

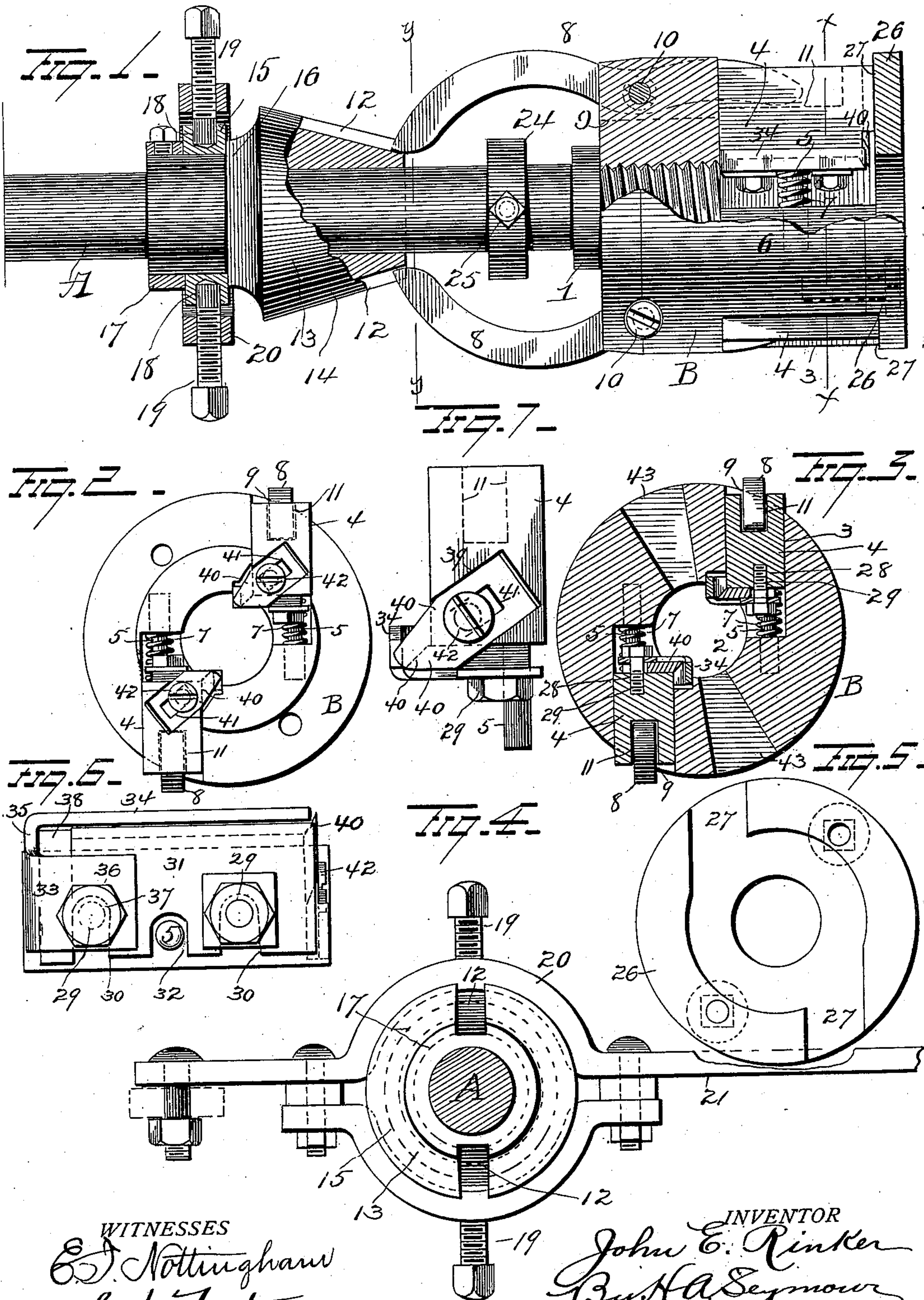
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J. E. RINKER.
TENONING MACHINE.

(Application filed May 27, 1899.)

(No Model.)



WITNESSES
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JOHN E. RINKER, OF BURLINGTON, IOWA.

TENONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 639,772, dated December 26, 1899.

Application filed May 27, 1899. Serial No. 718,578. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. RINKER, a resident of Burlington, in the county of Des Moines and State of Iowa, have invented certain new and useful Improvements in Tenoning-Machines; 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 an improvement in tenoning-machines; the object of the invention being to provide a device of the above-mentioned character which can be adjusted to cut tenons of different sizes.

A further object is to provide a machine of the above-mentioned character which will be extremely simple in construction, strong and durable, and most effectual when in operation.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, partly in section, illustrating my improvements. Fig. 2 is an end view with the disk 26 removed. Fig. 3 is a view in section on the line *x x* of Fig. 1. Fig. 4 is a view in section on the line *y y* of Fig. 1. Fig. 5 is a view of the disk 26, and Figs. 6 and 7 are detail views of the cutter-blocks.

A represents a shaft screw-threaded on its end to engage internal screw-threads in a hole or opening in the inner end of my improved tenoning-bit B. The shaft A is provided with an annular flange 1 to form a shoulder against which the inner end of the bit B abuts.

