

No. 661,395.

Patented Nov. 6, 1900.

W. CURTIS.

MACHINE FOR PLACING HOOPS UPON BARRELS.

(Application filed June 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

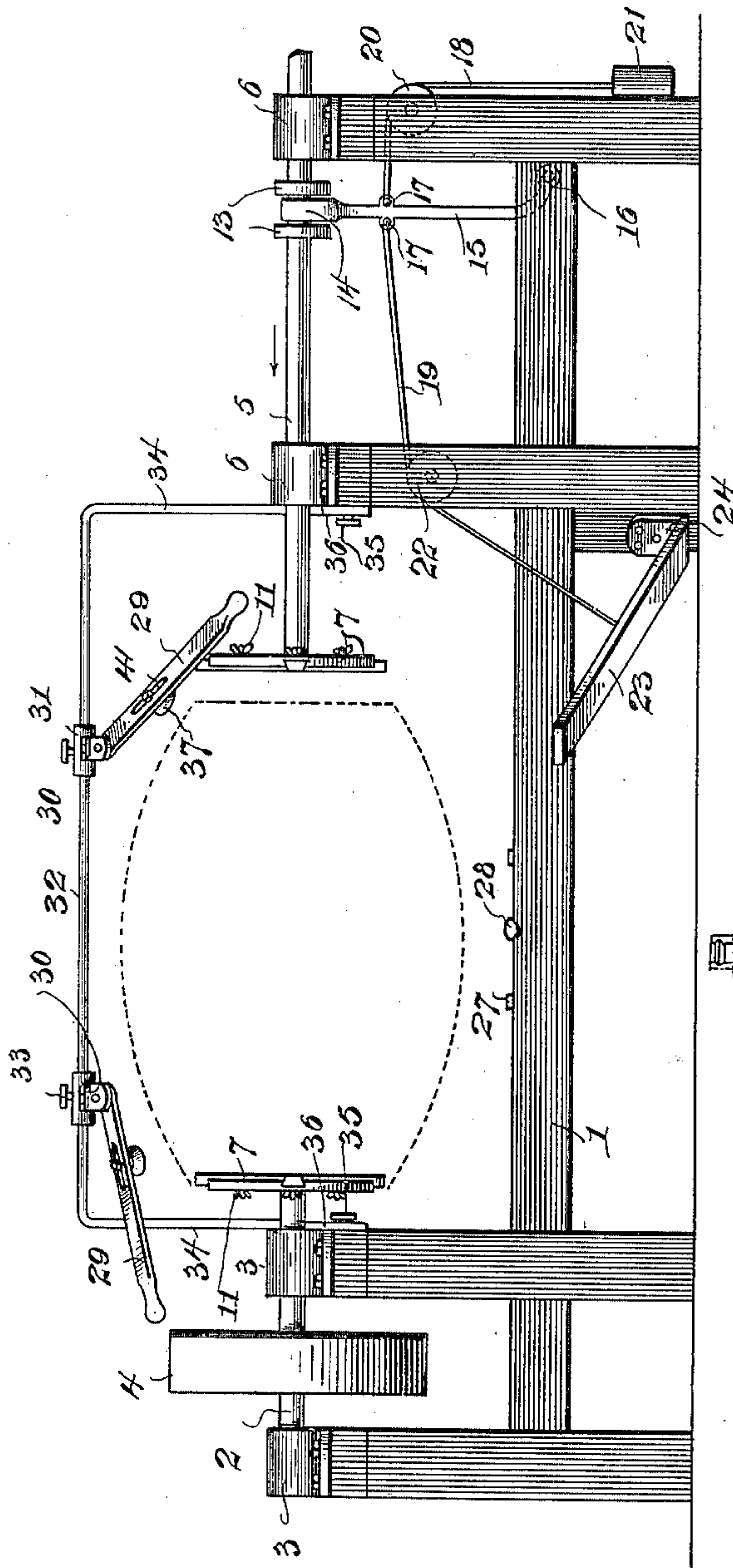


Fig. 4.

