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Patented Aug. 1, 1899.

L. W. GREENLEAF.

BORING ATTACHMENT FOR MORTISING MACHINES.

(Application filed Nov. 5, 1897.)

(No Model.)

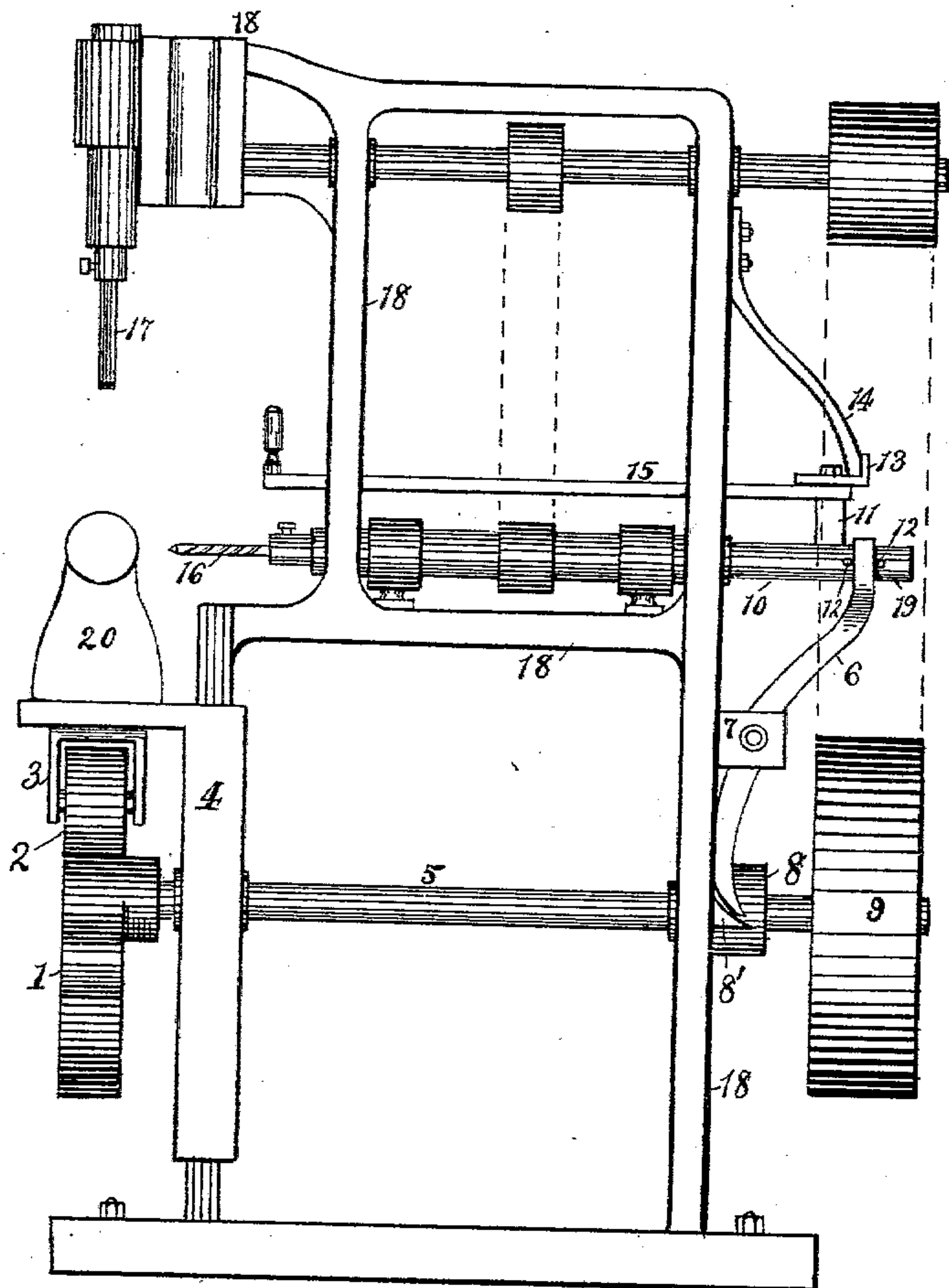


Fig. 1.

