H. F. MARTEN, H. GRAHN & J. C. ANDRESEN.

BARREL HEADING MACHINE.

APPLICATION FILED DEC. 6, 1913.

1,109,079.

Patented Sept. 1, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

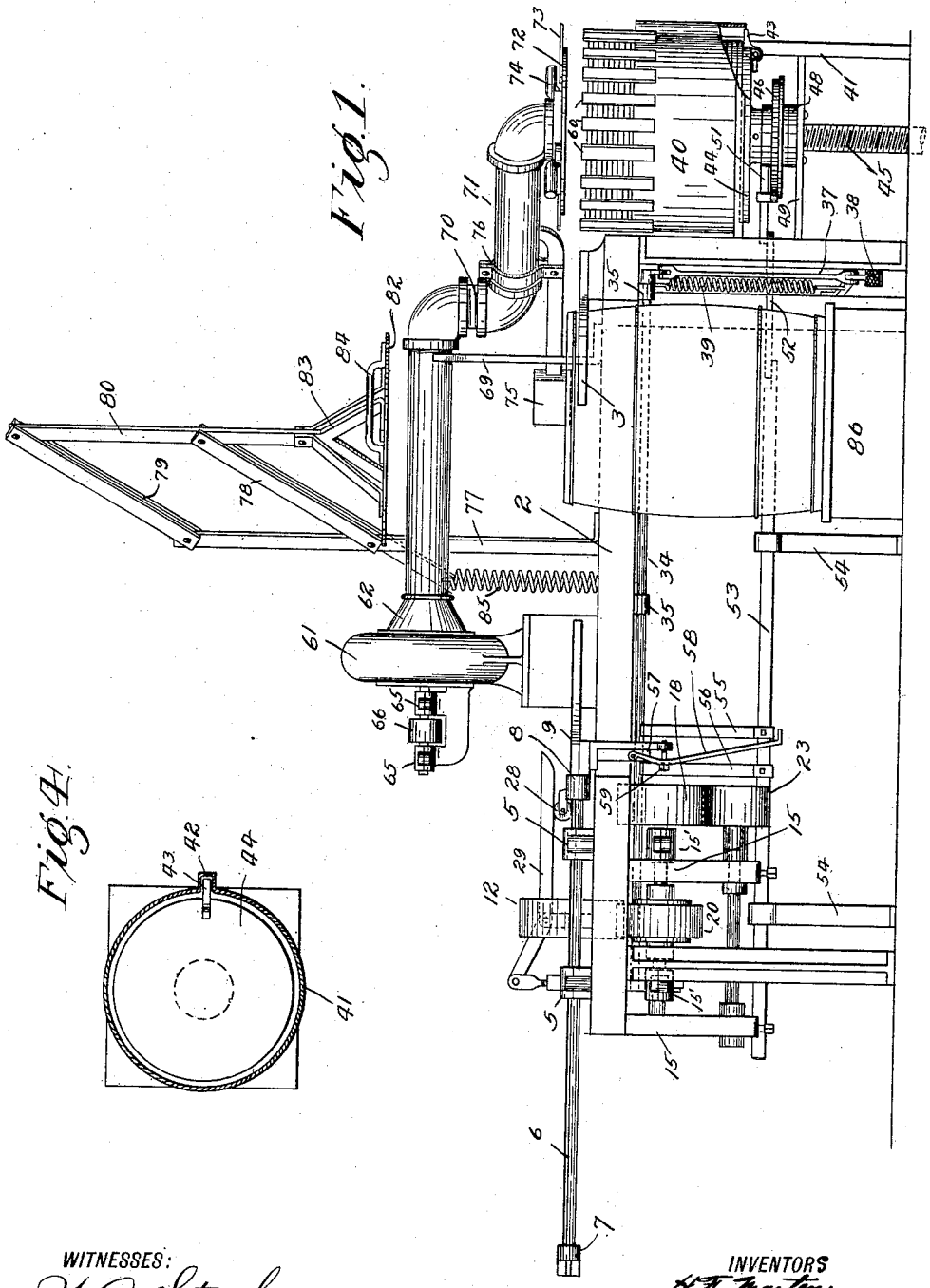


Fig. 4.

