C. W. BORG.

COLUMN CAP AND BASE SHAPING MACHINE.

APPLICATION FILED SEPT. 2, 1910.

**1,026,071.** **Patented May 14, 1912.**

2 SHEETS—SHEET 1.

Fig 1.

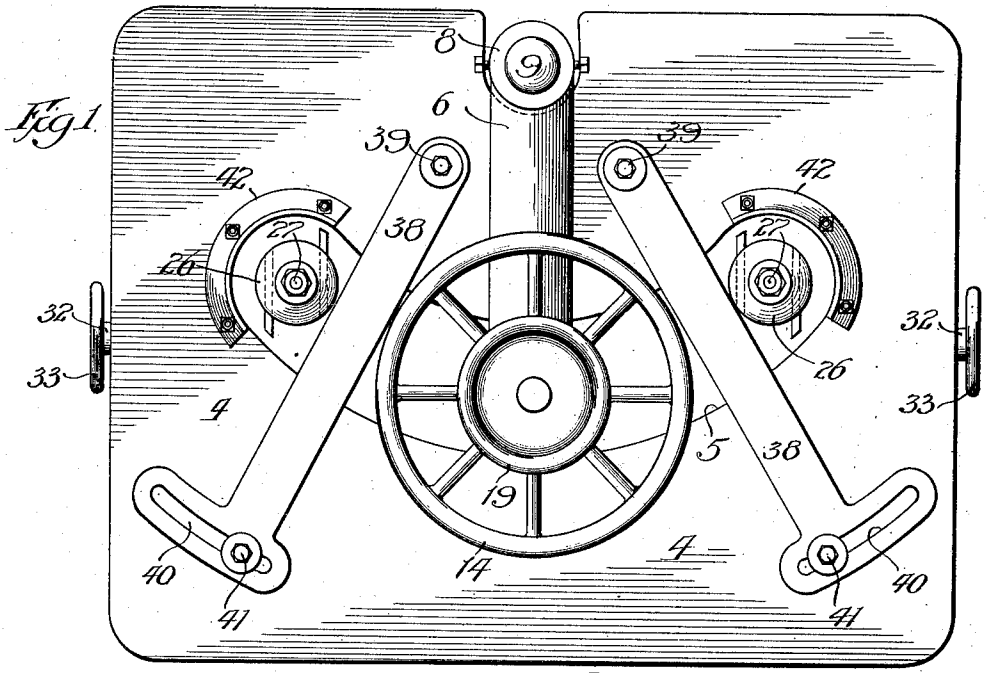
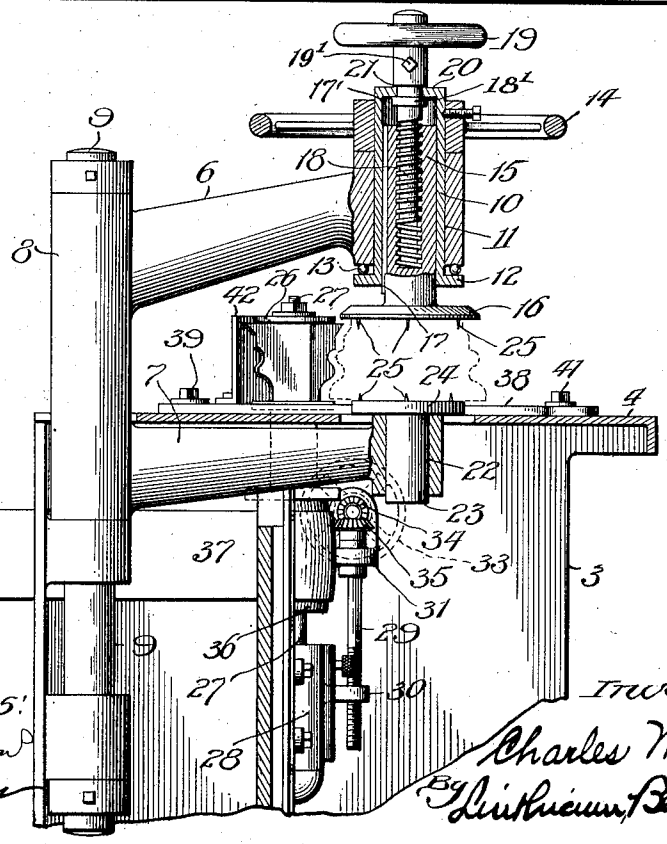



Fig 2.

