack B.

I claim as my invention—

1. The combination, with the jaw A, having the racks B and B′ secured thereto, of the movable mortised jaw A′, provided with screws C C′, constructed to engage or disengage severally with the adjacent racks, substantially as and for the purposes set forth.

2. The combination, with the jaw A, having the racks B and B′ affixed thereto, of a movable mortised jaw, A′, means for engaging the jaw A′ with the rack B′, and a screw, C, constructed to engage or disengage the rack B, substantially as and for the purposes set forth.

3. The combination, with the jaw A, having the racks B and B′ secured thereto, of the mortised jaw A′, the arms D and D′, pivoted to said jaw, screws C and C′, mounted on the free ends of said arms, levers applied to said screws, and stops arranged in position to arrest the screws in fair engagement with the racks, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOHN WM. WEISER.

Witnesses:
M. E. DAYTON,
OLIVER E. PAGIN.