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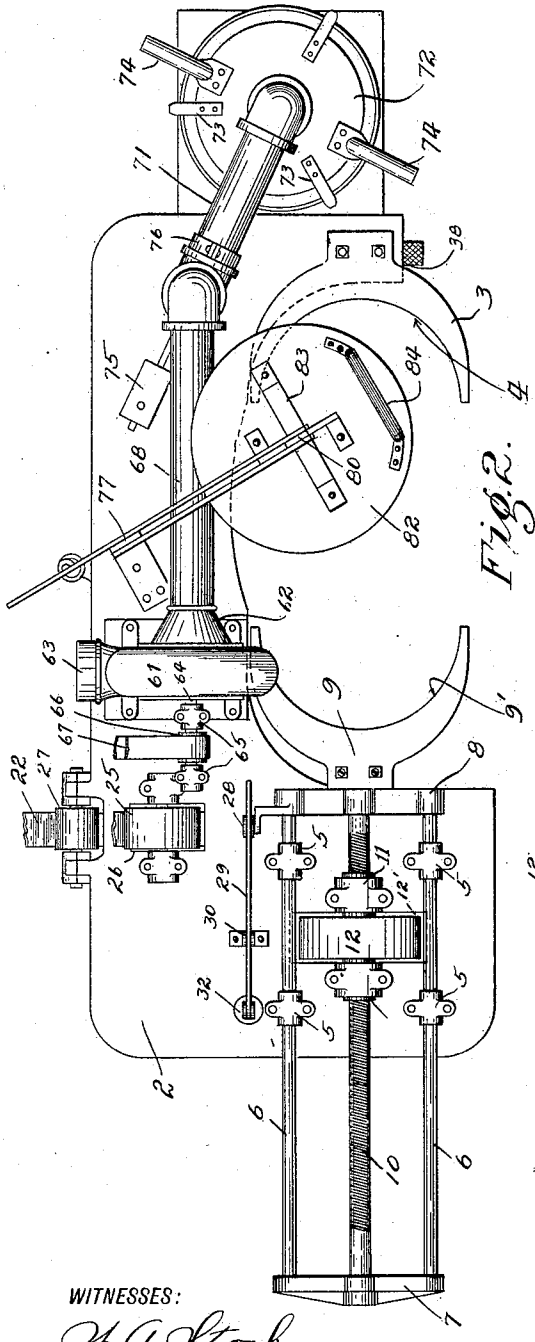


Fig. 2.

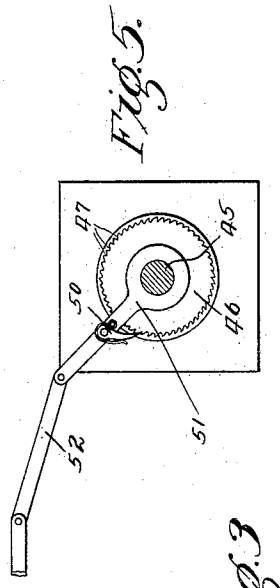


Fig. 5.

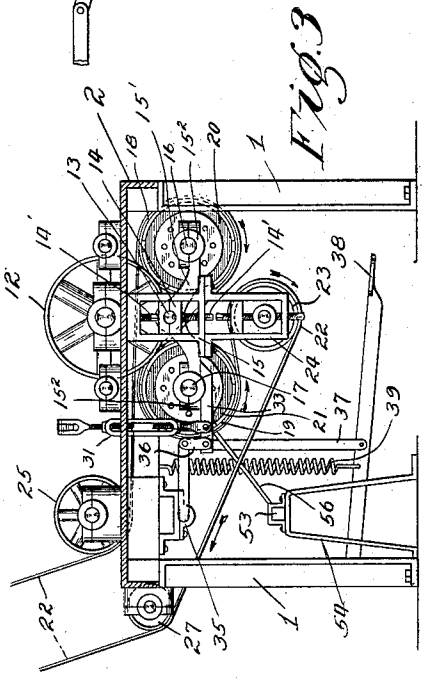


Fig. 3

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UNITED STATES PATENT OFFICE.

HENRY F. MARTEN, HENRY GRAHN, AND JULIUS C. ANDRESEN, OF SAN FRANCISCO, CALIFORNIA.

BARREL-HEADING MACHINE.

1,109,079. Specification of Letters Patent. Patented Sept. 1, 1914.

Application filed December 6, 1913. Serial No. 805,176.

To all whom it may concern:

Be it known that we, HENRY F. MARTEN, HENRY GRAHN, and JULIUS C. ANDRESEN, citizens of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Barrel-Heading Machines, of which the following is a specification.