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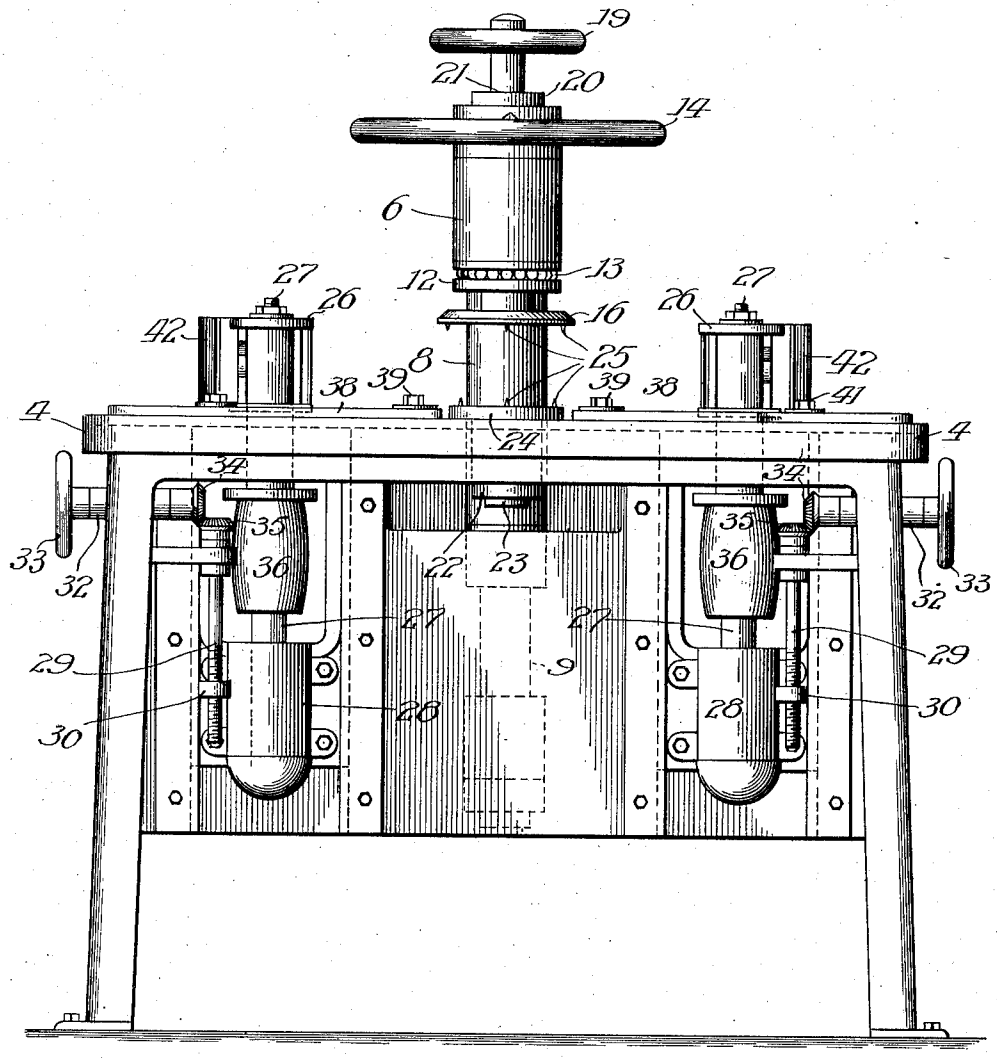


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## COLUMN CAP AND BASE SHAPING MACHINE.

1,026,071. Specification of Letters Patent. Patented May 14, 1912.

Application filed September 2, 1910. Serial No. 580,194.

*To all whom it may concern:*

Be it known that I, CHARLES W. BORG, a citizen of the United States, residing at Rock Island, in the county of Rock Island and State of Illinois, have invented new and useful Improvements in Column Cap and Base Shaping Machines, of which the following is a specification.

