

(No Model.)

A. J. NOYES.

MACHINE FOR MILLING CONNECTING ROD BOXES.

No. 392,164.

Patented Oct. 30, 1888.

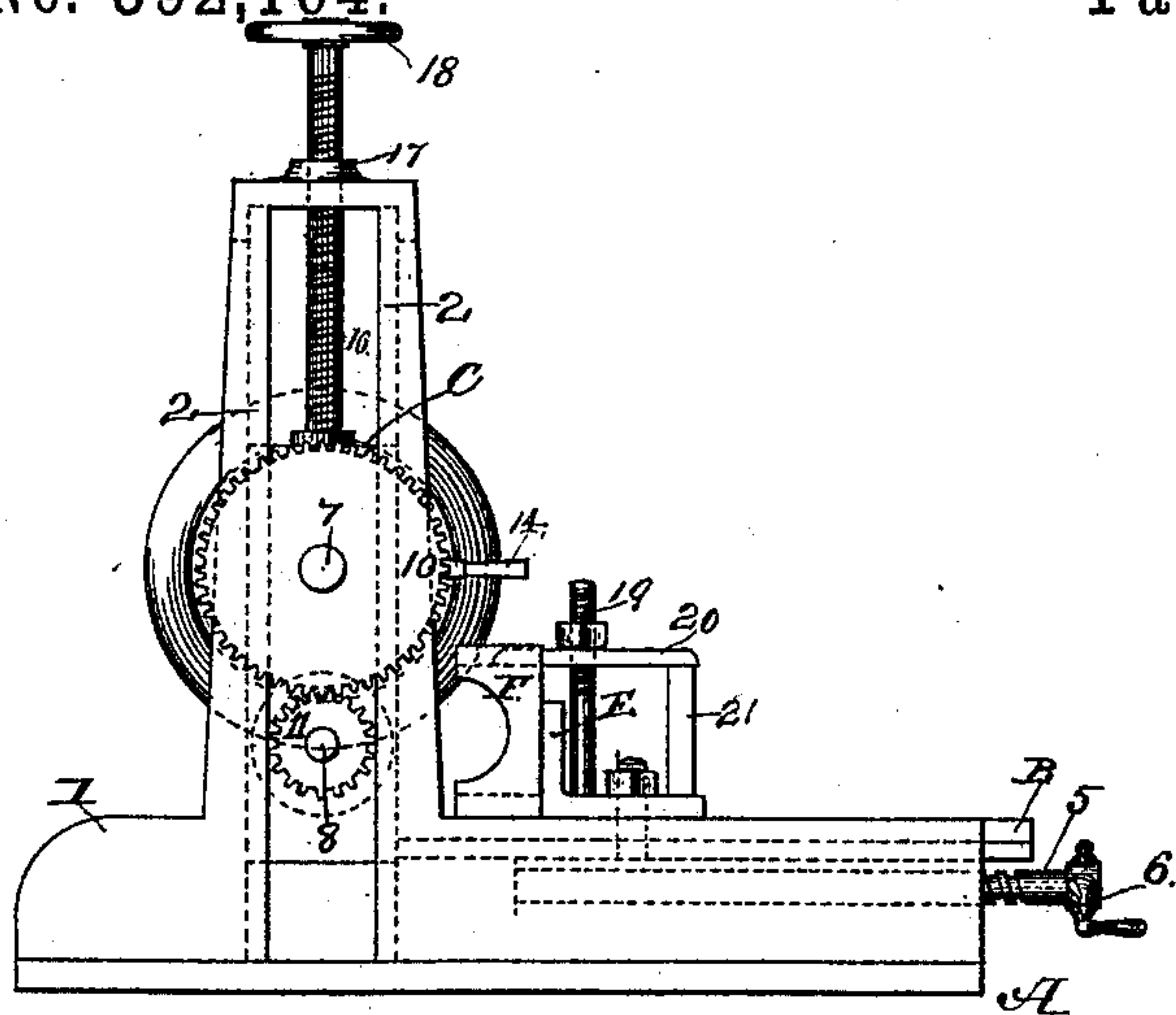


FIG. 1.

