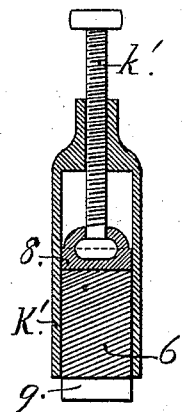
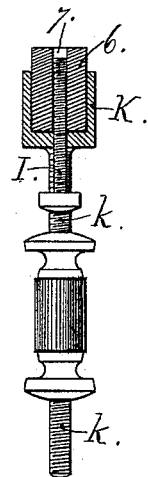
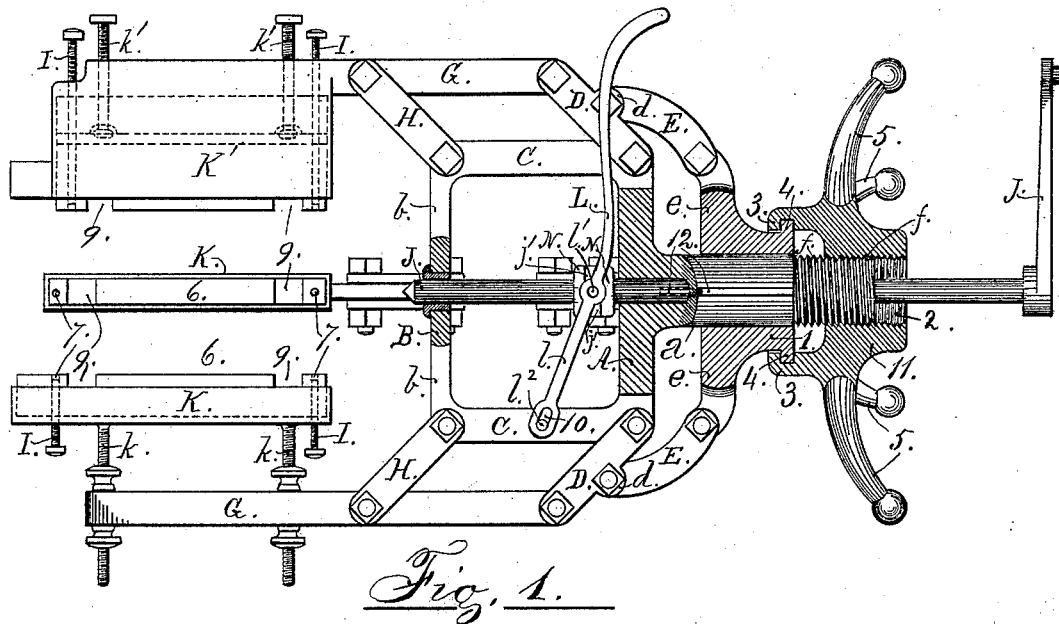


(No Model.)

S. B. MINNICH.
CENTERING DEVICE.

No. 419,788.

Patented Jan. 21, 1890.



Witnesses

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UNITED STATES PATENT OFFICE.

SIMON B. MINNICH, OF LANDISVILLE, PENNSYLVANIA, ASSIGNOR TO MARY C. MINNICH, OF SAME PLACE.

CENTERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 419,788, dated January 21, 1890.

Application filed October 29, 1888. Serial No. 289,419. (No model.)

To all whom it may concern:

Be it known that I, SIMON B. MINNICH, a citizen of the United States, residing at Landisville, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Centering Devices, of which the following is a specification.

This invention relates to improvements on a centering-machine for which Letters Patent No. 380,130 were issued to me on March 27, 1888; and the objects of my improvements are, first, to simplify the mechanism by which the clamps which grasp the shaft to be centered are closed upon the same; second, to cause the clamps to take a firmer hold upon the shaft with which they are brought into contact than they now do; third, to enable the clamps to grasp a bolt or shaft having a head or boss thereon; fourth, to prevent the centering-machine from turning about a shaft while being applied thereto, and, fifth, to connect the feed-lever with the frame in such manner that it may act to move the bit either forward or backward.

This invention consists of clamps secured to the bit-frame by links, links connecting the clamp-links with a sleeve on the rearwardly-projecting threaded spindle of the bit-frame, and a feed-wheel engaging with the outer end of the sleeve.

This invention consists, also, in fastening cushions of rubber or similar yielding or elastic material upon the inner faces of the clamps, having recesses therein to receive the heads of bolts or bosses which may be encountered on shafts to be centered.

This invention consists, also, in extending the ends of two alternate clamps beyond the others to form a support for the centering-machine on the trestle or table on which the shaft is supported.

Finally, this invention consists in pivoting the feed-lever to one of the longitudinal members of the frame, as well as connecting it with the bit that it may the more readily move said bit backward and forward.

In the accompanying drawings, Figure 1 is a longitudinal section of a centering-machine embodying my invention. Figs. 2 and 3 are transverse sections of the two forms of clamps.