The primary object of this invention is to provide a machine of simple construction adapted to be operated manually for shaping column caps and bases and other work.

A further and important object of this invention is to provide a shaping machine of this character in which the blank is adapted to be held and presented to the shaping heads to be cut with the grain of the wood.

Further objects of the invention are to provide means of simple construction for holding the work and adapted to be easily manipulated to present the work to a pair of shaping heads; to provide adjustable diameter gages for regulating and controlling the cut of the knives; and to provide a machine adapted to be easily and rapidly operated by comparatively unskilled labor.

In the accompanying drawings illustrating one embodiment of the invention Figure 1 is a top plan view of the machine; Fig. 2 is a sectional side elevation thereof, and Fig. 3 is a front elevational view of the same.

The machine comprises a suitable base frame 3 having a table 4 provided with a segmental slot 5. The work is held between heads on a swinging clamp frame which comprises an upper arm 6 and a lower arm 7 both rigid with a sleeve 8 which is mounted to swing on a standard 9 suitably supported in the base frame. The arms are arranged in vertical alinement, the upper arm projecting above the table and the lower arm beneath the table. A sleeve 10 is mounted to turn in a vertical bore 11 at the outer end of the arm 6 and at the lower end of this sleeve there is a peripheral flange 12 between which and the arm is a ball bearing 13. A shaping hand wheel 14 is rigidly secured to the upper end of the sleeve and rests upon the arm. A spindle 15 is arranged within and projects below the sleeve and carries the top clamp plate 16. The spindle is provided with a feather 17 which engages a keyway 17′ in the sleeve and connects these parts together for rotation while permitting a vertical adjustment of the spindle and top clamp plate relative to the sleeve. A clamping screw 18 operates in the spindle and projects through the upper end of the sleeve and carries a hand wheel 19, which is secured to the screw 18 by means of a set screw 19′. The sleeve is provided at its upper end with a cap 20 to form a bearing for the shoulder 21 and the collar 18′ on the hand screw.

The lower arm has a bore 22 which alines with the bore in the upper arm and the spindle 23 of the bottom clamp plate 24 is loosely mounted in this bore. The clamp plates 16 and 24 are each preferably provided with studs 25 to engage and secure the work against lateral shifting movement.

The shaping heads 26 may be of any suitable construction and they are located at the ends of the slot 5 and carried on the upper ends of shafts 27 which are mounted in the adjustable spindle frames 28 slidably supported on the base frame 4. The means for adjusting each of these spindle frames comprises a vertical adjusting rod 29 having screw-threaded engagement with a lug 30 on the spindle frame and supported in a bearing 31 on the base frame. A horizontal shaft 32 mounted in suitable bearings in the base frame carries a hand wheel 33 outside of the base frame and a bevel gear 34 inside of the base frame which meshes with a bevel gear 35 on the upper end of the adjusting rod 29. By operating the hand wheel 33 the adjusting rod will be rotated to raise or lower the spindle frame. Each of the shafts 27 carries a pulley 36 to receive a driving belt 37.

The adjustable diameter gages comprise a pair of bars 38 which are pivotally mounted at one end on the frame at 39 and project forwardly across the slot 5 and are provided at their other end with transverse slots 40 to receive the locking bolts 41 which are screwed into the table. The bottom clamp plate 24 projects above the table 4 sufficiently to engage the bars 38 and the latter are each adapted to swing in a limited arc to provide the desired diameter gage for the work.

Knife guards 42 are fastened on the table at the ends of the slot.

In practice, the blank, which may be a solid block or consist of a plurality of boards fastened together with the grain running parallel, is clamped in place between the top and bottom clamp plates by adjusting

the hand screw 18. Then the operator with two-hand control of the shaping wheel 14 swings the work to one or the other of the shaping heads, turning the side grain of the wood to the knife and cutting into the blank until the bottom clamp plate stops against the diameter gage. Then holding the swinging frame in this position against the gage the operator turns the shaping wheel to turn the blank in the direction to take the cut with the grain one quarter of a circle and until the end grain is reached. Then the opposite side of the blank is presented to the same shaping head and cut in the same manner. The clamp frame is then swung to the opposite head and the two remaining diagonally opposite corners of the blank are shaped away. Thus all four quarter cuts are made with the grain and the work is finished in true, round and perfect design.