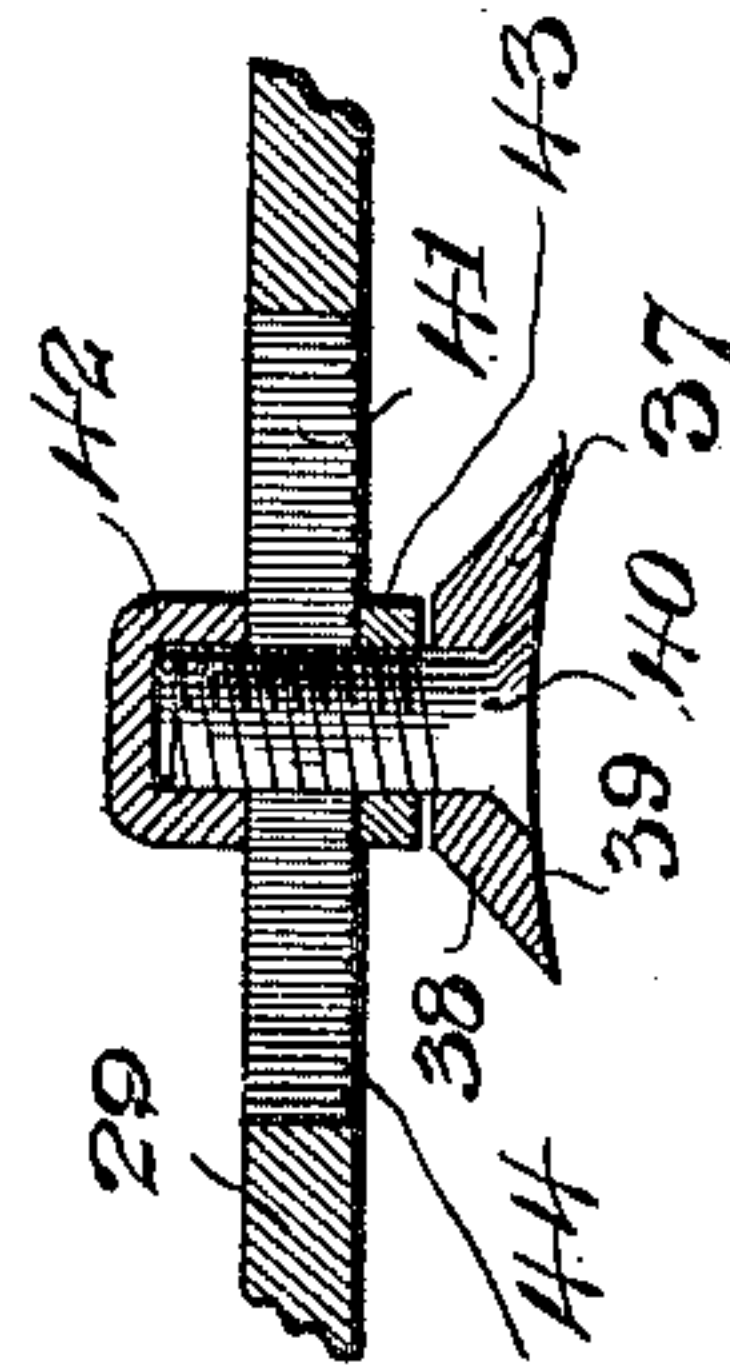