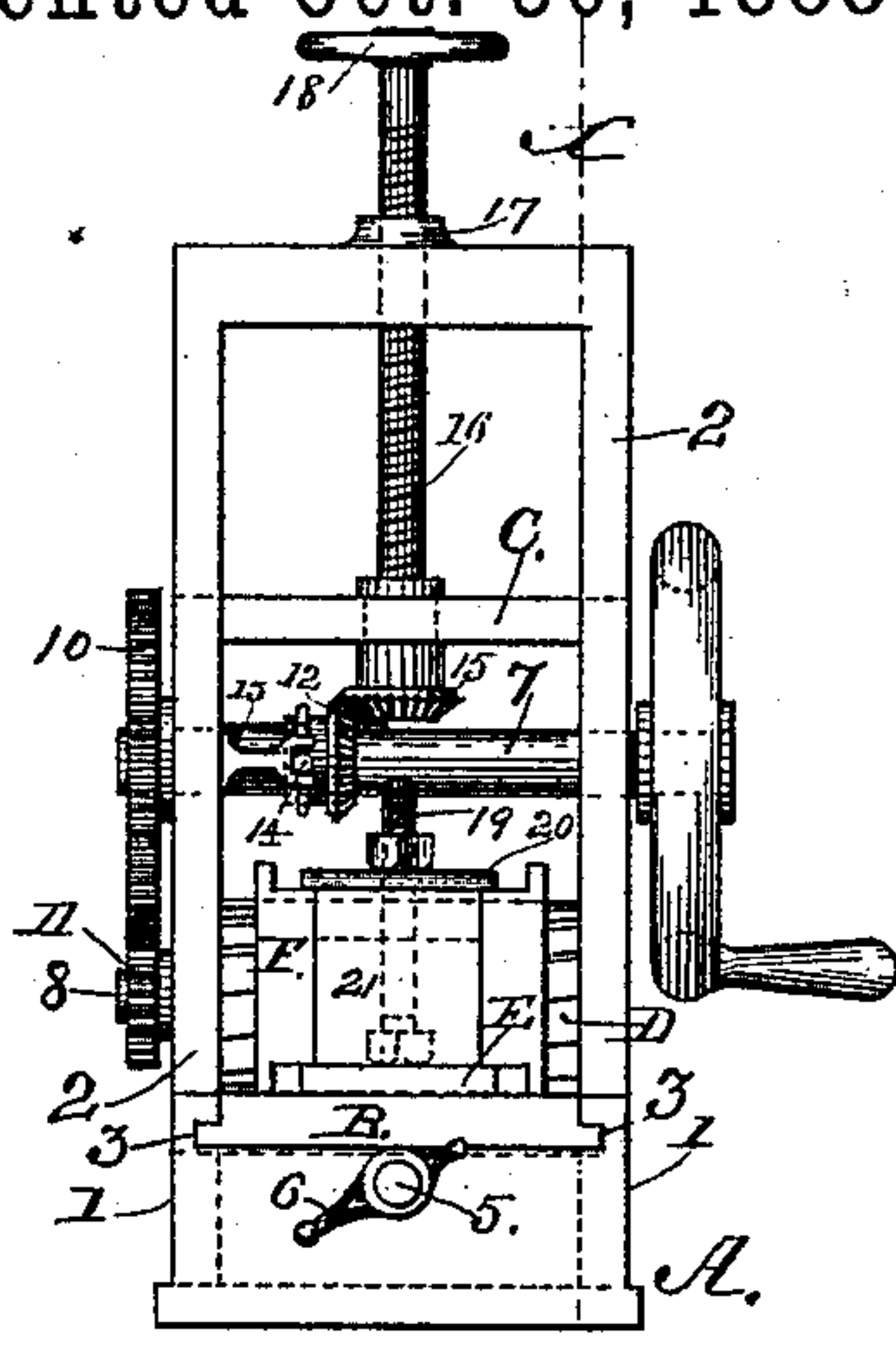


FIG. 2.

