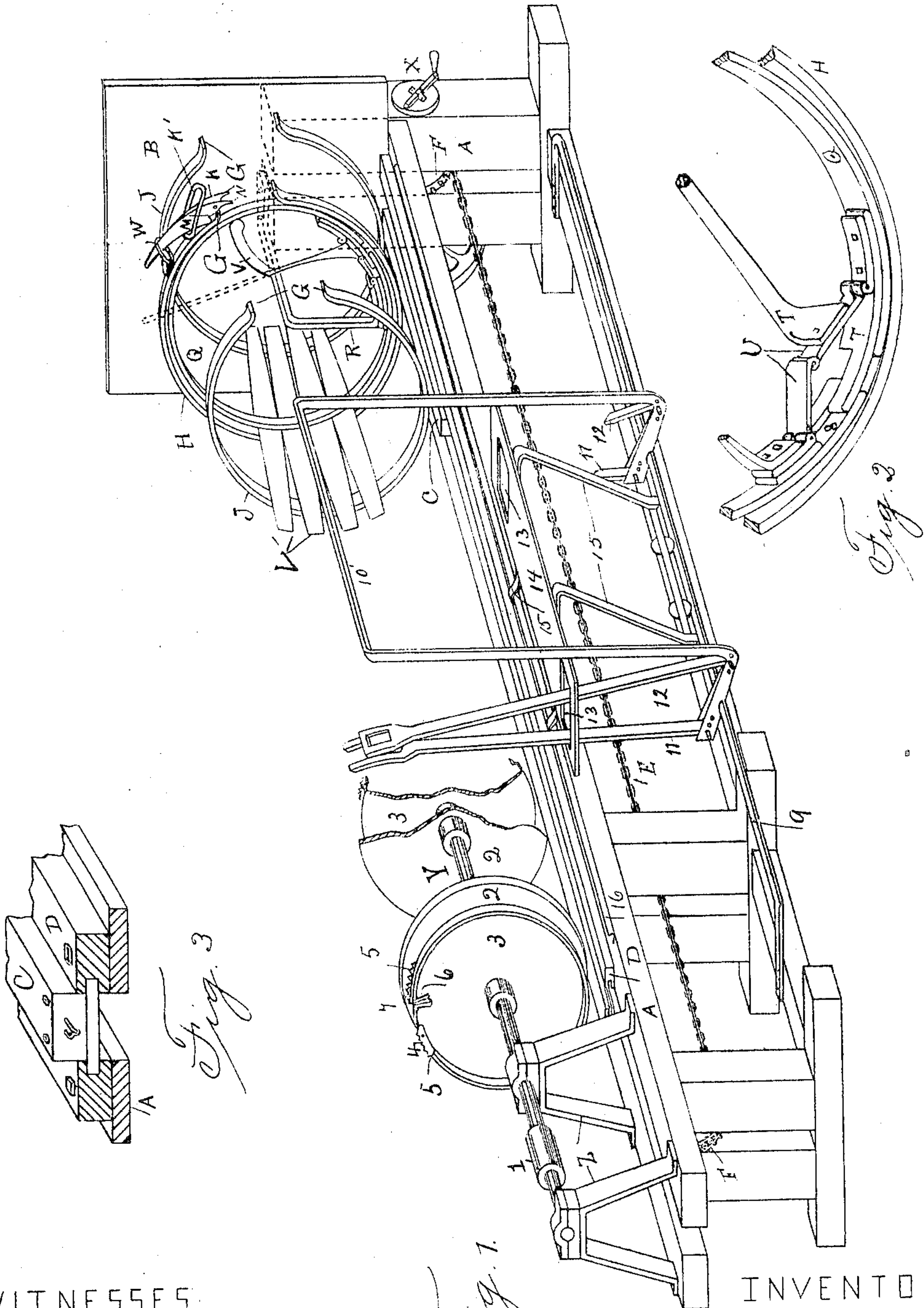


No. 797,666.

PATENTED AUG. 22, 1905.

R. L. CUMMINGS.
BARREL MAKING MACHINE.
APPLICATION FILED MAR. 13, 1905.

2 SHEETS—SHEET 1.



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UNITED STATES PATENT OFFICE.

RINALDO L. CUMMINGS, OF PARIS, MAINE.

BARREL-MAKING MACHINE.

No. 797,666.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed March 13, 1905. Serial No. 249,734.

To all whom it may concern:

Be it known that I, RINALDO L. CUMMINGS, a citizen of the United States, residing at Paris, in the county of Oxford and State of Maine, have invented new and useful Improvements in Barrel-Making Machines, of which the following is a specification.

