(No Model.)

2 Sheets—Sheet 1.

J. MULVANEY.

MACHINE FOR HEADING BARRELS.

No. 320,159. Patented June 16, 1885.

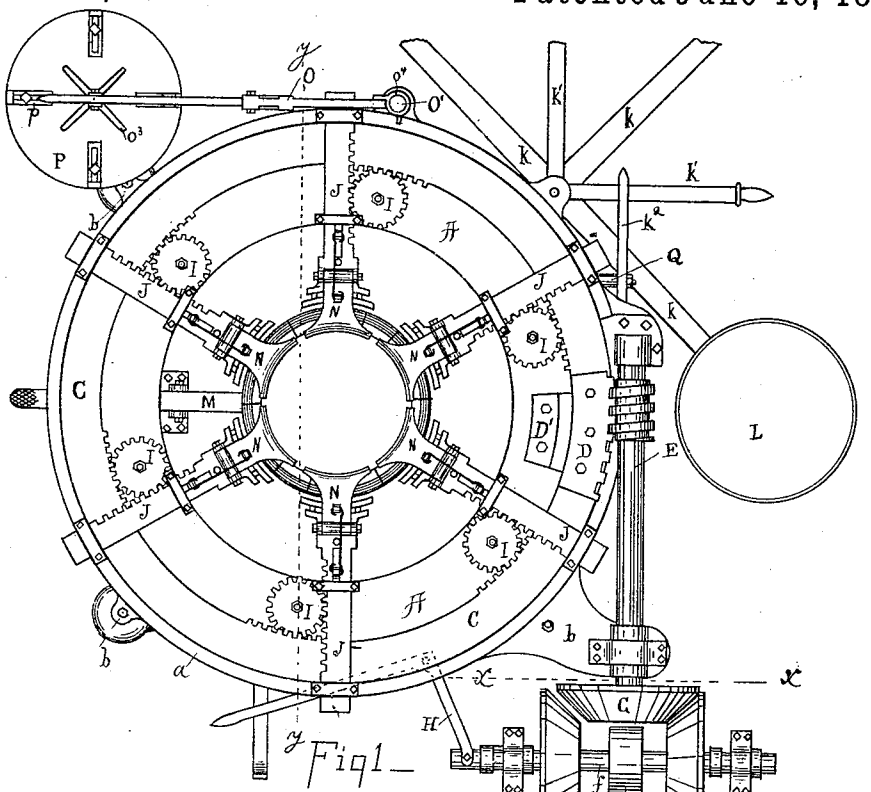


Fig 1.

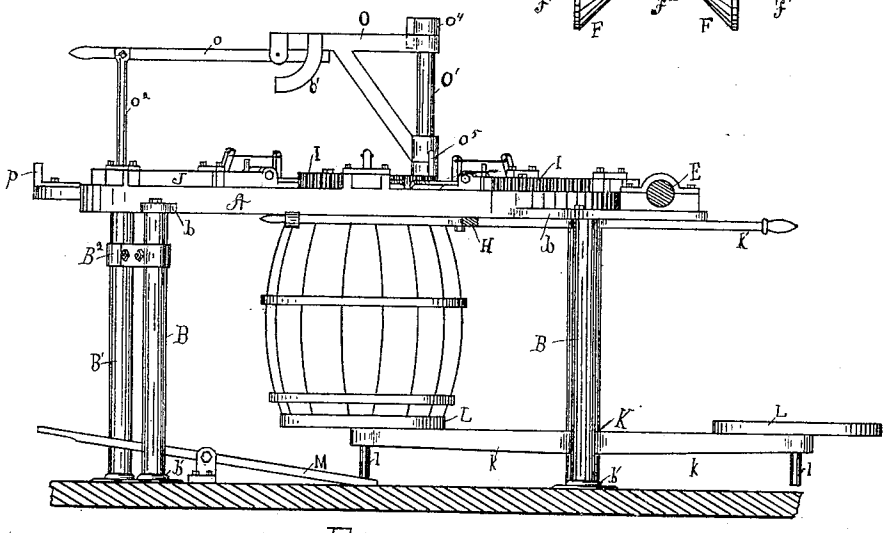


Fig 2.

Attest.
C. M. Lotz
Casper Miles.

Inventor.
John Mulvaney
By Geo. J. Murray Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.)