The bit B is provided with a longitudinal bore 2 of any desired diameter and is cut out or recessed, as shown at 3, to form guide-ways for cutter-blocks 4. Each cutter-block is provided with a pin or projection 5 in alignment with a socket 6 in the bit, and a coiled spring 7 is disposed around the pin and adapted to bear respectively against the block and bit to normally hold the blocks in their outer or non-engaging position. The bit B is grooved, as shown at 9, in alignment with the recesses 5 for the reception of levers 8, which are pivoted between their ends in the grooves 9 by means of screws or pins 10, passing

through the levers and a portion of the bit. One end of each lever 8 is disposed in a recess 11 in one of the cutter-blocks, and the other end is disposed in a longitudinal groove 12 in a sleeve 13. The sleeve 13 is mounted loosely on the shaft A and is made conical throughout a portion of its length, as shown at 14, and is provided with a ring 15, loosely mounted thereon and held against longitudinal movement by a peripheral shoulder 16 on the sleeve at one side of the ring 15 and by a ring or collar 17, secured on the sleeve at the other side of the ring.

The ring 15 is provided on diametrically opposite sides with sockets 18 for the reception of the non-threaded ends of bolts or screws 19, which are screwed through diametrically opposite holes in a yoke 20 of a lever 21. The lever 21 is pivotally attached at one end to a suitable support.

Any approved ring 24 may be secured on the shaft A by means of a screw or pin 25 to limit the movement of the sleeve 13.

The cutter-blocks 4 project slightly beyond the end of the bit B, and a disk 26, having recesses 27 therein to form guides for the cutter-blocks, is secured to the end of the bit B and is provided with a central opening for the passage of the spoke or other article to be tenoned.

Each cutter-block 4 is provided on its inner face with screw-threaded holes 28 for the reception of screws 29, which pass through notches 30 in my improved knife or cutter 31, which latter is provided with a beveled cutting edge and is also provided with a notch 32 to accommodate the pin or projection 5. Each cutter-block 4 is recessed at its outer end to receive the short member 35 of a frame 33. The frame 33 is provided with a long member or guard-finger 34, disposed in proximity to the cutting edge of the knife or cutter 31, and is also provided on the short member 35 with a lug or arm 36, having a hole or opening 37 therein for the passage of a screw 29 to secure the frame in place. If the knife or cutter 31 is made shorter than the block 4, (for the purpose of making a short tenon,) I provide a block 38 between the end of the cutter or knife and short member of the frame to prevent displacement of the knife.

The outer end of each cutter-block 4 is re-

cessed at an angle, as shown at 39, for the accommodation of a knife or cutter 40. The knife or cutter 40 is provided with an elongated slot 41 for the reception of a locking-screw 42, and said knife is provided with a cutting edge at its outer end and is adapted to cut the shavings at the base of the tenon which are made by the knife 31, and hence form a perfect tenon. It will be seen that owing to the elongated slot 41 the knife 40 can be adjusted to project outward any desired distance. In fact, the knife 40 projects outward slightly farther than the knife 31, so as to insure the complete severing of the shavings.

The bit B is provided with elongated holes or openings 43 for the passage of the shavings cut in making the tenon.

The operation of my improved machine is as follows: The shaft A is revolved by any approved means to turn the bit B and sleeve 15, and when an article is to be tenoned it is inserted in the bit B and the lever 21 gradually pulled forward to operate the levers 8 and press the cutter-blocks 4 inward to cut the tenon to a diameter regulated by the position of the collar 24 on the shaft A.

Various slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a tenoning-machine, the combination with a shaft and a bit secured thereto having recesses, of a cutter-block mounted loosely in each of said recesses, a guide-pin projecting

inwardly from each block and loosely entering a socket in the bit, springs encircling said pins and acting to press the blocks outwardly, cutters adjustably attached to said blocks, a lever for each block, each lever pivoted between its ends to the bit and bearing at one end against the outer face of one of said blocks, a cone mounted on the shaft and engaged by said levers and means for moving the cone to adjust the cutters relatively to each other.

2. In a tenoning-machine, the combination with a bit having recesses therein, of cutter-blocks mounted loosely in said recesses, cutters carried by said blocks, springs normally pressing said cutter-blocks outwardly, a cone mounted on the shaft, means for moving said cone, levers pivoted between their ends to the bit and each bearing at one end against the outer face of one of the cutter-blocks and at the other end against said cone and a collar adjustably secured to the shaft between the bit and the cone to limit the movement of the latter for the purpose of regulating the adjustment of the cutter-blocks relatively to each other according to the size of the tenon it is desired to make.

3. In a tenoning-machine, the combination with a revoluble shaft, of a bit secured to said shaft, cutters on the bit, levers connected with the cutters, and a conical sleeve mounted on the shaft and having grooves therein for the reception of the ends of the levers and adapted, when moved longitudinally on the shaft, to operate the levers and cutters connected therewith.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN E. RINKER.

Witnesses:

D. M. HARVEY,
CHAS. C. CLARK.