No. 642,125. Patented Jan. 30, 1900.

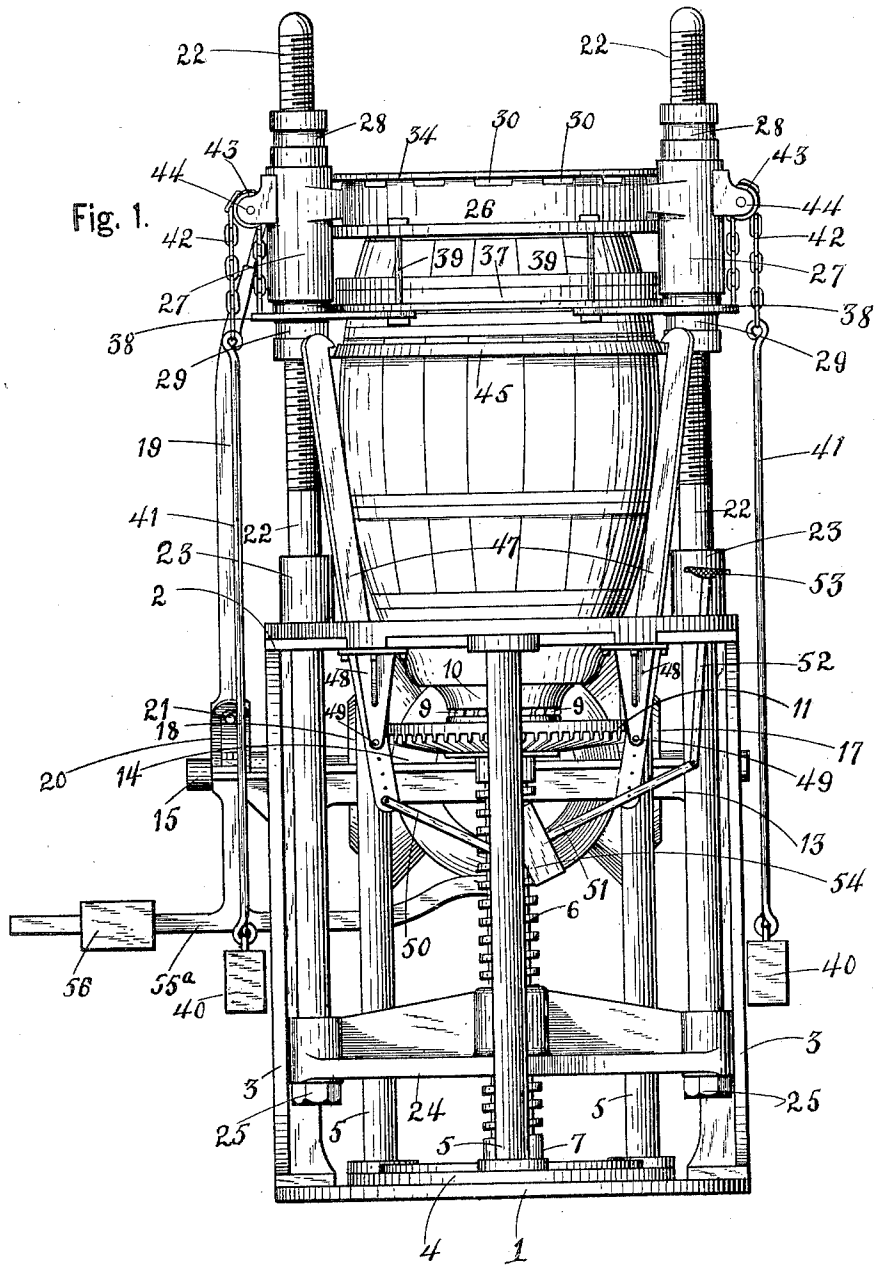
B. HOLMES & E. F. BEUGLER.

BARREL HEADING-UP MACHINE.

(Application filed Jan. 21, 1899.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.