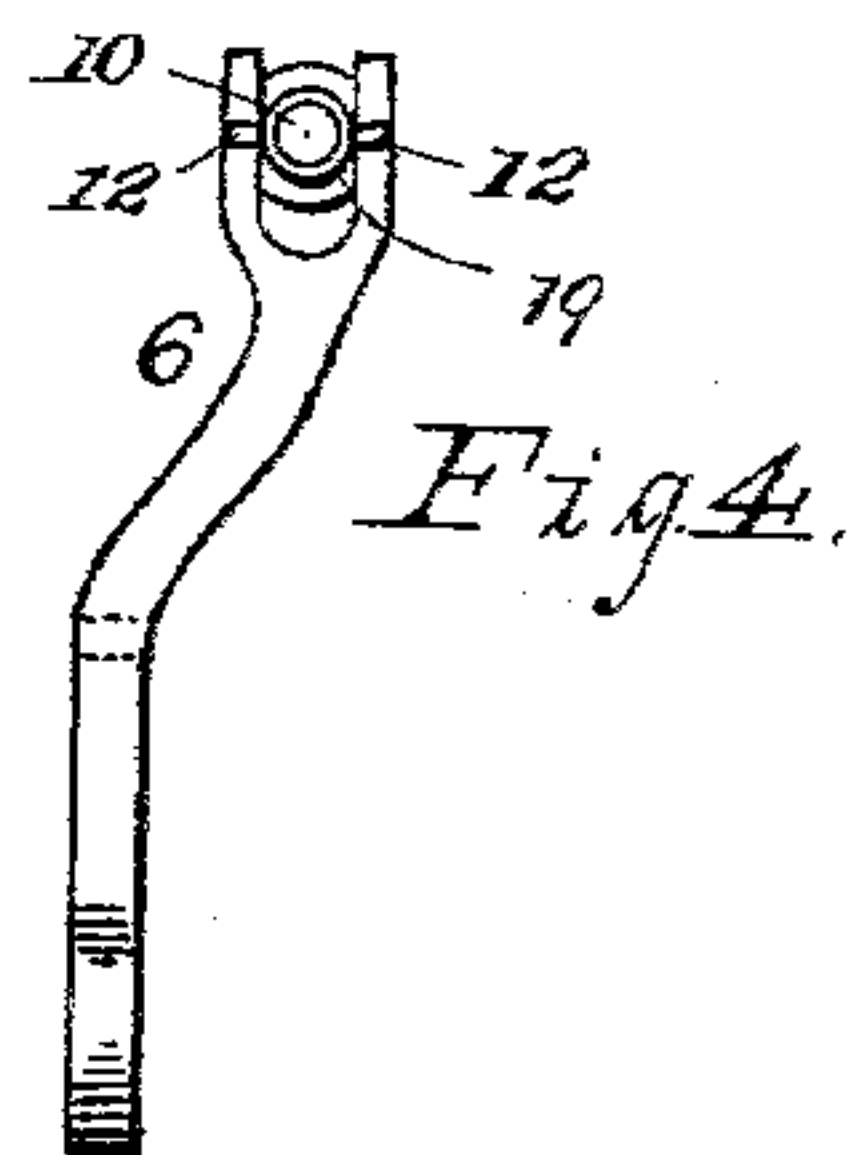


Fig. 4.

