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W. R. MIDDLETON & E. MIDDLETON.

Improvement in Barrel-Machines.

No. 114,321. Patented May 2, 1871.

Fig. 1.

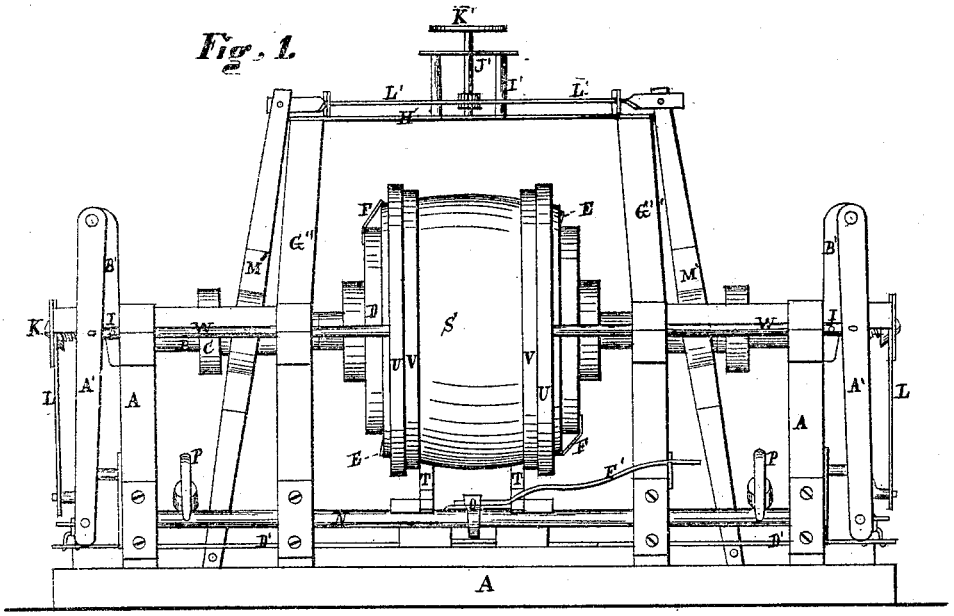
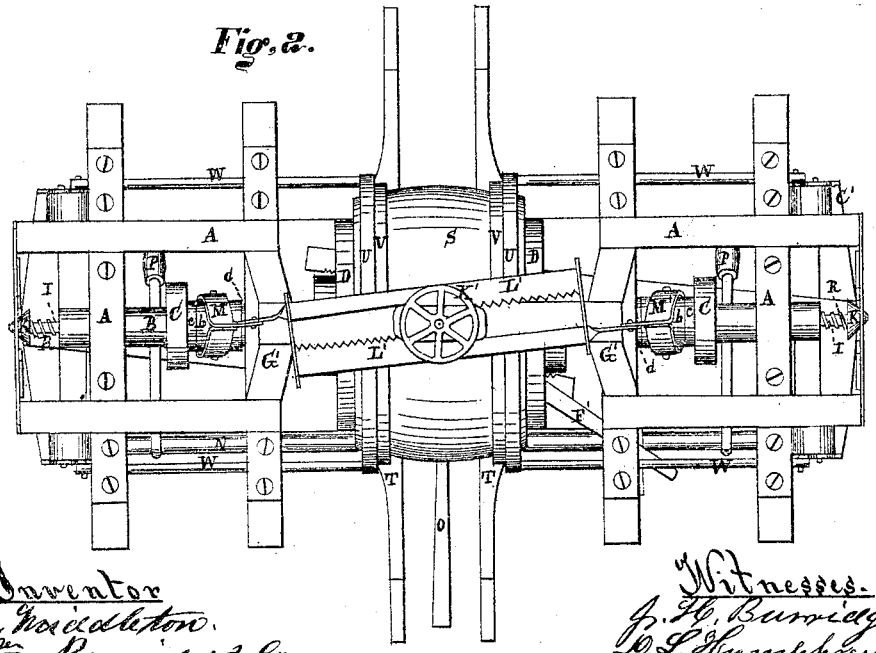


Fig. 2.