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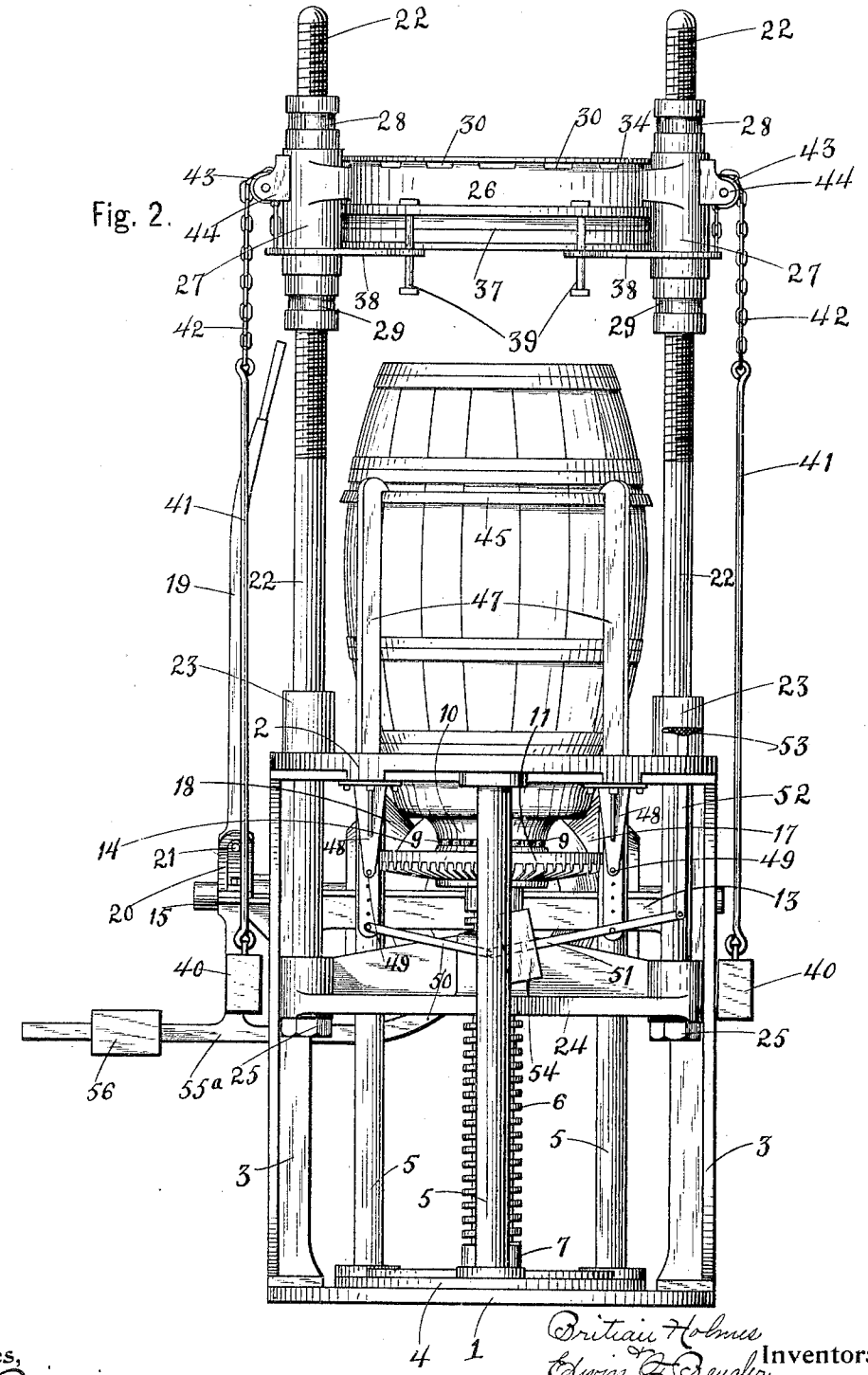
(No Model.) 4 Sheets—Sheet 2.

Fig. 2.



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(No Model.) 4 Sheets—Sheet 3.

Fig. 3.