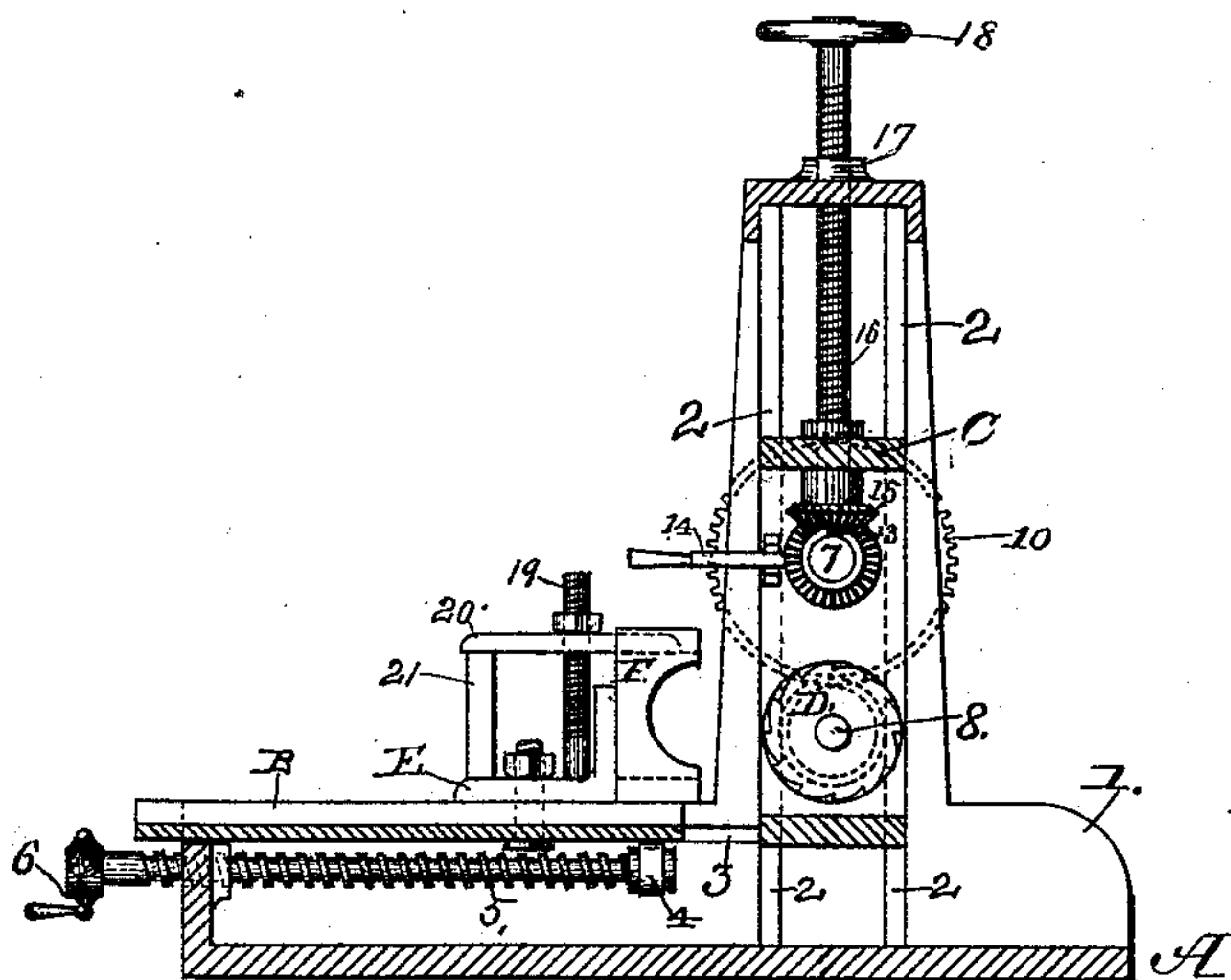


FIG. 3.