The present invention relates to a barrel heading machine for use in positioning the heads and end hoops on barrels, and has for its principal objects to provide in one machine a head containing magazine and means for removing a head from the magazine and positioning the same on the barrel; one including a means whereby the staves are temporarily clamped around the head and retained in position until a hoop is positioned over the barrel, and one carrying a means for driving the hoop on the barrel. Heretofore the above named operations have been done either by the use of several machines or by hand, and by the employment of a machine of the above type, a single operator is capable of heading a greater number of barrels in a given time than was heretofore possible, thereby increasing the output of a barrel factory and reducing the cost of assemblage of each barrel.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention, reference is to be had to the accompanying drawings, wherein—

Figure 1 is a view in front elevation of our invention disclosing the head containing magazine, the suction apparatus for removing a head therefrom to position the same in the barrel, the barrel stave clamping means and the means for driving the hoop on the barrel. Fig. 2 is a top plan view disclosing more fully the barrel stave clamping means. Fig. 3 is an end view of the frame, disclosing the means for controlling the movement of the stave clamping means. Fig. 4 is a transverse sectional view of the head magazine disclosing the advancing plate thereof and the means for preventing the rotation of said plate. Fig. 5 is a detail view of the mechanism for advancing the head elevating means.

Referring more particularly to the drawings, wherein like characters of reference designate corresponding parts throughout the several views—1 indicates suitable corner standards supporting a table or frame 2, formed with a substantially oval recess in one side face thereof, and detachably mounted to said plate at one end of said recess is a suitable stationary barrel engaging plate 3 formed with a semi-circular recess 4 therein, which is of a radius to encircle approximately one-half of the barrel to be headed. Slidably mounted in bearings 5 carried by the table 2 at the opposite end thereof from the plate 3 are the guide members 6 of a frame, connected at their opposite ends by the end plates 7 and 8, and detachably mounted on the plate 8 is a barrel engaging plate 9 provided with a recess 9′ in its outer face similar to the recess in the plate 3. A threaded shaft 10 is supported by the end plates 7 and 8 between the guides 6 and said shaft is adapted to operate through the bearings 11 which rotatably support a wheel 12 operating in an opening 12′ in the table and through the hub of said wheel the shaft 10 extends, and the hub is interiorly threaded to engage the threads of said shaft 10, and it will be apparent that the rotation of said wheel in either direction will operate the frame to move in either direction.

The wheel 12 is driven by the following mechanism:—Pivotally mounted in their longitudinal centers to a shaft 13, carried by bearings 14, adjustably mounted by screws 14′ in hangers 15 depending from the underside of the table 2, are the end members 15′ of a pivoted drive frame, and said end members rotatably mount in bearings 15^2 at their ends, the opposite ends of shafts 16 and 17 carrying the respective belt pulleys 18 and 19, and said shafts also carry the respective forward and reverse friction drive pulleys 20 and 21 which are positioned immediately below the wheel 12, and are

adapted to be forced into frictional contact therewith by a hereinafter described mechanism.

A belt 22 driven in the direction of the arrow in Fig. 3, is passed around the pulleys 18 and 19, operates over an adjustable idler 23 mounted in a hanger 24 secured to the hanger 15, and said belt also passes under a guide pulley 25 rotatably mounted over an opening 26 in the table and through which the belt extends to a point below the table, and the belt in its return movement to the driving means, not shown, passes under a rotatably mounted idler 27 positioned at the rear of the frame.

A stud carrying a roller 28 extends from the end plate 8, and said roller is positioned to ride under and contact with the underside of the forward end of a lever 29 pivoted within its length to a bracket 30, and pivotally mounted on the rear end of said lever is a turn buckle 32 which extends downwardly through an opening 32 in the table and is pivotally connected at its lower end to an arm 33 secured to one of the end members 15′. One end of an operating rod 34 pivotally mounted in journals 35 carried by the frame is connected by a link 36 to the arm 33, and said rod is connected at its opposite end by a link 37 with a foot pedal 38 pivotally mounted at its rear end to one of the supports 1, and said pedal is normally retained in an elevated position by a coiled spring 39 attached to the pedal and to the frame.

It will be apparent that when the belt is operating in the direction of the arrow, and a downward pressure is applied to the pedal 38, the friction pully 20 will be forced into frictional contact with the wheel 12 to operate the clamping frame in a forward direction, and on the release of pressure on the foot pedal, the spring 39 will pivot the drive frame to disengage the pulley 20 from the wheel 12 and force the pulley 19 into frictional contact therewith to reverse the movement of the wheel to operate the clamping frame in a reverse direction. On the rearward movement of the clamping frame, the roller 28 will ride under the forward end of the lever 29 and will cause the same to operate the drive frame against the action of the spring 39 to disengage the pulleys 19 and 20 from the wheel 12.

From the construction disclosed, it will be observed that the carriage being returned to its rearward position, the forward and reverse drive pulleys will be disengaged from the wheel 12 and the carriage will remain stationary until pressure is again applied to the foot pedal 38.