2 Sheets—Sheet 2.

J. MULVANEY.

MACHINE FOR HEADING BARRELS.

No. 320,159. Patented June 16, 1885.

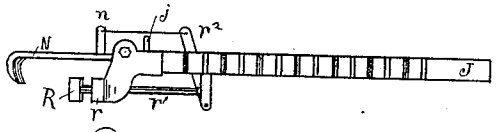


Fig 3—

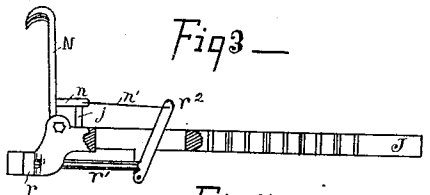


Fig 4—

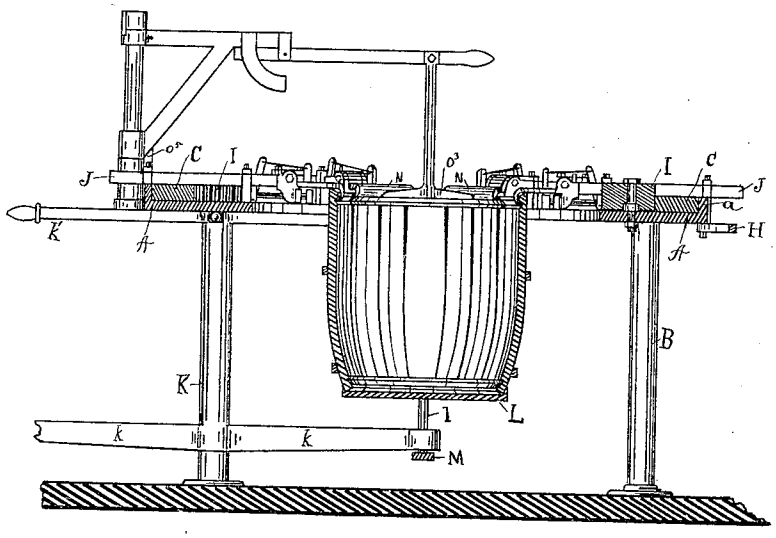


Fig 5—

Attest—
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Casper Miles.

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By Geo. H. Murray Atty

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN MULVANEY, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO ANDREW P. DUMLER, OF SAME PLACE.

MACHINE FOR HEADING BARRELS.

SPECIFICATION forming part of Letters Patent No. 320,159, dated June 16, 1885.

Application filed April 10, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN MULVANEY, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Machine for Heading Barrels, of which the following is a specification.

My invention is a machine for heading barrels. Its object is to accomplish by a compact machine which requires no skilled labor to operate it the work which required many skilled mechanics to perform and a great deal of space for its performance. This I accomplish by the device represented in the accompanying drawings, in which—

Figure 1 is a plan view of my machine. Fig. 2 is a side elevation of the same, the driving-shaft being taken in section through line *x x* of Fig. 1. Fig. 3 is a side elevation of one of the radial arms, with the hooked finger at its end in position to grasp and spread the staves of the barrel to receive the head. Fig. 4 is a similar view of the same arm, with the spreading-finger thrown up as it is when the arm is forced in compressing the staves to receive the hoops after the head has been inserted. Fig. 5 is a vertical section of the machine, taken through line *y y* of Fig. 1.

The frame or table upon which the operative parts are mounted is a flat ring, A, which has a flange, *a*, projecting up from its outer edge. This table is mounted upon legs or standards B, which are preferably made of metal tubing. The table is secured upon these by bolts passing through lugs *b*, which project from the table and through the tubular legs, the head of the bolt being countersunk into the under side of the base-plate *b'*, which is secured on the floor. The upper surface of the ring A and the inner edge of its flange *a* are planed off smooth to form a seat for the ring C, which is also turned or planed off smooth upon its under side and outer edge, to allow it to move freely upon the bed-plate A within the annular flange *a*. Upon the top of this ring is secured the toothed segment D, which engages the worm upon shaft E, by which the ring C is given a reciprocating rotary movement upon the bed-plate A by means of the beveled friction-pulleys F F and G. The pulleys F F are secured upon the shaft *f*, which has a longitudinal movement in its bearings *f'*, to alternately bring one or the other of the pulleys F in frictional contact with pulley G. The shaft *f* is driven by a belt passing over the pulley f^2, and is moved laterally in its bearings by a crank-lever, H, which is fulcrumed on the under side of the table A. Portions of the inner edge of the ring C are provided with teeth, to engage the teeth of the cogs I, which are journaled upon studs secured in the bed-plate A. The teeth of these cog-wheels mesh with the teeth upon one edge of the radial arms J, which are fitted to slide radially in bearings projecting up from the inner edge of the table A and from the top of the outer flange, *a*.