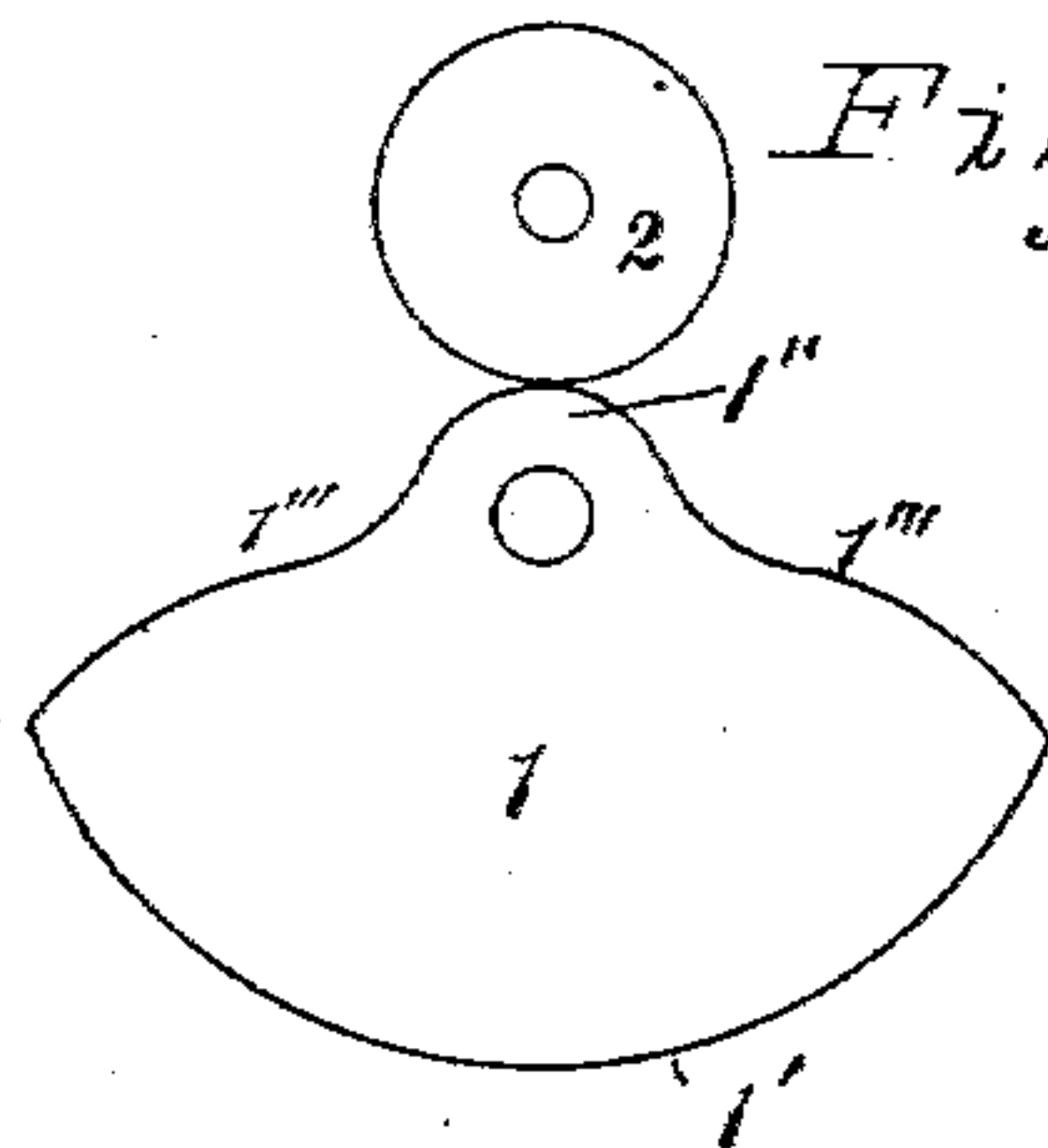


Fig. 2.



Fig. 3.

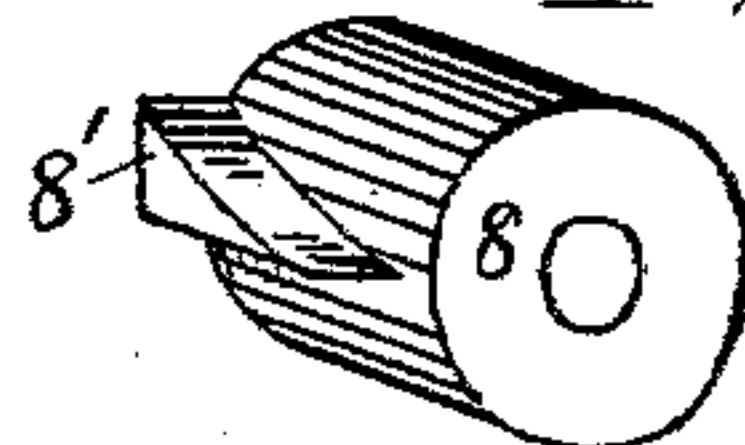


Fig. 5.

WITNESSES:

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BORING ATTACHMENT FOR MORTISING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 629,787, dated August 1, 1899.

Application filed November 5, 1897. Serial No. 657,458. (No model.)

To all whom it may concern:

Be it known that I, LATHAM W. GREENLEAF, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Boring Attachments for Mortising-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to boring attachments for that class of mortising-machines whereby wheel-hubs are mortised; and the objects of my invention are, first, to provide a means whereby a hub which is placed upon the dogs of any mortising-machine may be automatically held in proper position in relation to the drill and for a proper length of time for boring; second, to provide a means whereby the hub may be raised after being bored to a proper position and there held a proper length of time for the chisels to complete the mortise, and, third, to provide a means whereby a hub may be completely mortised without taking the hub from the dogs of the machine. I attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view of a portion of the frame of an ordinary mortising-machine with the newly-invented attachment mounted thereon. Figs. 2 and 3 are views of the cam and accompanying roller. Fig. 4 is a view of the lever. Fig. 5 is a view of the collar upon which a projection is mounted for the purpose of engaging and operating the lever.

Similar numbers of reference refer to similar parts throughout the several views.

In Fig. 1 the number 18 indicates a portion of the framework of a mortising-machine which is used herein for the purpose of explanation, and any other form of mortising-machine may be used in the application of my boring attachment.

A shaft 5 is mounted in the lower part or bed of the frame and projects beyond the frame both in front and rear for the purpose hereinafter set forth.