A substantially cylindrical barrel head retaining magazine 40 is positioned at one end of the table 2, and is supported by the standard 41, and said magazine is formed with a vertically extended channel 42 in which operates a lug 43 projecting beyond the edge of a circular base plate 44. The base plate 44 carries on its under surface a threaded shaft 45, which extends through the hub of an interiorly threaded disk shaped member 46, provided on its peripheral edge with the ratchet teeth 47, and said member 46 is rotatably mounted on a bearing 48 carried by a support 49. The ratchet teeth are engaged by a spring pressed pawl 50 carried by an arm 51, one end of which loosely encircles the shaft 45 above the disk member 46, and said arm is pivotally connected by a link 52 with one end of a shaft 53 slidably mounted in supporting guides 54 positioned beneath the table 2.

Angularly disposed arms 55 and 56 are adjustably mounted on the shaft 53 and are positioned one on either side of and in a position to be engaged by a downwardly depending bracket 57 secured on the underside of the end plate 8. Pivotally mounted at its upper end to said bracket 57 is a downwardly depending spring arm 58, which is limited in its pivotal movement by an adjusting screw 59 extending through the arm and threaded into the lower end of the bracket, and said arm is adapted on the forward movement of the frame to be forced into contact with the positioned barrel and on the release of the foot pedal to force the frame with a sudden impulse away from the barrel. On each forward motion of the frame, the lug 57 will contact with the arm 55, and operate the shaft 53 to cause the pawl 50 to ride free on the ratchet teeth 47, and on the reverse movement of the frame the lug 57 will contact with the arm 56 and operate the shaft to operate in a reverse direction, which will cause the pawl 50 engaging in the teeth 47 to rotate the disk 46 which operating on the shaft 45 will cause the base plate 44 to be elevated a distance equal to the thickness of a single barrel head, and cause the head to be projected above the ends of spring retaining arms 60 projecting upwardly from the magazine 40.

The barrel heads are removed from the magazine and positioned in the open end of the barrel by the following mechanism. Mounted on the table 2 is a suction fan casing 61 formed with the inlet and outlet openings 62 and 63, and in said casing is rotatably mounted a fan carrying a shaft 64 journaled in bearings 65 and carrying a belt pulley 66 over which operates a belt 67 driven from any suitable source of power. Connected with the inlet opening 62 is one end of a conduit 68 supported by a bracket 69 and said conduit is connected at its opposite end by a flexible joint 70 with one end of a swinging conduit 71, which extends to a point above the barrel head magazine and carries at its center open end a disk 72 which

is provided on its upper surface with radially extending arms 73 and hand grips 74. The weight of the conduit is balanced by a suitable weighted arm 75 attached thereto by a clamp 76 and projecting rearwardly therefrom. On the operation of the fan, a suction is created at the open end of said conduit 71 and the operator positions the disk 72 over the projected head and the head is retained on the under surface of the disk by the air suction. The operator now swings the disk over the open end of the barrel and positions the head therein. The arms 73 resting on the ends of the staves admits of the insertion of the head within the barrel a distance to be positioned in the annular groove formed therein. After the head has been positioned in the barrel and is temporarily clamped therein by the barrel engaging plates, the head positioning means is swung to one side and a hoop is positioned over the barrel end and is driven into position by the following mechanism.

A vertically extending bracket 77 is secured at its lower end to the table 2, and pivotally mounted adjacent the upper end thereof are the arms 78 and 79 arranged in pairs and which are pivotally connected at their outer ends to the vertically disposed member 80, which is bifurcated at its lower end forming braces 81 to which are secured the upper surface of a disk 82 of a diameter slightly larger than the barrel to be headed, and said disk is braced by the braces 83 and carries on its upper surface a handle 84. The disk 82 is normally retained in an elevated position by a spring 85 connected to the table 2 and to the rear end of the arms 78.

The machine being assembled as in the drawings, and power being applied to the different parts to operate the same, a barrel is headed in the following manner:—The barrel to be headed with the central hoops positioned thereon is placed on a stand 86 with its upper end in the semi-circular recess 4 and the stand 86 is of a sufficient height to bring the upper end of the barrel a slight distance above the plate 3. The operator now positions the disk 72 over the barrel head in the magazine which has been projected upwardly on the last return movement of the frame, and the suction in the conduit will cause the head to be retained on the plate. The operator now swings the plate carrying the barrel head over the barrel and positions the head in the upper end thereof with the arms 73 resting on the end of the barrel, the foot pedal is now depressed which forces the pulley 20 into engagement with the wheel 12 and causes the frame to be forced forwardly until the barrel is tightly clamped between the plates 3 and 9. The disk 72 is now removed, as the head is retained in the barrel end by the pressure of the plates 3 and 9, and the operator places a hoop over the end of the barrel and drives the same thereon by grasping the handle 84 and drawing the disk rapidly down over the barrel until the same strikes the hoop. Pressure on the foot pedal is now released which causes the friction wheel 21 to be forced into frictional engagement with the wheel 12 to reverse the movement of the carriage, and the carriage in its return movement operates the mechanism to raise a barrel head in the magazine to a point above the spring arms 60.