Inventor
Wm. R. & E. Middleton.
per Burridge & Co
Attorneys

Witnesses.
J. F. Burridge.
D. L. Humphrey.

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Fig. 3.

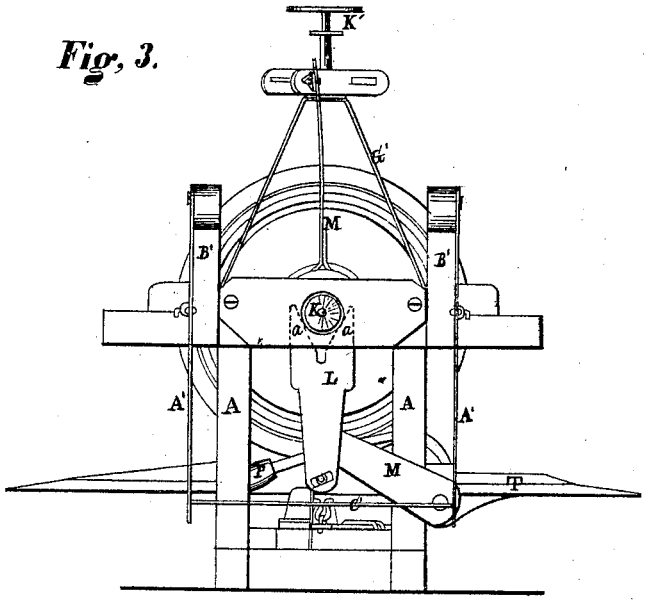
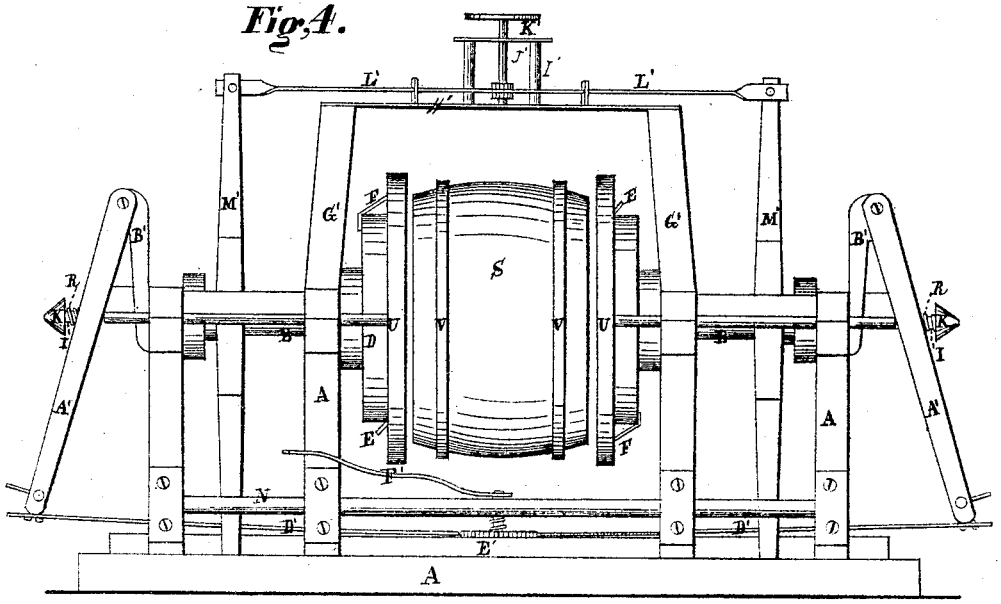


Fig. 4.



Inventor.
Wm R. K. & E. Middleton.
per Burridge & Co.
Attorneys.

Witnesses.
J. H. Burridge,
D. L. Humphrey

3 Sheets--Sheet 3.

W. R. MIDDLETON & E. MIDDLETON.

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Fig. 5.