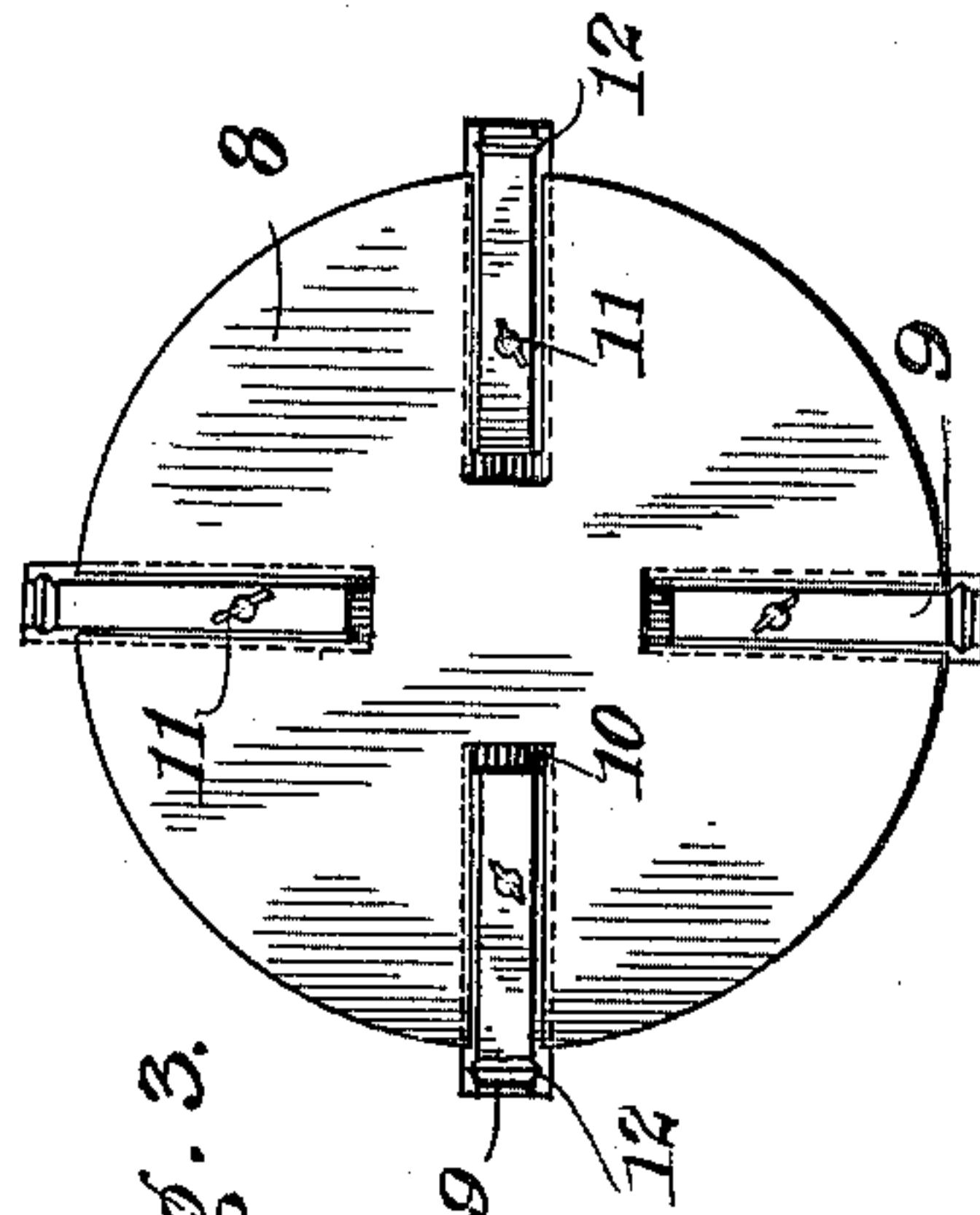


