(No Model.)

A. H. GEORGE.

HAND SCREW.

No. 431,719. Patented July 8, 1890.

Fig: 1.

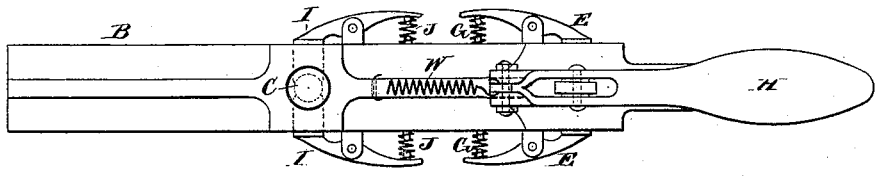


Fig: 2.

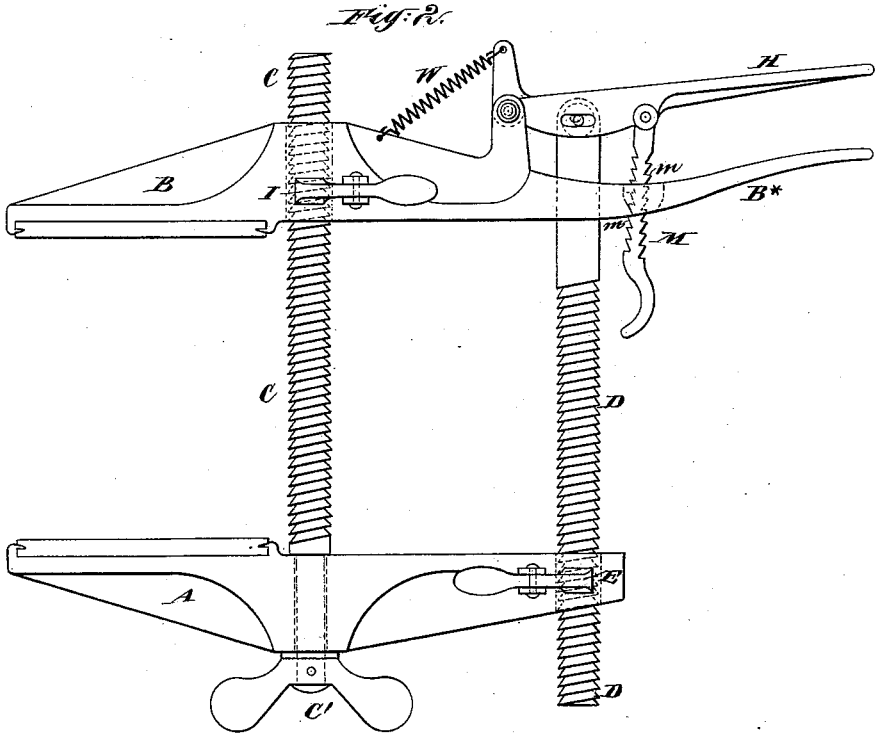


Fig: 3.

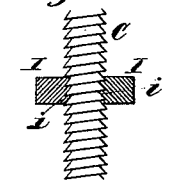
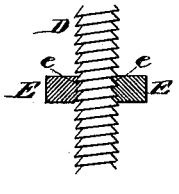


Fig: 4.



Witnesses:
Charles R. Searle,
L. A. Jones

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UNITED STATES PATENT OFFICE.

ADAM HENRY GEORGE, OF PASSAIC, NEW JERSEY.

HAND-SCREW.

SPECIFICATION forming part of Letters Patent No. 431,719, dated July 8, 1890.

Application filed July 29, 1889. Serial No. 319,103. (No model.)

To all whom it may concern:

Be it known that I, ADAM HENRY GEORGE, of Passaic, county of Passaic, in the State of New Jersey, have invented a certain new and Improved Hand-Vise Clamp, technically known in the joiners' trade as "hand-screw," of which the following is a specification.