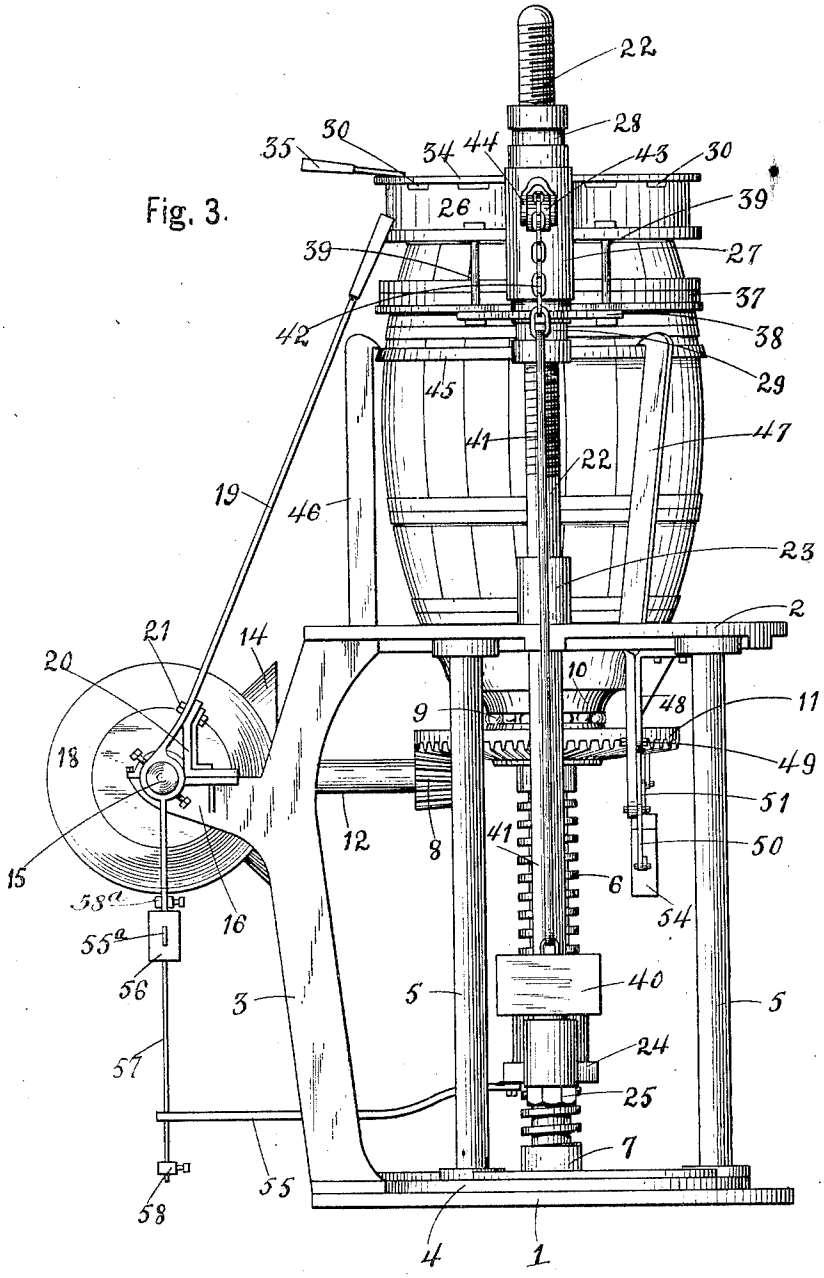

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Fig. 4.