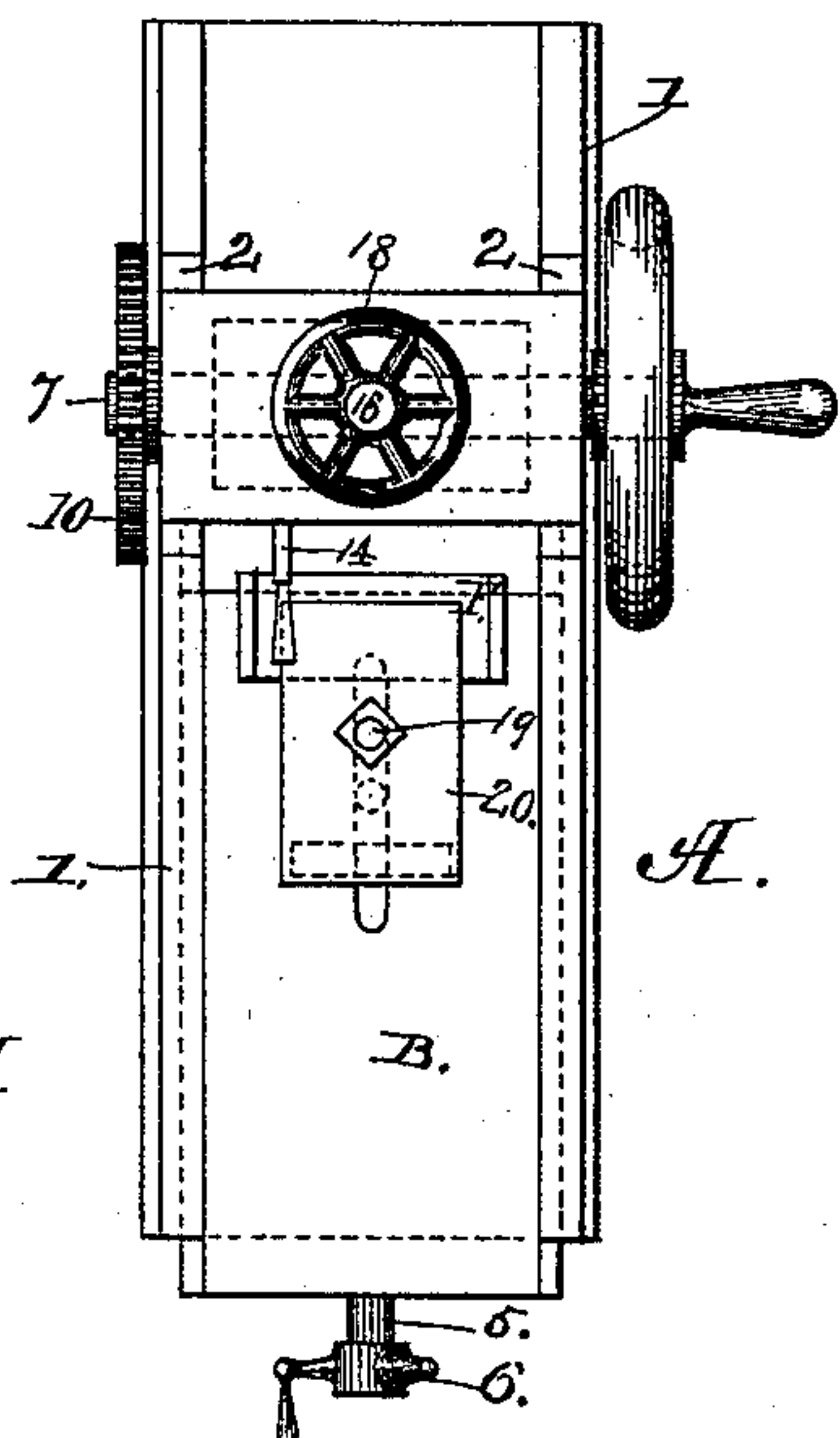


FIG. 4.

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MACHINE FOR MILLING CONNECTING-ROD BOXES.

SPECIFICATION forming part of Letters Patent No. 392,164, dated October 30, 1888.

Application filed June 5, 1888. Serial No. 276,079. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS J. NOYES, of Oneonta, in the county of Otsego, in the State of New York, have invented a new and useful
5 Portable Milling-Machine for Dressing Off Connecting-Rod Brasses and other Similar Purposes, of which the following is a specification.

My invention relates to a simple, light, and effective machine that can be readily moved by
10 hand from place to place where it is needed for the purpose of removing an excess of metal from the joining faces of the brasses for connecting-rods, journal-boxes, and other similar parts of machines, but especially where such
15 repairs are to be made at places which are remotely or inconveniently located in respect to a shop containing suitable machines for that purpose; and the object of my invention is to provide a simple and effective portable tool or
20 machine for the above-named purpose, and thereby supply a long-felt want in connection with railway machinery. This object I attain by the mechanism illustrated in the accompanying drawings, which are herein referred to
25 and form part of this specification, and in which—

Figure 1 is a side elevation of my portable milling-machine. Fig. 2 is a front elevation of the same. Fig. 3 is a longitudinal section
30 at the line X X on Fig. 2, and Fig. 4 is a plan view.

As represented in the drawings, A is the bed-piece of the machine, made substantially in the form shown and having parallel sides 1. Near
35 the rearmost end of said sides vertical guides 2 are erected, and at or near the top of said sides horizontal guideways 3 are formed.

B is a sliding bed, which is fitted to move endwise in the guideways 3 of the bed-piece A, and is provided with a pendent lug, 4, in which
40 the end of a feed-screw, 5, engages to effect the endwise movements of said sliding bed. The feed-screw 5 is fitted into screw-threads made in the end piece of the bed-piece A, and the
45 outer end of said screw is provided with a hand-crank, 6, or other suitable appliance for rotating it.