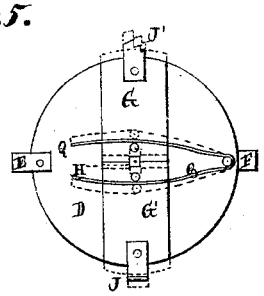
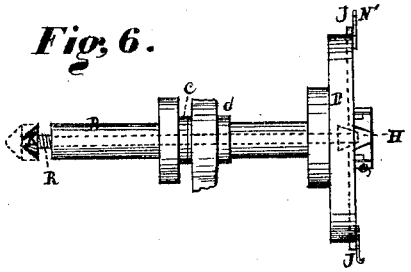


Fig. 6.



Inventor.
W. R. & E. Middleton.
per Burnidge & Co.
Attorneys. Cleveland. Ohio.

Witnessed.
J. H. Burnidge.
D. L. Humphrey.

UNITED STATES PATENT OFFICE.

WILLIAM R. MIDDLETON AND EDWARD MIDDLETON, OF CLEVELAND, OHIO.

IMPROVEMENT IN BARREL-MACHINES.

Specification forming part of Letters Patent No. **114,321**, dated May 2, 1871.

To all whom it may concern:

Be it known that we, WILLIAM R. MIDDLETON and EDWARD MIDDLETON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Barrel-Machine; and we hereby declare that the following is a full, clear, and complete description of the same, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is also a side elevation. Figs. 5 and 6 are detached sections.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to a machine for making barrels; and the special object of the same is for cutting the chine bevel or chamfer and the head-groove of each end of the barrel at one operation, as hereinafter set forth.

In the drawing, A represents a frame, in which the following devices are arranged and operated: B, Figs. 1 and 2, is a shaft journaled in the upper side of the frame, and which is driven by a pulley, C. To the inner end of said shaft is secured a head, D, a detached view of which is shown in Figs. 5 and 6. To the periphery of said head is attached a beveling-cutter, E, and a trimmer, F, Fig. 4, the purpose of which will presently be shown. In the face of said head is fitted, in dovetail grooves, a pair of slides, G G′, Fig. 5, which is projected outward from the center of the head by means of a truncated wedge secured to the inner end of a rod, I, Figs. 1 and 2, passing through the center of the shaft B referred to. The lower ends of the slides rest upon or against the inclined faces of the wedge, which, on being forced forward, crowds the two slides from each other outward beyond the periphery of the head. To the outer end of each of the slides are attached the grooving-cutters J J′, Fig. 5, whereby the groove in the chine is cut for the admission and retention of the head of the barrel.

The rod I referred to is moved forward in the shaft B for operating the slides and grooving-cutters by means of a cone-shaped head, K, Fig. 4, attached to the outer end of said rod, and which is actuated by a vertical slide, L, Fig. 3, in the upper end of which is a deep notch or cleft, thereby forming two fingers, *a*, between which the cone is held, as shown in Fig. 1.

The lower end of said slide L is connected to an arm, M, Fig. 3, secured to and projected from a shaft, N, and whereby an upward movement is given to the slide by vibrating the shaft N by means of the treadle O, projecting therefrom, and which is counterbalanced by a weight, P, for giving to the slide its downward movement. This reciprocating vertical action of the slide L determines the rod I toward the head D for projecting the grooving-slides, which are again brought back toward the center of the head by means of a spring, Q, Fig. 5, attached to the face of the head for that purpose.

A reverse movement is obtained for the rod I and truncated wedge by means of the spring R, Fig. 2.

An arrangement of devices in every way the same as that just described is arranged correspondingly at the opposite end of the frame, and which is operated by the treadle O simultaneously therewith and for the same purpose. The two devices are represented by the same letters.

Between the two heads D is placed the barrel S, resting sidewise upon the skids T, Figs. 1 and 2. Said barrel is secured in position by the clamping-hooks U, which are forced strongly against the truss-hoops V of the barrel by means of the following device:

Each of the hoops U is attached to one end of a pair of sliding rods or links, W, whereas the other end of said rods is connected each to a vibratory arm, A′, Fig. 1, suspended from a standard, B′. The lower ends of said arms are attached to each other by a bar, C′, Fig. 3. The two arms, by means of said bar, are connected to one end of a rack, D′, Fig. 4, which is made to engage the wheel E′. Said wheel is actuated by an arm, F′, which, on being turned in the direction shown in Fig. 1, forces the hoops U against the truss-hoops V, thereby clamping the barrel between the hoops, and holding it firmly in proper position for grooving and beveling the chines.