The frame to which the operating parts of

my machine are attached is composed of an annular plate A, having a rearwardly-projecting tubular spindle *a* and a spider B placed a short distance in front of the plate A, and having the outer ends of the arms *b* thereof rigidly connected with the plate by bars C. Forwardly-projecting arms G are pivotally secured to the front and rear ends of the connecting-bars C by links H and D, respectively. Upon the rear edges of the links D are formed lugs *d*, in which are pivoted other links E, extending backward and connected pivotally with the collar *e* of a sleeve 1, surrounding the spindle *a*. Outside of the sleeve 1 and adjoining it there is a feed-wheel 11, mounted on the spindle, the aperture 2 through which is threaded to engage the thread *f* on the spindle. On the front face of the feed-wheel there is an annular hooked flange 3 formed, which catches over a corresponding flange 4 on the end of sleeve 1. The feed-wheel is provided with radially-projecting crank-handles 5, by which motion is imparted thereto.

Clamps K are secured on the inner edges of the arms G by set-screws *k*, passing through them from the outer edge radially toward the center line of the machine, located near each end, so as to produce uniform pressure throughout their entire length upon any surface against which they may be brought to bear. The inner edges of the clamps are boxed out and have inserted therein cushions 6, of rubber or other yielding substance, which project somewhat beyond the bottom of the clamp, as shown in Fig. 2. At each end of the clamps a set-screw I works through them parallel with the screws *k*. These set-screws are constructed to extend down through apertures 7, made in the cushions for that purpose, but rest therein with their ends drawn back from the lower faces of the cushions until the clamps have been firmly closed upon the shaft to be centered, when they are screwed down onto them.

In using clamps whose surfaces of contact are of metal it requires great pressure to hold the centering-machine firmly to its work, in addition to which it is frequently difficult to set the clamps parallel with the center of the shaft to which it is applied by reason of rough-

ness and inequalities of its surface. This difficulty is overcome by using as a bearing a cushion of some yielding or elastic material, which permits projections on the shaft to sink
 5 into it. The yielding of the surface of the cushion also enables the clamp to take a firmer hold of the shaft, and at the same time relieves the joints and members of the machine of much of the strain otherwise put
 10 upon them. The set-screws I are only brought into use after the clamps have been closed upon the shaft, and are intended to prevent any movement of the machine tending to throw the clamps out of a line parallel with
 15 the center of the shaft by any unusual or sudden pressure or jar on the operating or rear end of the centering-machine.

At k' , Fig. 1, is shown a different form of clamp. Here the arms G and the clamps are
 20 formed integral with each other, the lower part being boxed out as in the other form; but the cushion is secured onto a back plate 8, which is adjusted in the box by the set-screws k' , as shown in Fig. 3, the set-screws I
 25 passing entirely through the united arm and clamp. The cushions in both cases have recesses 9 in their lower edges near the ends, or at such other points as may be desirable to receive the heads of bolts which may be re-
 30 quired to be centered, bosses on shafts, or other similar enlargements in the diameter of articles to be operated upon.

Two alternate clamps have their front ends projected out beyond the ends of the others
 35 to form a more secure bearing for the machine when that end rests upon a table or trestle to be brought into engagement with the end of a shaft.

A spindle, with a bit J at the forward end,
 40 passes through openings in the center of the plate A and spider B to center and bore work held by the clamps, being operated by a crank j , or such other well-known means as may be most desirable. This spindle is fed forward
 45 by a feed-lever L, embracing and pivoted between its jaws l at l' to the loose sleeve j' and one of the connecting-bars C. The pin by which this lever is pivoted to the connect-
 50 ing-bar C constitutes the fulcrum about which the lever works, and the apertures 10, through which the pin engages the lever at that point, are elongated to compensate for the variation in distance between it and the pivot of the sleeve caused by the movement of the latter.

55 In feeding the bit forward or drawing it back the handle of the lever is moved in the

desired direction, causing the sleeve j' to bear against one of the rigid collars N, secured to the bit on either side thereof.

In the patent granted me, as before cited, 60 the feed-lever only fed the bit forward, so that it was awkward and inconvenient to draw the latter back. By connecting the lever as just described it can not only be used to move the bit forward or backward, but does both much 65 more efficiently than was done before.

As will be readily understood, the shaft or other article to be centered is introduced between the clamps, which are closed upon it by revolving the feed-plate 11, after which the 70 bit is caused to act on the end by turning the crank j and using the feed-lever L. The machine can also be carried to any shaft intended to be centered, it being pushed on the end of said shaft, receiving it in the space be- 75 tween the clamps, which are closed upon it in the same manner as first described.

Having thus described my invention, what I claim as new, and desire to secure by Letters 80 Patent, is—

1. The combination, in a centering-machine, with the frame provided with a spindle a , of clamps connected with said frame by links H and D, the sleeve 1, connected with said clamps by links E, fastened to links D, connecting 85 the clamp with the frame, and the feed-wheel, substantially as and for the purpose specified.

2. The combination, in a centering-machine, of the frame provided with a spindle a , clamps pivotally attached to said frame by links, a 90 sleeve movable back and forth upon the spindle, connections between the clamps and sleeve whereby the movements of the sleeve operate the clamps, and a feed-wheel for actuating the sleeve, substantially as and for the 95 purpose specified.

3. The clamps having the rubber or similar yielding cushions secured thereto, substantially as and for the purpose specified.

4. The combination, in a centering-machine, 100 of the clamps having the rubber or similar cushions attached thereto and the set-screws I, passing through said cushions, substantially as and for the purpose specified.

5. The clamps having recesses 9 formed in 105 their lower or bearing edges to receive projections on the article being centered, substantially as specified.

SIMON B. MINNICH.

Witnesses:

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 JACOB HALBACH.