Fig. 3.



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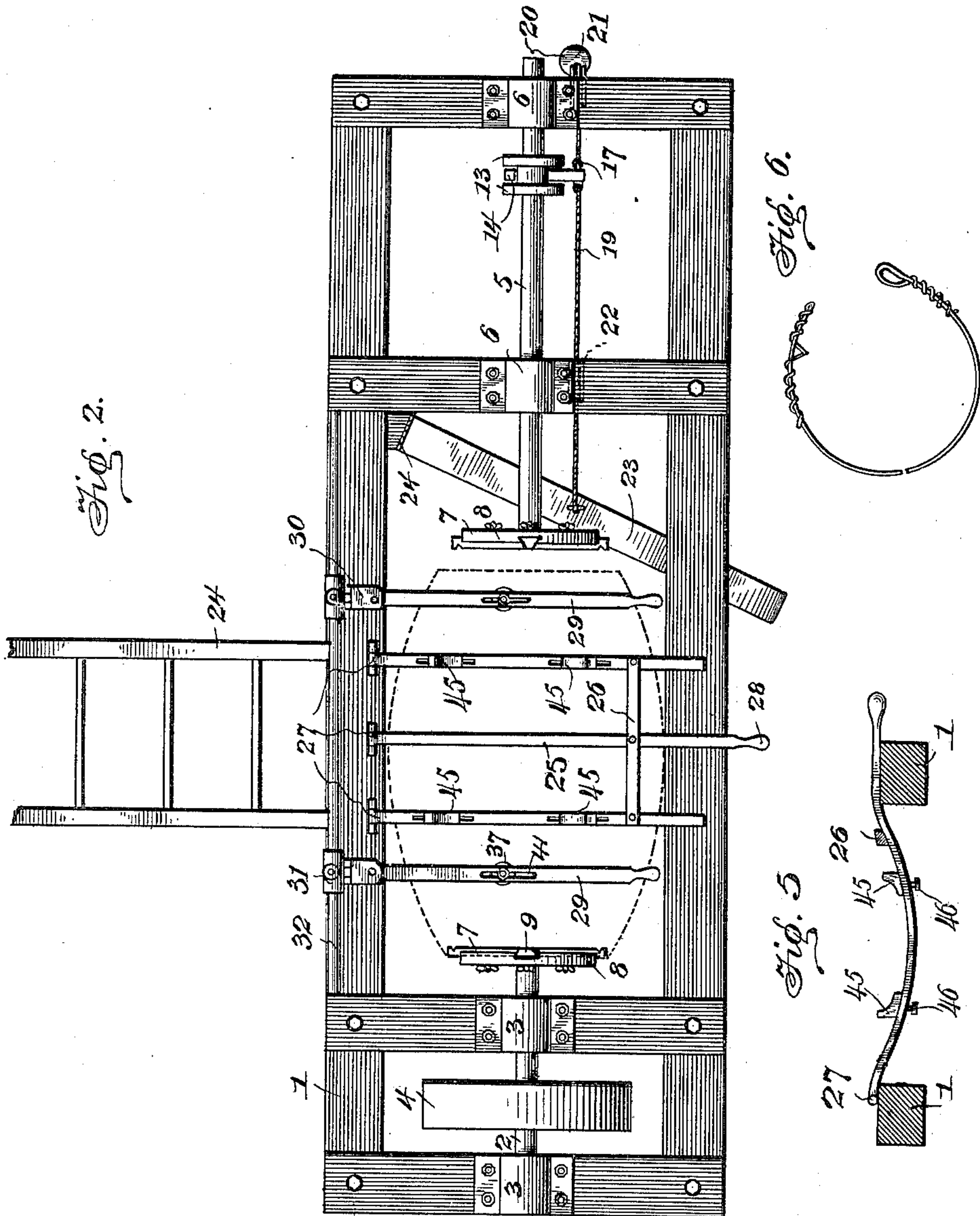
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

WILLIAM CURTIS, OF DULUTH, MINNESOTA.

MACHINE FOR PLACING HOOPS UPON BARRELS.

SPECIFICATION forming part of Letters Patent No. 661,395, dated November 6, 1900.

Application filed June 5, 1900. Serial No. 19,156. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CURTIS, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Machines for Placing Hoops upon Barrels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for placing hoops upon barrels; and it consists in a machine provided with barrel-supporting chucks, means for revolving the barrel, and levers adjustably mounted upon the machine and carrying hoop-engaging sheaves or rollers which may be forced against the hoops of a barrel to tighten them upon the same.

It also consists in a machine provided with a longitudinally-fixed shaft and a longitudinally-moving shaft, means for forcing the longitudinally-movable shaft against the end of the barrel after holding it in the machine, and levers adjustably mounted on the machine and provided with hoop-engaging sheaves or wheels, the construction being such that by forcing the said levers toward each other against the hoops said hoops will be tightened upon the barrel.