On shifting the lever from the position shown

in Fig. 1 to that shown in Fig. 4, the hoops are withdrawn from the ends of the barrel, which allows of its removal for the introduction of another.

The beveling and grooving heads D are moved toward and away from the ends of the barrel by the following device, viz: On the top of the frame A, near each end of the barrel, is erected a standard, G″, Figs. 1 and 3. Said standards are connected to each other by a bar, H′, upon which is erected a supplementary frame, I′, Fig. 1, in which are arranged a shaft and ratchet-wheel, J′, actuated by a hand-wheel, K′. Said wheel J′ is made to engage a pair of racks, L′.

One end of each of the racks is attached to the upper end of a lever, M′, Fig. 4, whereas the lower end is pivoted to the frame. The center of said lever is attached to the shaft B by means of a sleeve, *b*, Fig. 2, fitted loosely to the shaft between two collars, *c d*.

By this device the shaft is allowed to turn freely in the sleeve, and which may be moved backward and forward by the lever, actuated by the rack and pinion, for a purpose presently shown.

Having described the construction and arrangement of the machine, the practical operation of the same is as follows:

As above said, this machine is for forming the bevel of the chine of barrels, and for the cutting of the groove therein for the admission of the head. The barrel S is placed in the machine, as shown in Fig. 4, and which rests upon the skids T. (Shown in the other views.) In this position the barrel is secured by the clamping-rings U, forced over the ends thereof and against the truss-hoops by means of the lever F′, operating the clamping-hoops by the devices above described.

The barrels being thus secured in the machine, the chine is then chamfered by the cutters on the heads D, the heads being forced forward toward the barrel by turning the hand-wheel K′, thereby actuating the levers M′, to which the shafts carrying the heads are attached. As the heads enter the ends of the barrel the blades E cut the chine-bevel of the proper angle and depth, and the cutters F trim the edges on the outside. The chine-bevel, on being cut by the grooving-blade J, attached to one of the slides G, is projected outward by actuating the slides in the manner above described—viz., retraction by the spring Q.

By the operator placing his foot upon the treadle O, which forces the notch in the slide L upon the face of the cone K, which, in consequence of its tapering shape, slides forward out from the notch, thereby projecting the rod forward and forcing the wedge between the lower ends of the slides, whereby they are extended, as shown in Fig. 6, the distance that the cutter is projected is just sufficient to cut the groove of the required depth, and the bottom of which is then cut to a sharp angle or channel by the saw-like blade N′ of the slide G′.

The barrel being thus chine-beveled and grooved, the operation of the several devices is reversed, thereby allowing the retraction of the slides G and G′ by means of the spring Q R.

The withdrawal of the heads D is produced by shifting the position of the lever F′, and the unclamping of the barrel by the removal of the hoops by the reverse movement of the hand-wheel K′, in the manner set forth.

The barrel can now be removed and another introduced, and the operation again repeated as before.

It will be observed that both ends of the barrel are operated upon at the same time and in the same way; hence no time is lost in changing the end of the barrel to be operated upon when one end thereof has been chined and grooved.

Claims.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The slides G G′, provided with cutters, spring Q, and revolving head D, having blades attached to or near the periphery and extending therefrom, in combination with the truncated wedge H and rod I, arranged and operating substantially as and for the purpose set forth.

2. The slide L, connected with the crank-shaft, in combination with the cone-shaped head K, rod I, spring R, and wedge H, constructed and operating in the manner substantially as and for the purpose set forth.

3. The wheel E′, racks D′, vibrating arms A′, rods or links W, and clamping-hoops U, all combined and arranged to operate substantially as described, and for the purpose set forth.

4. The wheel J′, racks L′, and levers M′, as arranged, in combination with the shafts B, substantially in the manner as described, and for the purpose specified.

WILLIAM R. MIDDLETON.
EDWARD MIDDLETON.

Witnesses:
J. H. BURRIDGE,
WILLIAM H. HANEY.