It will be seen that when the shaft E is revolved in one direction it will give a partial rotation to the ring C, and this ring C through the cogs I will move the radial arms inward toward the center. As the opposite pulley F is brought in contact with the wheel G the shaft will rotate in the opposite direction, carrying the ring C partially around in the reverse direction, and carrying the radial arms outward from the center. The outward movement of the radial arms J is for the purpose of spreading the staves of the barrel for the purpose of inserting the head, and the inward movement for the purpose of pressing the staves onto the head and holding them there until the upper hoop is placed upon them.

K is a revolving pillar, which has four arms, *k*, projecting from it. The outer end of each arm has a perforated boss to receive a shaft, *l*, which projects down from the center of the disk L, upon which the barrel rests. The pillar has also projecting from it lever-arms *k'*, by which it is rotated to bring the platform L and the barrel which rests upon it centrally under the table, as seen in Figs. 1, 2, and 5. When the barrel is in this position, the shaft *l* of the platform L is over the end of the treadle M, by which it is elevated to bring it up to be acted upon by the radial arms and their connections.

To the inner ends of the arms J are hinged the hooked fingers N, the hooked ends of which are circular, to conform to the inner edge or

chine of the barrel. When the barrel is in the position shown in the drawings, these fingers drop within the chine, and as the shaft E is revolved in one direction they are drawn out and the staves spread apart wide enough to receive the head of the barrel.

I will now describe the means by which the barrel-head is brought in the proper position and held while the staves are closed upon it and the hoop placed in position.

On the outer edge of the table A is mounted a crane, O, which has a swinging arm, *o*, fulcrumed in lugs projecting down from the outer end of the crane. The end of the lever *o* passes under the crane and between two curved guides, *o'*, which steady its movements when elevated and lowered. To the outer end of this arm *o* is a swinging arm, o^2, which carries at its lower end cross-head o^3. The arms of this cross-head have points projecting down, which are forced into the head of the barrel while it rests upon the platform P, which is supported upon a leg, B', which is braced to the leg B of the table by a brace, B^2. The crane turns upon a vertical shaft which passes up through its tubular collars.

Upon the upper end of this shaft *o'* is a collar, o^4, which has a lip projecting down from it, as shown in dotted line, Fig. 2, engaging the horizontal arm of the crane, and stopping it with the cross-head o^3 vertically over the center of the platform P. A similar stop, o^5, secured upon the lower end of the shaft stops the crane with the barrel-head vertically above the open end of the barrel.

On the platform P are sliding stops *p*, which slide radially, to provide for holding the different-sized heads centrally upon the platform.

Now, the barrel being in the position represented in Fig. 5, and the staves spread apart as shown, and the barrel-head of the proper size being placed upon the platform P, the cross-head is brought down upon the barrel-head with sufficient force to drive the pins on the under side of it into the wood. The lever *o* is then lifted up, bringing the barrel-head above the table and platform. It is then swung around until the crane is arrested by the stop o^5, when it is let down to the position shown in Fig. 5. The shaft E is then revolved in the opposite direction by bringing the opposite pulley F against the pulley G by means of the lever H. The radial arms are carried inward, releasing the fingers N from the staves. The plungers R coming in contact with the outside of the staves, they are forced back against the end *r* of the arm J. As the arms continue inward the staves are forced together and clamped firmly on the head. In the meantime, the fingers N are thrown up by the plunger-rod *r'*, pressing back the lever r^2, which is linked to *n'*. Projecting up from the arm J is a stud, *j*, upon which the projection *n* stops before the the arm *n* of the finger N by a connecting-rod, finger N comes to a vertical position. The purpose of this is to insure the dropping of the finger N to the horizontal position by gravity so soon as the arms J are carried outward and the plunger R brought out of contact with the staves. While the staves are pressed together by the arms J, and the fingers in the position shown in Fig. 4, the lever *o* is elevated and the crane swung around to the position shown in Fig. 1. The heading-hoop is now placed on the barrel and treadle M released, the shaft *k* revolved by means of one of the levers *k'*, thus bringing out the headed barrel and carrying another one into the position to be acted upon as before.