My clamp or hand-screw is intended more particularly for joiners' use in holding together pieces of freshly-glued wood; but it may be used for various other purposes, if required. I have in a patent issued to me, dated January 10, 1888, No. 376,191, described a clamp for similar purposes having spring-dogs engaging and releasing two ratchet-bars, one traversing the middle and the other the back end of the clamp. These would allow the jaws to be rapidly changed to wide extents. A lever and toothed bar operated at the back end, applied after the jaws had been adjusted to the nearly-right position, brought the clamping ends of the jaws together with the required force. My present invention employs the same general arrangement. The ratchet-bars may be made cheaply and perfectly in the form of screws, and such will serve the same purpose if the dogs be made with engaging parts adapted therefor; also, the handling of the device and the operation of the lever may be greatly facilitated by providing a handle on the upper jaw extending out under the hand-lever. I use such handle and also such screws and dogs with teeth properly inclined to match the inclined positions of the screw-threads. I provide each dog with two or more such teeth a proper distance apart to engage a corresponding number of the threads of the screw at the same time. This gives a more reliable hold. I apply a spring which raises the hand-lever automatically so soon as it is set free.

The accompanying drawings form a part of this specification and represent what I consider the best means for carrying out the invention.

Figure 1 is an edge view, and Fig. 2 a top plan, of my improved clamp. Figs. 3 and 4 are details, which will be more particularly hereinafter referred to by reference-letters.

Similar letters of reference indicate corresponding parts in all the figures.

A and B are the two jaws, each faced with wood, as in my previous patent.

C and D are screws finished in a lathe, with V-shaped threads, each square on its lower side and inclined on its upper side, as indicated. The screw C traverses the middle and the screw D the back end of the jaws.

E E are dogs actuated by spiral springs G and engaging with the screw D. Each has a wide engaging-face hollowed to match the side of the screw and provided with two or more engaging-teeth *e*, arranged to engage two or more threads of the screw D at the same time and to let go of both when the dogs are properly turned against the force of the springs G. I I are corresponding dogs actuated by springs J, engaging the screw C. The acting faces of these dogs I are hollowed to match against the screw C, and each is equipped with two or more teeth *i*, properly inclined and spaced, to engage two or more threads of the screw C at the same time. The hand-lever H, by which the final strain is applied to the clamp, is equipped with a spiral spring W, which exerts a gentle force, tending to raise the lever. In relaxing the clamp the lever H and its attachments rise so soon as the teeth of the ratchet-bar M are disengaged from their hold on the jaw B. This instantly throws open to a slight extent the front ends, the effective ends of the jaws.

B* is a handle cast integral with the jaw B, extending out under the lever H, as shown. In the last part of the motion to tighten the clamp the operator takes the lever H and the handle B* together in the hand, and by forcibly closing the hand operates the lever with great force.

C′ is a thumb-head on the screw C. After the clamp is in place, before operating the lever H, the screw C is revolved by acting on its head C′, so as to take up all slack. Then the turning of the lever H and the engagement of its locking-rack *m* with a suitable lip on the jaw B compresses and holds the device with great force.

The jaws may be faced with wood, as in my previous patent.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I can use more

than two engaging-teeth *e* or *i* on each dog E or I. There is a limit to how wide the acting face of each dog may be. It is important to have a little looseness to allow for the slight tilting motion to which the jaws are subjected in tightening or releasing.

I claim as my invention—

1. In a clamp, the lever H, spring W, and ratchet-bar M, in combination with the jaw B, having the handle B*, and with the jaw A and adjustable connecting means, arranged to serve as herein specified.

2. In a clamp, the screws C D, serving as ratchet-bars, with means C′ for revolving one of them, the jaws A B, and the dogs E I, with spiral springs G J, each dog having two or more engaging-teeth *e i*, inclined to match the threads of the said screws, in combination with each other and with the hand-lever H, ratchet-bar M, and spring W, as herein specified.

In testimony whereof I have hereunto set my hand at New York, N. Y., this 20th day of May, 1889, in the presence of two subscribing witnesses.

ADAM HENRY GEORGE.

Witnesses:
CHAS. F. BARTER,
WM. HUTCHISON.