My invention further consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 represents a side elevation of a barrel-hooping machine embodying my invention. Fig. 2 represents a top plan view of the same. Fig. 3 represents a detail face view of one of the barrel-engaging chucks. Fig. 4 is an enlarged detail sectional view through a portion of one of the tightening-levers, showing the mounting of the sheave or roller carried thereby. Fig. 5 is a detail cross-section through a portion of the frame, showing the means for lifting the barrel between the chucks. Fig. 6 is a detail view showing a wire hoop for use in hooping a barrel.

My invention is designed to receive a barrel with hoops loosely placed thereon and rotate the said barrel, while means are brought to bear upon the hoops so that as the barrel

rotates the hoops will be wedged tighter and tighter upon the periphery of the barrel until they are snugly in place. In carrying out the features of my invention I preferably employ a suitable frame, as 1, having standards near each end for supporting shafting. At one end of the frame 1 a shaft 2 is mounted in bearings, as 3 3, upon the said frame, the said shaft being held against longitudinal movement. This shaft is preferably provided with an actuating-pulley, as 4, which may be connected with any suitable source of power for revolving the shaft. At the end of the frame 1 is mounted a somewhat longer shaft, as 5, in suitable bearings, as 6 6, this shaft being free to move longitudinally in the said bearings 6 6. The shafts 2 and 5 each carry upon their inner ends barrel-engaging chucks, as 7 7. These chucks may be made in any suitable form to engage the ends of ordinary barrels; but I preferably form them of disks, as 8, having radially-adjustable arms, as 9 9, which engage dovetailed slots, as 10 10, formed in the face of the disk 8. Each of the arms 9 9 is adapted to be held in its adjusted positions by means of clamp screws or bolts, as at 11 11, and the said arms are further provided near their outer ends with V-shaped depressions or grooves 12 12, which are adapted to fit upon the chimed ends of the barrels. By this construction the chucks may be made to fit barrels of different sizes and will be able to so firmly grip them that there is no likelihood of their getting out of place while being revolved in the machine. The disks 8 are rigidly secured to their respective shafts, so that when the shaft 2 is rotated its chuck will rotate the barrel with which it comes in contact, the barrel in turn rotating the other chuck and the shaft 5. Upon the shaft 5 are arranged a pair of collars, as 13, forming a groove between them adapted to be engaged by the bifurcated end 14 of the lever 15. The lever 15 is pivoted at its lower end 16 to the frame 1, and the said lever near its bifurcated end is provided with eyes 17 17 upon each side thereof, which are secured to the ropes or cords 18 and 19. The cord 18 passes over a pulley 20, journaled on the frame 1, and has secured at its outer end a weight 21, which tends rather to pull the lever 15 toward the said pulley 20, and thereby holds the chuck

7 of the shaft 5 out of engagement with the barrel. The cord or rope 19 passes over a pulley 22, also journaled in the frame 1, and is secured to a foot-pedal, as 23, which is hinged to the frame 1, as at 24. By placing the foot upon the foot lever or treadle 23 the lever 15 may be so actuated as to force the shaft 5 and its chuck 7 inwardly for gripping a barrel between the two chucks. When the barrel is thus gripped between the two chucks and motion is imparted to the pulley 4, the barrel can be rotated at any suitable speed desired, and will continue to revolve as long as the foot is kept upon the treadle 23.