Secured upon a stud-pin, Q, is a swinging catch, *q*, the lower edge of which is notched to pass over the lever *k'* and stop the barrel in the proper position to be acted upon by the machine.

It will be observed that a portion of the flange *a* is cut away, to permit the toothed portion of the segment D to project beyond the periphery of the ring C to engage the spiral worm upon shaft E. The short segment D', which is secured upon the bed-plate A opposite the spiral worm on shaft E, prevents the ring C from springing inward under the action of the worm-gear. It will also be noticed that the arms J have vertical slots, as shown by broken section in Fig. 4, to receive the lever r^2, by which the fingers are elevated when the sliding piece R is forced against the end *r* of the arm J. This piece R has in addition to the rod *r'*, which bears against the lever r^2, two additional rods—one upon each side of the rod *r'*—which enter perforations in the piece *r*, to steady the movement of the piece R and hold it from turning.

It is of course understood that when the barrels come to the heading-machine the chine has been formed, and the groove to receive the head also finished upon the crozing-machine, and the end truss-hoops knocked off, so that the staves may be separated by the fingers N the same as they are now separated by hand to receive the head. When the head is inserted, the buffers R *r* force the staves perfectly tight against the rim of the head, so that the end hoop when slipped to its place holds them firmly and makes a much closer joint than is possible by driving the hoop, as is now commonly done. In the heading of barrels it would be a great saving of time to use my stave-spreading fingers alone without the stave-compressing devices, and the stave-compressing device can be used to great advantage even when the heads are put in by hand.

What I claim is—

1. In a barrel-heading machine, the combination of the supporting-frame, the radial arms J, mounted thereon, and having at their inner ends the hinged fingers N, with suitable driving mechanism to actuate the said arms J radially, for the purpose of spreading the staves to receive the head, substantially as specified.

2. The combination, in a barrel-heading machine, of the supporting-frame, the radial arms J, mounted thereon, and having at their adjacent ends curved buffers R *r*, with mechanism,

such as described, to actuate said arms radially, for the purpose of compressing the staves upon the inserted head for the easy insertion of the end hoop, substantially as specified.

3. In a barrel-heading machine, the combination, substantially as specified, of the supporting-frame, the radial arms J, mounted thereon, said radial arms being provided at their adjacent ends with the hinged stave-spreading fingers, and the curved stave-compressing buffers R, with suitable driving mechanism, such as shown, to draw the arms outwardly, spreading the staves for the reception of the head, and to force them inwardly to compress the staves upon the inserted head.

4. In a machine for heading barrels, the combination, substantially as specified, of the rack-arm J, fingers N, hinged to the inner end of said arms, the sliding buffer R, rod r', lever r^2, and connecting-rod n', with cogs I and driving mechanism to withdraw the said arms, for the purpose of spreading the staves for the insertion of the head, and when the head is inserted compressing the staves upon it, automatically throwing up the fingers at the same time, to facilitate the placing of the end hoop.

5. The combination, substantially as specified, of the bed A a, supported upon legs B, the ring C, having a reciprocating movement upon said bed, actuated by the rack-segment D, and worm-gear on shaft E, and the cog-wheels I, meshing into cogged segments formed upon the inner edge of said ring C, with the reciprocating rack-arms J, mounted upon said bed, and having a reciprocating radial movement imparted by said cogs I, the said arms being also provided with the hinged fingers N, and the stave-compressing and finger-elevating devices R, r, r^2, and n'.

6. In combination with a barrel-heading machine having devices to spread the staves, as shown, the head-carrying crane O, having the hinged lever o, depending arm o', and pivoted cross-head o^3, for conveying the head within the spreading staves and retaining it in position until clamped in place, substantially as specified.

7. In a barrel-heading machine such as described, the combination of the revolving barrel-carrier K k k', having perforated bosses to receive the shank l of disk L, with treadle M, to elevate the barrel to bring it under the action of the heading devices, substantially as specified.

Signed at Cincinnati, in the county of Hamilton and State of Ohio, this 30th day of March, A. D. 1885.

JOHN MULVANEY.

Witnesses:
CASPER MILES,
GEO. J. MURRAY.