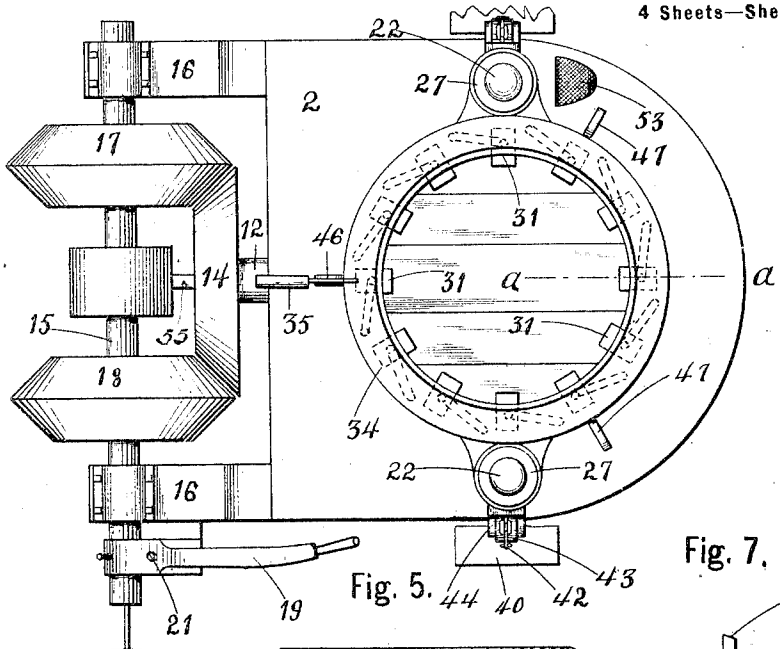


Fig. 5.

Fig. 7.

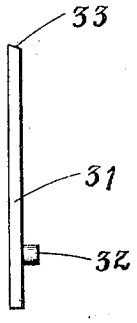
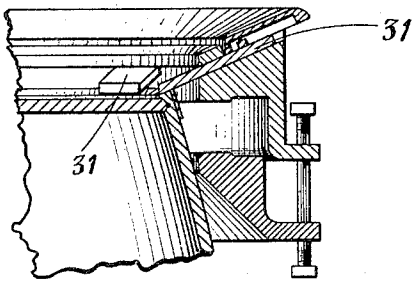


Fig. 6.



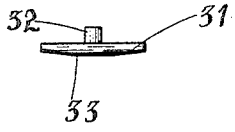
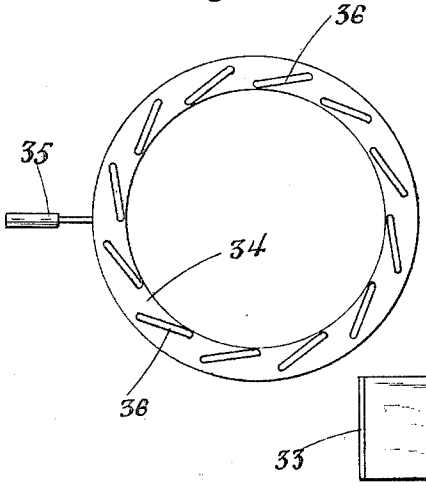


Fig. 8.

Fig. 9.



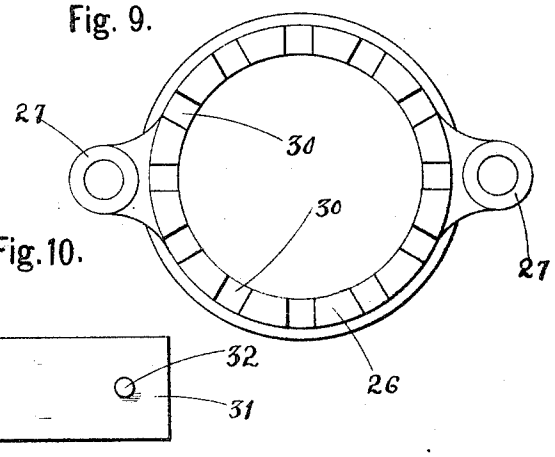


Fig. 10.

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UNITED STATES PATENT OFFICE.

BRITAIN HOLMES AND EDWIN F. BEUGLER, OF BUFFALO, NEW YORK, ASSIGNORS TO THE E. & B. HOLMES MACHINERY COMPANY, OF SAME PLACE.

BARREL-HEADING-UP MACHINE.

SPECIFICATION forming part of Letters Patent No. 642,125, dated January 30, 1900.

Application filed January 21, 1899. Serial No. 702,879. (No model.)

To all whom it may concern:

Be it known that we, BRITAIN HOLMES and EDWIN F. BEUGLER, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Barrel-Heading-Up Machines, of which the following is a specification.