My invention relates to improvements in barrel-making machines, its objects being to set the staves in position to receive the heads and hoops and to trim, chamfer, and croze the ends.

In the drawings herewith accompanying and making a part of this application, Figure 1 is a perspective view of my improved machine with parts broken out. Fig. 2 is a detail perspective view of a portion of the inner ring and means for contracting it, shown partially contracted. Fig. 3 is a detail view showing a portion of the reciprocating carriage and manner of supporting it in the ways on the frame. Fig. 4 is a perspective view with parts broken out, showing a barrel in process of being crozed. Fig. 5 is a detail view of a portion of a cutter-head, showing position of the saws and cutting-knife. Fig. 6 is a detail view of the crozing and chamfering knife, and Fig. 7 is a detail view showing the cutter-head operating upon a stave.

Same characters of reference refer to like parts.

Upon a suitable frame A is mounted the operating mechanism. For convenience in endwise positioning the staves in the assembling-rings a headboard B is secured to one end of the frame. A carriage C is mounted upon said frame in any convenient way, as in ways D, and is adapted to have a longitudinal reciprocating motion imparted thereto by means of a chain E working over sprockets F, the ends of the chain being attached to the ends of the carriage. The carriage has flexible assembling-rings mounted therein, each divided and with the ends turned up to form engaging lugs G. The central ring H should be positioned to engage the staves at their widest part, and the other or outside rings J should be positioned inside of the ends of the staves a sufficient distance to permit the attaching of the barrel-hoops. The middle ring carries a bifurcated lever K, pivotally attached to one of the lugs of the ring. Said lever K carries a link K', adapted to engage the other lug on the ring and draw the ends of the rings together, as seen in Fig. 4. The lever has an

offset or depression M, to be engaged by one end of the link when the lever is being used to draw the ends of the ring together, and has projecting prongs N to disengage the link from said notch when the lever is turned down to release the ring. The outside rings are mounted in posts O, vertically movable in sockets P in the carriage.

Supported on an arm or bracket R, passing through the headboard and secured for convenience upon the frame upon which the mechanism is mounted, is a stationary inner ring Q, positioned substantially concentric with the middle assembling-ring. This inner ring, which serves as a mold around which the staves are positioned, is also divided, having overlapping and interlocking members S and T. The two ends are connected by a toggle-joint U, operable by means of a lever T', extending upwardly and passing through a curved slot V in the headboard. The divided character of this inner ring renders it capable of being contracted by means of said toggle and lever to permit the barrel when formed and while the ends are still untrussed to pass over it. Sufficient staves V' are introduced into position between the open ends of the assembling-rings resting at the center upon the inner ring to form the barrel. The lever K is then released from the retaining-ring W and turned down until the link K' engages the loop on the opposite end of the hoop. The lever is then again turned back into the position shown in Fig. 4, drawing the hoop and with it the staves tightly together at the center. When thus formed, the inner ring is contracted as aforesaid, and by means of the crank X the carriage carrying the assembling-rings and the staves with the ends untrussed is then moved toward the other end of the frame until the ends of the staves are properly positioned over the mechanism for finishing the ends of the staves and fitting them to receive the heads. Two similar cutter-heads are oppositely positioned and at a distance apart equal to the distance between the two heads of the barrel to be formed. They are mounted upon a projecting shaft Y, set in brackets Z upon the end of the frame and may be rotated in any convenient manner, as by means of a belt (not shown) passing over a pulley 1 on said shaft. The cutter-heads are supported above the frame, so as to be free to enter within the staves as the carriage, rings, and staves are moved over them. Adjacent the cutter-heads are limit-

ing-disks 2, and each cutter-head comprises a disk 3, set on shaft Y, saw 4 on the outside faces thereof to even the ends of the staves, saw 5 for cutting the vertical portion of the croze, and a knife 6, having a blade 7 to cut the inclined portion of the croze and whenever desired a blade 8 to chamfer the ends of the staves. These saws and the knives may be mounted in the disks in any convenient and well-known manner.