C is a sliding head, which is fitted to move in the vertical guides 2, and is provided with a
50 driving-shaft, 7, and with a cutter-shaft, 8, both of said shafts being parallel to each other and

arranged transversely to the center line of the bed-piece A. One end of the driving-shaft 7 is provided with a crank-wheel, 9, or other appliance for giving a rotatory motion to said
55 shaft, and the opposite end of the latter is provided with a gear-wheel, 10, which engages with a pinion, 11, on the corresponding end of the cutter-shaft 8, for the purpose of imparting to said cutter-shaft a higher rate of speed than
60 is given to the driving-shaft. A bevel gear-wheel, 12, is fitted to slide on a spline, 13, that is inserted longitudinally in said driving-shaft, and a forked lever, 14, engages in a circumferential groove in the hub of said bevel gear-
65 wheel for the purpose of sliding the latter on the driving-shaft when occasion requires. The gear-wheel 12 engages with a corresponding wheel, 15, that is secured upon the lower end of a vertical feed-screw, 16, and whose hub is
70 fitted to rotate in the upper cross-bar of the sliding head C. The feed-screw 16 fits into a screw-nut, 17, formed in the cross-bar at the top of the vertical guides 2, so that when said feed-screw is rotated it will acquire a vertical
75 feeding movement in a direction that will correspond to the direction in which said screw is rotated. A hand-wheel, 18, is attached to the upper part of said feed-screw for the purpose of rotating the latter when the wheels 12
80 and 15 are thrown out of gear to move the sliding head C upward or downward, as occasion may require.

D is the cylindrical cutter, which is secured to the cutter-shaft 8, and is provided with a
85 series of obliquely-arranged cutter-teeth, like those commonly made on milling-machine cutters.

E is an angle-plate, that is adjustably attached to the sliding bed B, for the purpose of
90 aiding in setting the work in position on said sliding plate. Said angle-plate is preferably provided with a stud-bolt, 19, which, by passing through a clamp-strap, 20, whose outer end is supported by a chock-piece, 21, secures a
95 brass, F, or other piece of work to be operated on, firmly in place on the sliding bed B.

The operation of my portable milling-machine is as follows: While the sliding head C is standing in a raised position where the axis
100 of the cutter-shaft 8 will be above the plane of the upper surface of the piece to be operated

on, the brass F or other piece of work is secured to the sliding bed B, so that the inner end of said brass will slightly overhang the inner end of the sliding bed, as shown in Fig. 3. The sliding bed B is then moved by the feed-screw 5 toward the cutter D to bring the work into position, where the required amount of metal will be removed by the operation of said cutter. Then, with the wheels 12 and 15 engaged in gear, the driving-shaft 7 is set in motion to rotate the cutter D and feed-screw 16. The latter causes the sliding head C to move downwardly at a very moderate rate of speed, and thereby the cutter D is carried into position while rotating, where its cutting-edges will effect the removal of the excess of metal that it is desirable to dispense with. While the wheels 12 and 15 are meshed in gear the cutter D will be fed downward, as required, for removing an excess of metal from the joining faces of brasses for connecting-rods; but when the machine is required to be used for removing the metal from the opposite sides of the bore of said brasses contiguous to said joining faces, so that the crown of the brasses will have a fair bearing upon the wrist-pin on which it works, the wheels 12 and 15 must be thrown out of gear to permit the sliding head C to be moved into position to bring the upper side—or the lower side, if required—of the cutter D opposite the point where the metal is to be cut away. The cutter, which to do this work must be of smaller diameter than the

bore of the brass, is set in motion by the driving-shaft 7, and the sliding bed B is fed toward the cutter D by means of the feed-screw 5 until the required amount of the excess is cut away from the side that is first operated on. Then the sliding bed is drawn back by the feed-screw 5 and the sliding head B moved into position opposite to the point of the bore where the metal is to be removed from the opposite side of the bore. Then the sliding bed is fed forward and the cutter D again rotated, as above described, until the work is completed.

I claim as my invention—

A portable milling-machine consisting of the following parts: a bed-piece provided with horizontal and vertical guideways, a sliding bed fitted to move by means of a feed-screw in said horizontal guideways, and a sliding head fitted to move by means of a feed-screw in said vertical guideways, said sliding head carrying a driving-shaft that is disconnectibly geared to the feed-screw for said sliding head, and a cutter-shaft which is geared to said driving-shaft, and to which a milling-cutter is secured, said driving-shaft and cutter-shaft being fitted to rotate in and to be carried upwardly and downwardly by said sliding head, as and for the purpose specified.

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