This invention relates to an improved machine for heading up barrels; and the object of the invention is to provide a machine of the character described with driving mechanism having a trussing device controlled thereby and connected thereto in such manner as to allow a limited movement toward or from said driving mechanism, so that when the trussing device is in operative position upon a barrel the driving mechanism can be given a certain range of movement without disturbing the trussing device.

It further relates to the construction of the driving mechanism and the means for shifting the position of the drivers connected thereto.

It further relates to automatic stop mechanism which operates to disconnect the friction-gears and stop the operation of the machine when it is at or near the limit of either its upward or downward movement.

It further relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a front elevation of the machine, illustrating the driving and trussing mechanism in their lower position. Fig. 2 represents a front elevation of the machine, illustrating the driving and trussing mechanism in their upper position. Fig. 3 is a side elevation with the driving and trussing mechanism in their lower position. Fig. 4 is a top plan view. Fig. 5 is a section on or about line *a a*, Fig. 4. Fig. 6 is an enlarged detached front edge view of one of the drivers. Fig. 7 is an enlarged detached side edge view of one of the drivers. Fig. 8 is a detached bottom view of the upper ring, illustrating the diagonal slots or depressions. Fig. 9 is a detached view of the lower ring, showing the radial slots or depressions which form slideways for the drivers. Fig. 10 is an enlarged detached top view of one of the drivers.

In the preferred embodiment of the invention as shown in the annexed drawings like numerals designate like or corresponding parts.

The frame proper of the machine consists of the lower or bottom plate 1, the upper plate 2, and the side frame-pieces 3. The bottom plate 1 is provided with a raised ring portion 4, in which the lower end of the vertical standards or supports 5 are mounted. The upper extremes of these standards 5, which are preferably three in number, arranged at equal intervals around the ring 4, depend against and help to sustain and support the upper plate 2. The lower end of the substantially vertical peripherally-screw-threaded operating-shaft 6 is supported in the plate 1, preferably in a socket 7, which is located at the center of the ring 4 and from which arms radiate to the interior of the ring. The upper end of the shaft 6 is mounted in ball-bearings 9, supported in the portion 10. A gear-wheel 11 is rigidly mounted upon the shaft, near the upper end thereof, and a horizontal shaft 12, which is journaled in boxes supported upon a horizontal platform 13, extending between and fastened at its ends to the side frame-pieces 3, has a gear-wheel 8 at its forward end, which meshes in with the gear-wheel 11. The opposite end of the horizontal shaft 12 is provided with a beveled friction-wheel 14, and a second horizontal shaft 15, which extends transversely to the first-mentioned shaft 12, is journaled in boxes, so as to be capable of a limited longitudinal movement therein, and said boxes are mounted upon and supported by extensions 16, which project rearwardly from the side frame-pieces 3.

A pair of beveled friction gear-wheels, which will be designated, respectively, by the numerals 17 and 18 to distinguish them, are rigidly mounted upon the shaft 15 and are located and arranged on each side of and at right angles to the wheel 14.

A lever 19 is pivoted to the projecting portion 20 by the bolt 21 and is adapted to move the shaft 15 sufficiently in either direction to bring either the friction-wheel 17 or the friction-wheel 18 in frictional contact with the friction-wheel 14.

The heading-up mechanism proper comprises driving-ring mechanism and trussing-ring mechanism, which are supported upon

the upper ends of the standards 22. These standards are preferably two in number and pass through the tubular portions 23, attached to the upper plate 2, which form slideways for said standards. The lower extremes of these standards pass through openings in the lifting-piece 24 and are secured thereto by the screw-nuts 25. This lifting-piece 24 is provided with a central internally-screw-threaded opening, into which the peripherally-screw-threaded operating-shaft 6 is engaged.

The driving-ring mechanism is composed of a lower annular ring 26, having tubular portions 27, which fit upon the upper end of the standards 22 and are secured rigidly thereto by the screw and lock nuts 28 and 29, which screw upon the upper ends of the standards. The upper surface of this ring 26 extends diagonally downward and inward and is provided with a series of grooves 30, preferably twelve in number, which radiate from a common center. A series of drivers 31 are adapted to be seated in said grooves or slideways 30, and they are each provided with an operating-finger 32 and a hoop-driving edge 33, which is formed so as to touch upon the hoop edge at points only, thus securing a better and firmer hold thereon. An upper operating-ring 34, having a handle 35, is adapted to be placed upon the lower ring 26 and has a series of diagonally-extending slots 36 arranged around its lower surface at regular intervals, into each of which the upper end of the finger 32 of one of the drivers 31 is adapted to be inserted.