When the frame with the rings and staves are in the position last described—that is, over the cutter-heads—the ends of the staves are drawn together and down upon the cutter-heads by means of a trussing device, which for convenience may be slidably and pivotally mounted upon a rod 9, secured to the frame. The trussing device has a lever-arm 10 and two sets of oppositely-acting arms 11 and 12, one at either end. In order to keep these in proper position, they may be made to extend upwardly through openings 13 in a bracket 14, supported upon arms 15, which have their ends turned so as to take into and slide in a grooved plate 16, secured to the edge of the frame. When this trussing device is moved into position to truss the staves, the arms 11 are made to engage the lugs on the under ends of the rings and arms 12 the lugs on the upper ends of the rings. When the lever is turned down, arms 11 and 12 are moved in opposite directions and draw the rings together until the staves come in contact with the saws and knives on the cutter-head and continue until the staves come in contact with the limiting-disks. When the ends of the staves have been finished, the end rings are again expanded and the carriage, rings, staves, and trussing device are moved away from the cutter-heads, the barrel-heads are placed in position, the ends of the staves again trussed upon the barrel-heads, and the barrel-hoops applied. The finished barrel is then discharged from the rings.

I am aware that the mounting of the main elements of my improved machine may be varied greatly without changing the scope and spirit of my invention, and while the forms shown have been described in detail I do not wish to be limited thereto, except as herein set out in the claims.

My improved barrel-making machine is simple in construction and operation and is capable of making barrels with great rapidity.

Having thus described my invention and its use, I claim—

1. In a barrel-making machine, a supporting-frame, a stationary flexible ring positioned at one end thereof, a movable carriage, flexible divided assembling-rings mounted on said carriage and adapted to be positioned relative to said stationary ring so that the middle assembling-ring is substantially concentric therewith, means for contracting the stationary ring, means for contracting the assembling-

rings and means for reciprocating said carriage and assembling-rings to and away from said stationary ring.

2. In a barrel-making machine, a suitable frame, a stationary flexible ring positioned at one end thereof, means for contracting and expanding said ring, a movable carriage, flexible divided assembling-rings mounted on said carriage and provided with lugs at their adjacent ends, means for reciprocating said carriage and assembling-rings to and away from said stationary ring, means for contracting the central assembling-ring independent of the outside rings and means for contracting the outside assembling-rings.

3. In a barrel-making machine, a suitable supporting-frame, a stationary flexible ring positioned at one end thereof, rotatable cutter-heads for finishing the ends of the shook positioned at the other end of the frame, a reciprocating carriage mounted in said frame, assembling-rings mounted upon said carriage and means for reciprocating said carriage and rings from one end of said frame to the other, whereby the assembling-rings and a barrel-shook contained therein may be transferred from a position in which the central assembling-ring is concentric with said stationary ring to a position wherein the ends of the shook are adjacent said cutter-heads and means for trussing the ends of the shook.

4. In a barrel-making machine, a supporting-frame, a stationary flexible ring positioned at one end thereof, a movable carriage, flexible divided assembling-rings mounted on said carriage, cutter-heads positioned at the opposite end of the frame adapted to finish the ends of the shook and means for trussing the ends of the shook, said trussing device being pivotally and slidably mounted upon said frame.

5. In a barrel-making machine, a supporting-frame, a stationary flexible ring positioned at one end thereof, a movable carriage, flexible divided assembling-rings having lugs on the ends thereof mounted on said carriage, cutter-heads positioned at the opposite ends of the frame adapted to finish the ends of the shook and means for trussing the ends of the shook consisting of oppositely-moving arms adapted to engage said lugs and a lever for operating said arms, said trussing device being pivotally and slidably mounted upon said frame.

6. In a barrel-making machine, a supporting-frame, a stationary flexible ring positioned at one end thereof and provided with a toggle-jointed section, a movable carriage, flexible divided assembling-rings mounted on said carriage, said carriage being adapted to be positioned relative to said stationary ring so that the middle assembling-ring shall be concentric therewith and spaced apart therefrom a distance about equal to the thickness of the shook, whereby the shook can be inserted between

said stationary ring and said central assembling-ring.

7. In a barrel-making machine, a suitable frame having a positioning-board at one end, a curved slot in said board, a contractile stationary ring positioned near said board, a toggle-section in said ring, a lever for operating said toggle projecting through said board, a reciprocating carriage mounted in said frame, assembling-rings mounted on said carriage, the stationary ring and divided assembling-rings being positioned so as to give entrance to the staves between the said stationary ring and the middle assembling-ring, means for locking the middle assembling-ring upon the shook and means for contracting the stationary ring, whereby the assembling-rings and

shook may be moved away from the stationary ring.

8. In a barrel-making machine, a suitable supporting-frame, means for assembling the shook, cutter-heads mounted upon the end of a shaft for finishing the ends of the shook, means for transferring the assembled shook to said cutter-head and means for drawing the ends of the shook into contact with said heads.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of March, 1905.

RINALDO L. CUMMINGS.

In presence of—

HOWARD D. SMITH,
STELLA M. PIKE.