It will be apparent that we have provided a heading machine by the use of which a single operator is enabled to head and hoop a barrel in a short time, one which dispenses with the necessity of the handling of the barrel from one machine to another to perform the several operations on the same, and one which is capable of being manufactured at little cost, is thoroughly efficient for the purposes designed and by the use of which barrels may be rapidly headed.

Having thus described our invention what we claim and desire to protect by Letters Patent is:—

1. In a machine of the character described, the combination with a supporting means for an open ended barrel, said means engaging the staves of which the barrel is formed whereby the same are held in temporary engagement with a barrel head, a barrel head magazine positioned adjacent the barrel support, head positioning means for removing a head from the magazine and positioning the same on the barrel, means for feeding the barrel heads to a position to be received by the head positioning means, said feeding means having an operative connection with the stave engaging means whereby the same are actuated consonantly.

2. In a machine of the character described, the combination with an open ended barrel receiving means operable to compress the staves of which the barrel is formed, a barrel head magazine positioned adjacent the barrel receiving means and having an operative connection with said receiving means whereby when the same is actuated the heads will be fed to a position to be removed, means for removing the head from the magazine and positioning the same on the barrel, and means for positioning a head retaining means on the barrel while the receiving means maintain the staves under compression.

3. In a machine of the character described, the combination with an open ended barrel receiving means comprising a stationary stave engaging element and a movable stave engaging element, means for actuating said movable element, means for positioning a head on the barrel, means actuated in timed relation with the movement of the movable stave engaging member and having an oper-

ative connection therewith for moving the staves to a position whereby the same may be engaged by the head positioning member.

4. In a machine of the character described, the combination with means for receiving an open ended barrel, said means including a stationary stave engaging member, and a movable stave engaging member, means for actuating the movable stave engaging member to bring the same into and out of contact with the staves of which the barrel is formed, said stave engaging means when in contact with the staves compressing the same whereby a barrel head may be positioned on the same, a barrel head positioning member, a magazine supplying heads to said positioning member, a feed device operating within the magazine and actuated by the operating means of the movable stave engaging member as said member brings the stave engaging means out of contact with the staves.

5. In a machine of the character described, the combination with means for receiving an open ended barrel, said means including coöperating members one of which is movable, means for moving said member into and out of engagement with the staves of which the barrel is formed, said coöperating members temporarily compressing the staves, means for positioning a head upon the barrel, and means having an operative connection with the means for actuating the movable stave engaging member whereby upon the movement of said member out of contact with the barrel, a barrel head will be forced to a position where the same may be engaged by the head positioning member.

6. In a machine of the class described, the combination with means for receiving an open ended barrel, a magazine for containing barrel heads, means for removing a head from the magazine and for positioning the same in suspension in the barrel, and means for operating the receiving means to force the staves into engagement with the head and for retaining the same in position therearound while a permanent retaining means is positioned around the barrel end, the operating means for the receiving means having an operative connection with the head moving means whereby after each actuation of the receiving means, a head will be moved from the magazine.

7. In a machine of the class described, the combination with means for receiving an open ended barrel to be headed, a magazine for containing barrel heads, means operating consonantly with the barrel receiving means and having an operative connection therewith for projecting a barrel head from within said magazine, suction means for engaging the projected barrel head and for positioning the same in suspension within the open ended barrel, means for operating the receiving means to force the barrel staves into engagement with the positioned head for the positioning of a retaining hoop over the barrel, and means for forcing the retaining hoop onto the end of the headed barrel.

8. In a machine of the class described, the combination with a means for receiving an open ended barrel to be headed, comprising a stationary and a movable member, each formed with a coöperating semi-circular recess therein, a magazine for containing the heads to be positioned within the barrels to be headed, means operated on one movement of the movable member for projecting a head from the magazine, suction means for engaging the projected head and for positioning the same within the open end of the barrel, means for operating the movable member to clamp the barrel end between the movable and stationary members for temporarily forcing the staves into engagement with the positioned head while a permanent head retaining means is positioned around the barrel end.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY F. MARTEN.
HENRY GRAHN.
JULIUS C. ANDRESEN.

Witnesses:
JAS. W. DOHERTY,
C. R. WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."