The trussing-ring mechanism is composed of the ring proper, 37, having tubular portions 38, through which the standards 22 loosely pass. The movement of the trussing-ring from or independent of the driving-ring is limited by the length of the bolts 39, the upper ends of said bolts being secured to the driving-ring and the lower ends passing loosely through openings in the trussing-ring, so as to allow an upward movement of the trussing-ring thereon. The trussing-ring is normally held in contact with the driving-ring by means of the counterweights 40, which are supported by the rods 41 on each side of the machine, chains 42 being secured to the upper ends of the rods and passing over pulleys 43, rotatably mounted in the forked portions 44, extending from the tubular portions 27, and having their opposite ends attached to the trussing-rings.

To prevent the barrel from being carried up when the driving and trussing mechanism are elevated, the machine is provided with a series of hooked arms, the hooked ends of which are adapted to be brought into engagement with the iron ring or hoop 45 upon the barrel, thereby limiting its upward movement and detaching the barrel from the trussing mechanism when the driving and trussing mechanism are elevated. Three of these hooked arms are preferably employed. One, which is designated by the numeral 46, is fixed in its position or permanently attached to the upper plate, and the other two (designated by the numeral 47) are pivoted near their lower ends to the supporting portions 48 by bolts 49 and pass through slots in the upper plate 2. Two rods 50 and 51, pivotally connected to each other, are pivoted to the lower ends of the hooked arms 47, and the outer end of the rod 51 extends past the point of pivotal connection with the hooked arm and is pivotally connected to an operating-rod 52, the upper end of which extends up through an opening in the upper plate 2 and is provided with a foot-piece 53. A weight 54 is mounted upon one of the rods 50 and 51, the office of which is to normally maintain the hooked arms in their open position to permit the free entrance or removal of the barrel.

The machine is also provided with an automatic stop mechanism which automatically moves the friction-wheels upon the driving-shaft 15 from frictional contact with the friction-wheel mounted upon the shaft 12 and stops the operation of the machine when the driving and trussing mechanism have reached the limit of their range of movement either in an upward or downward direction. The preferable construction of this automatic stop mechanism, as shown in the drawings, is as follows: An extension portion 55 projects rearwardly from the lifting-piece 24, and the lower end of the lever 19 has a horizontal rod or arm 55^a extending transversely with respect thereto and to each side of the lower end of said lever 19, and a weight 56 is supported upon one portion of the arm 55^a, which tends to hold the friction-wheels 17 and 18 normally from operative engagement with the friction-wheel 14. To one end of the arm 55^a is attached the upper extreme of a vertical rod 57, the lower extreme of which passes loosely through an opening in the extension portion 55, an adjustable collar 58 being placed upon the lower end of the rod to limit the downward range of movement of the lifting-piece and its connecting mechanism. An adjustable collar 58^a is also placed upon the upper portion of the rod 57 to limit the upward range of movement of the lifting-piece and its connecting mechanism.

The operation of the invention is as follows: The lifting-piece being elevated to the highest position, thereby raising the driving and trussing mechanism, a barrel is placed upon the plate or platform 2, which is provided with a circular groove into which the lower end of the staves fit to arrange said barrel directly or vertically below the driving and trussing mechanism. The barrel-head is held in place by the hand of the operator and the lever 19 is moved sufficiently to bring the proper friction-wheel upon the shaft 15 in contact with the friction-wheel upon shaft 12 to lower the lifting-piece and force the trussing mechanism upon the upper portion of the bar-