My machine is simple in construction and is so easy to operate that no particular skill is required therefor. It can be employed not only for producing circular shapes but many elliptical and irregular shapes can be produced thereon. Heretofore it has been customary to make circular caps and bases for wood columns on ordinary wood turning lathes with hand tools but this end-grain turning was both slow and tedious. I have provided a machine of simple construction which enables the work to be presented first to one shaping head and then to another so that the cut may be with the grain instead of across the grain, thereby improving the work and facilitating the operation. With my machine an unskilled operator can easily turn out more work in a day, without previous band sawing of the blank, than a skilled operator can turn out on a lathe.

The swinging clamp frame is conveniently disposed for receiving the blank between the clamp heads and for carrying the blank first to one head and then to the other. The swinging clamp frame is easily manipulated by the operator to carry the work to the shaping heads.

While my invention is particularly adapted for shaping caps and bases of wood columns it may be used for shaping other work with equally satisfactory results.

What I claim and desire to secure by Letters Patent is:

1. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads revolving in opposite directions, a clamp frame projecting above and beneath the table and mounted to swing to carry a blank from one shaping head to the other, and means for securing a blank in said frame.

2. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads revolving in opposite directions, a clamp frame projecting above and beneath the table and mounted to swing between said shaping heads, means for securing a blank in said frame, and diameter gages arranged on the table between the shaping heads and the clamp frame.

3. A shaping machine of the character described comprising a table having a curved slot therein, a pair of shaping heads located at the ends of said slot and revolving in opposite directions, a clamp frame comprising an arm projecting above the table and an arm projecting beneath the table and mounted to swing to carry a blank from one shaping head to the other, and means for securing a blank in said frame.

4. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads revolving in opposite directions, a clamp frame having an arm projecting above the table and an arm projecting beneath the table and mounted to swing to carry a blank from one shaping head to the other, means for securing a blank in said frame, and diameter gages arranged between the shaping heads and the clamp frame.

5. A shaping machine of the character described comprising a table having an opening therein, a vertical standard projecting above and below the table, a clamp frame mounted to swing on said standard and having an arm projecting above the table and an arm projecting beneath the table, and means for securing a blank in said frame.

6. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads revolving in opposite directions, a clamp frame mounted to swing in the arc of a circle and comprising an arm projecting above the table and an arm projecting beneath the table, clamping heads carried by said arms, and means on one of the arms for clamping the clamping heads on a blank.

7. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads, a clamp frame mounted to swing in the arc of a circle and having an arm projecting above the table and an arm projecting beneath the table, a clamping head on the lower arm, a clamping head on the upper arm, and means for adjusting the upper clamping head to secure a blank between said clamping heads.

8. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads, a clamp frame mounted to swing in the arc of a circle and having an upper arm projecting above the table and a lower arm

projecting beneath the table, a clamping head supported on the lower arm, a sleeve supported in the upper arm, a hand wheel rigid on said sleeve, a spindle arranged in said sleeve, a clamping head on said spindle, and means for adjusting the spindle in said sleeve and upper arm.

9. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping heads, a clamp frame mounted to swing in the arc of a circle and having an arm projecting above the table and an arm projecting beneath the table, a clamping head supported on the lower arm and arranged above the table, a clamping head supported by the upper arm, means for clamping a blank between said clamping heads, and diameter gages consisting of bars pivotally mounted on the table and projecting across the opening therein to be engaged by the lower clamping head, and means for adjusting said bars.

10. A shaping machine of the character described comprising a table having an opening therein, a pair of separated shaping-heads, means mounted beneath the table and projecting therethrough to support and rotate the shaping heads, means located beneath the table for adjusting the shaping heads vertically, a clamp frame mounted on the table and adapted to swing in the arc of a circle, and having an arm projecting above the table, and an arm projecting beneath the table, a clamping head supported on the lower arm, and arranged above the table, a clamping head supported by the upper arm, means for clamping a blank between said clamping heads, diameter gages pivotally mounted on the table, and projecting across the opening therein, and means for adjusting said diameter gages.

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