In order to conduct the barrels from the machine, I preferably place a suitable skid, as 24, upon one side of the frame, so that the barrels may be rolled from the top of the same. In order to adjustably support the barrel between the chucks 7 7, I provide a hinged frame, as 25, the said frame being hinged to the supporting-frame 1 at one end and rested upon one of the beams of said frame at the other end. A simple way of constructing this frame is to form it of three or more bars, as seen in Fig. 2 of the drawings, the said bars being connected at their free ends by means of a cross-bar 26, while their other ends are connected with the frame 1 by means of hinges 27 27. One of the bars of the frame, preferably the central one, is made longer than the others and has a handle, as 28, formed upon the end thereof. By grasping the handle 28 the supporting-frame may be raised upon its hinges. In order to receive a barrel properly, the bars of the said frame are slightly depressed, as seen in Fig. 5 of the drawings. When the barrel is placed upon the frame, it will be readily held thereon because of the depressed central portion thereof. As a further means for holding the barrel on the frame 25, I provide the said frame with shallow adjustable barrel-holding dogs 45. These dogs 45 are secured by set-screws 46 in slots in the outer members of the frame 25. Without these dogs 45 a barrel set in the frame and lifted thereby might be thrown out of the axial line of the chucks by reason of the arc described by said frame. Thus the barrel should rest a little toward the front of the said frame to be raised into the axial line of the chucks. The dogs should therefore be set to retain the barrel in such position on the frame. They are also adjustable to accommodate different sizes of barrels. The utility of such a frame is very great, as it makes it extremely easy to place the barrel between the chucks. When the barrel is lifted upon the machine, it rests upon the frame 25. Then by grasping the handle 28 and raising the frame 25 the barrel may be lifted between the chucks 7 until the foot lever or treadle 23 is depressed and the barrel has been gripped between the said chucks. After the barrel has been thus gripped the frame 25 may be dropped again until after the hooping operation has been completed. When the barrel

has had its hoops tightly secured in place, by removing the foot from the treadle 23 the weight 21 will be permitted to withdraw the shaft 5, and its chuck and the barrel will be allowed to fall upon the pivot-frame 25 again. Upon sufficiently lifting the frame 25 again the barrel will be caused to roll from the top of the machine to the skid 24, and thence to any suitable point.

The means for forcing the hoops in place forms an important feature of the machine and comprises two levers 29 29. Each of these levers is pivotally secured to a pivoted connecting-block 30, which in turn is pivotally secured to a sleeve 31, mounted upon a bridge-rod 32. The sleeves 31 are preferably provided with set-screws, as 33 33, so that the said sleeves may be moved inward or outward upon the bridge-rod 32 and secured in their adjusted place. The bridge-rod 32 is formed with an elevated horizontal portion and depending supporting-legs 34 34 at each end thereof, the lower ends of said depending portions being attached to the frame 1. In order to adjustably hold the bridge-rod 32 in place upon the frame, I preferably pass set-screws, as 35 35, through slots 36 in the lower ends of the legs 34 34. These slots permit the bridge-rod to be raised or lowered, and the set-screws will hold the same in the different adjusted positions to which it may be brought. The use of the pivoted connecting-blocks 30 30 makes it possible to raise and lower the levers 29 29 as well as to move them toward and away from each other. In order to engage the hoops of the barrel, each of the levers 29 29 carries a sheave or roller, as 37. The rollers 37 are preferably formed with beveled peripheries, as 38, adapted to engage hoops on the barrel, while their lower faces are slightly concaved, as at 39, and conform to some extent to the curvature of the barrels. The rollers or sheaves 37 are loosely mounted upon bolts 40, which bolts pass through slots 41, formed in the levers 29, the said bolts being secured in their adjusted positions by means of a suitable nut, as 42, applied to the end thereof. A washer, as 43, is interposed between the roller or sheave 37 and the face of the lever 29. In order to more securely hold the said sheaves in their adjusted positions, the engaging faces of the washer 43 and lever 29 may be serrated or corrugated, as at 44, so that when the nut 42 is screwed down tightly the bolt 40 cannot move longitudinally with respect to the lever 29. A pulley or sheave of the shape shown is well adapted for engaging the edge of the barrel-hoops, and is particularly well adapted for the tightening of wire barrel-hoops in place. In Fig. 6 of the drawings I have shown a wire hoop which may be used upon the barrels, upon which hoop, however, I make no claim of invention.

In tightening the hoops upon barrels the said hoops are preferably placed approximately in position upon the barrel before the same is in the machine. The barrel is then

run or lifted upon the machine and mounted between the chucks, the revolving mechanism being set in motion. The levers 29 29 are next employed, and the sheaves 37 are brought
 5 into engagement with the barrel-hoops upon the outer sides thereof. As the barrel is rotated, if a pressure is brought to bear upon the levers 29 the hoops may be gradually and evenly forced toward the enlarged central
 10 portion of the barrel and in a short time will be tightly secured in place. It will be seen that the adjustable sleeves 31 make it possible to so arrange the levers 29 that they may be brought opposite the hoops of the barrel,
 15 no matter what the shape of the barrel or its size or whether the inner hoops or the outer hoops are being located. I find in practice that this means of placing hoops upon barrels is far superior to the usual wedge-and-hammer means, as it places the hoops far
 20 more evenly in position.