rel, compressing the staves together and firmly securing the head in place. The lever 19 is now moved to bring the opposite friction-wheel upon the shaft 15 firmly in contact with the friction-wheel upon the shaft 12, and the lifting-piece is elevated sufficiently to raise the driving mechanism, but not the trussing mechanism, which has a certain range of movement independent of the trussing mechanism, as before described. The hoop is now placed around the upper edge of the barrel, and the series of drivers are moved inwardly by partially rotating the operating-ring 34, so that they will project over the upper edge of the hoop. The lever 19 is again moved in the opposite direction and the driving mechanism is moved downward, forcing the hoop firmly upon the barrel. The foot-piece is now pressed down and the hooked arms 46 and 47 are brought into engagement with the ring 45, and the lever is again moved in the proper direction to elevate the driving and trussing mechanism, thereby freeing the barrel and allowing it to be removed upon the release of pressure upon the foot-piece. When the lifting-piece 24 is at or near its highest elevation, the extension strikes against the upper collar 58^a upon the upper end of the vertical rod 57 and forces it upward, thereby moving the lever 19 sufficiently to remove the friction-wheel upon the shaft 15 then in contact with the wheel upon the shaft 12 from frictional contact therewith and automatically stopping the machine, and when the lifting-piece is at or near the limit of its lower movement the extension portion strikes against the adjustable collar 58 upon the lower end of the vertical rod and moves said rod downward sufficiently to move the lever 19 and remove the friction-wheel upon the shaft 15 then in contact with the friction-wheel upon the shaft 12 from frictional contact and stop the machine.

As both the collar 58 and the collar 58^a are longitudinally adjustable upon the rod 57, the range of movement either in an upward or downward direction can be regulated as desired to conform to the size of the barrel.

We claim—

1. In a barrel-heading-up machine, the combination with the frame, of hoop-driving mechanism supported in slideways in said frame, trussing mechanism supported from said hoop-driving mechanism and having a certain range of movement independent of the driving mechanism, said driving mechanism having a driving device provided with a series of drivers adapted to be moved inwardly to project over a hoop, or outwardly to permit the driving mechanism to force the trussing mechanism firmly upon the barrel to compress the staves together, the independent range of movement of the trussing mechanism permitting the elevation of the hoop-driving mechanism above a barrel without removing the trussing mechanism from said barrel, as set forth.

2. In a barrel-heading-up machine, the combination with the frame and the operating mechanism, of a driving mechanism comprising a driving-ring having a number of drivers mounted in slideways in said ring and provided with operating-fingers, and adapted to be moved inwardly to project over the hoop upon the upper edge of the barrel, and a rotatable device for so moving them having a series of diagonal slots in which the fingers seat.

3. In a barrel-heading-up machine, the combination with the hoop-driving mechanism, of trussing mechanism connected to said driving mechanism by bolts sufficiently long to permit a certain range of movement independent of the driving mechanism, and counterweights for maintaining said trussing mechanism normally in close proximity to the hoop-driving mechanism, as set forth.

4. In a barrel-heading-up machine, the combination with the hoop-driving mechanism, of trussing mechanism connected to said driving mechanism and having a certain range of movement independent of the driving mechanism, and counterweights for maintaining said trussing mechanism normally in close proximity to the hoop-driving mechanism, as set forth.

5. In a barrel-heading-up machine, the combination with the machine-frame, of a vertical operating-shaft journaled in said frame, hoop-driving mechanism supported by said shaft, and raised or lowered by the rotation of said shaft, a driving-shaft having connection to a source of power, means for transmitting power from the driving-shaft to rotate the vertical operating-shaft in either direction while the driving-shaft is in constant rotation in but one direction and trussing mechanism suspended from the hoop-driving mechanism and having a certain range of vertical movement independent of said hoop-driving mechanism, as set forth.

6. In a barrel-heading-up machine, the combination with the machine-frame, of a vertical operating-shaft journaled in said frame, hoop-driving mechanism supported by said shaft, and raised or lowered by the rotation of said shaft, a driving-shaft having connection to a source of power, mechanism for transmitting power from the driving-shaft to the operating-shaft, means controlling said transmitting mechanism for adjusting it to rotate the vertical operating-shaft in either direction or disengage it to stop the operation of the machine, and trussing mechanism suspended by bolts from the hoop-driving mechanism and having a certain range of movement upon said bolts, as set forth.

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