Upon the forward protruding end of the shaft 5 a cam of four faces is firmly mounted, and the outline of the cam, as shown in Fig. 2, consists of a segment of a large circle 1', a segment of a smaller circle 1'', and two compound curves 1''', which connect the corresponding ends of the two circular segments. The portion of the compound curves which joins the segment of a smaller circle 1'' is concave, while the portion which joins the larger segment of a circle 1' is convex, for the purpose hereinafter set forth. The cam is mounted upon the shaft 5 at a point which is common with the center of the circle-segment 1''. A roller 2 is suspended upon a shaft which finds bearings in a bracket 3, which is suspended from the sliding table 4, upon which the head and tail stocks 20 rest. The sliding table 4 is gibbed to the edges of the front side of the base of the frame 18. The roller 2 rests upon the edge of the cam and rises and falls with the revolution of the cam.

The extreme rear end of the shaft 5 supports a driving-pulley 9, and between the pulley 9 and the rear side of the frame 18 a collar 8 is keyed upon the shaft 5. A projection 8' projects from one side of the collar 8, as shown in Fig. 5, and is adapted to engage and press outward the lower end of the hereinafter-described lever 6.

A strong metallic lever 6 is mounted upon the rear side of the frame 18 by means of a bracket 7. The upper end of this lever is forked and adapted to straddle the auger-shaft 10, and the lower end of the lever is curved outward and adapted to engage the projection 8' upon the collar 8, as shown in Fig. 1.

An auger-shaft 10 is mounted just above the bed of the frame 18. This shaft projects out from the rear side of the frame 18 and bears upon its extreme rear end a sleeve to which the upper end of the lever 6 is attached by means of four pins 12, two on each side of the sleeve, whereby the two prongs of the lever are confined. The sleeve also supports a block 11, to which a hand-bar 15 is attached for the purpose of operating the auger-shaft 10 by hand. An angle-iron 13 is also attached to the block 11 and serves as a seat for the spring 14. The spring 14 is mounted

upon the back of the frame 18 and extends downward, with its lower end resting in the angle-iron or spring-seat 13, and is adapted to return the auger-shaft to its normal position when the bit 16 is not in use.

To operate a mortising-machine with my attachment, the hub to be mortised is placed between the dogs of the machine with the sliding table 4 at its lowest position, where the bit 16 is upon a line with the axis of the hub. When in this position, the roller 2 rests upon the smaller segment 1' of the cam 1 and the segment 1' is of the proper proportion to hold the roller 2, and consequently the sliding table 4, together with the hub, stationary just long enough to allow the bit 16 to bore the required hole in the hub. It is necessary to bore by hand enough holes before starting the chisels to bring the first hole bored under the chisels as the hub revolves in order that the chisels may have a hole to start in. This boring by hand is done before the application of power to the machine by starting the driving mechanism which actuates simultaneously both the augers and the chisels. Just as the bit finishes its work and the chisels are set in motion the roller 2 begins to ascend upon the compound-curve segment 1'', thereby raising the sliding table 4 upward to a proper position below the mortise-chisels 17, and when the hub is in a proper position for the chisels to work the roller 2 is just entering upon the larger-circle segment 1', which is properly proportioned to hold the hub stationary long enough for the chisels to complete their work in the hub. As soon as the chisels have completed their work the roller 2 begins to descend the other compound-curve segment 1'', thereby lowering the hub again to the proper position for the auger-bit to bore the next hole in the hub, which is bored automatically. This process is repeated until the hub is completely mortised. The hub is revolved automatically by the mortising-machine proper. Just as the roller 2 enters upon the segment 1' of the cam the projection 8' upon the collar 8 engages the lower end of the lever 6 and forces the same outward, thereby forcing the upper end of the

lever forward, and consequently the auger-shaft 10 is forced forward and a hole is bored into the hub, after which the lever and auger-shaft are released and carried back to their normal position by the spring 14.

In case it is desired to bore a hole by hand the bit may be drawn forward by means of the hand-lever 15 and held thereby until the hole is bored. The shaft 5 is provided with the pulley 9, which is connected with the pulleys which drive the auger-shaft and the chisels. The said shaft 5 is driven in any convenient manner.

My invention being an attachment for any form of mortising-machine, I have used but one form of frame for the purpose of illustration, but reserve the right to make alterations in the arrangement of the component parts of the attachment when necessary in the application of the attachment to various types of machines.

Having described my boring attachment and its operation, I do not make a broad claim upon any one form of mortising-machines; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a mortising-machine, of a cam 1, adapted to raise and lower a sliding table 4, through a definite space and to hold said table stationary at a given point a definite length of time, a cam-shaft 5, the roller 2, the hanger 3, the sliding table 4, a driving-pulley 9, a collar 8 furnished with a projection 8' adapted to engage with the lever 6, the lever 6 adapted to operate the auger-shaft 10, in connection with the shaft 5, the auger-shaft 10, the sleeve 19, the pins 12, the hand-bar 15, the spring 14 and the spring-seat 13, all substantially as described and for the purpose set forth.

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

LATHAM W. GREENLEAF.

Witnesses:

JAMES C. COUPER,
H. P. BARTLETT.