In place of the pulleys 20 and 22 it will be apparent that I might employ bell-crank levers for connecting the weight 21 and the
 25 treadle 23 with the lever 15 without departing in the least from the spirit of my invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

30 1. A machine for tightening the hoops of barrels, comprising a frame, shafts carrying barrel-gripping chucks mounted therein, means for engaging the hoops upon the barrels comprising adjustable levers having anti-
 35 friction shoes or rollers for bearing against the hoops, a longitudinally-arranged bar or support, means for securing the said levers at different points upon said support so as to bring them opposite any desired hoop upon a
 40 barrel, and means for supporting and rotating the barrel, the structure being such that by drawing the levers toward each other against the hoops as the barrel revolves the hoops may be tightly wedged thereon.

45 2. In a machine for tightening the hoops of barrels, the combination with a suitable frame, and means for supporting and rotating the barrel, of a longitudinally-arranged support, independently-operating levers mount-
 50 ed upon said support, means for securing them at any point upon the said support so as to bring them opposite any of the hoops, the structure being such that the levers may be operated independently of each other and be
 55 caused to bear against any one or more of the hoops for tightening them.

3. A machine for tightening hoops upon barrels, comprising a frame, shafting carrying gripping-chucks for rotatably supporting
 60 the barrel, means for rotating the same, a rod arranged longitudinally of the machine and parallel with the longitudinal axis of the barrel, sleeves movably mounted upon the said rod, means for holding the sleeves at any
 65 point upon the rod so as to bring them opposite certain hoops of the barrel, levers pivot-

ally mounted upon said sleeves and carrying antifriction-rollers for engaging the hoops, the structure being such that the levers may be brought to bear upon any of the hoops of
 70 the barrel and may act independently of each other, substantially as described.

4. A machine for tightening hoops upon barrels comprising a frame, shafting mounted thereon, barrel-gripping chucks carried by
 75 the said shafting, for supporting a barrel, a bridge-rod mounted on the said frame, adjustable sleeves mounted on the bridge-rod, levers pivotally secured to the said sleeve, and hoop-engaging sheaves secured to the
 80 said levers, whereby upon forcing the levers together and revolving the barrel the hoops may be wedged upon the same and means for revolving the barrel.

5. A machine for tightening hoops of barrels comprising shafting, barrel-engaging chucks carried thereby, for supporting a barrel, means for rotating the same, a bridge-rod mounted upon the frame, means for adjusting the same to different heights, sleeves
 90 adjustably secured on the said bridge-rod, blocks pivoted to the said sleeves, levers pivoted to the said block, sheaves or antifriction-rollers adjustably mounted upon the said levers, the said sheaves having beveled edges,
 95 whereby they will engage the hoops of the barrel more securely, the structure being such that the levers may be raised and lowered or moved apart and forced together for acting upon the hoops to be tightened, sub-
 100 stantially as described.

6. A machine for tightening hoops of barrels comprising a shaft to support the barrels, chucks carried by the said shaft consisting of disks having dovetailed grooves
 105 formed therein, arms moving in the said grooves and provided at their outer ends with chime-engaging depressions, and means for clamping the arms in their adjusted positions, and means for rotating the chucks and bar-
 110 rel, the structure being such that the chucks may be adapted to receive barrels of different sizes and hold them in proper position in the machine.

7. A machine for tightening the hoops of
 115 barrels comprising a frame, shafting mounted thereon, and carrying chucks for engaging the heads of a barrel, to support it, means for rotating said shafting, a skid for conducting the barrels from the machine, a bar-
 120 rel-adjusting frame pivoted upon the machine, the said frame being hinged thereto at one end and being free to be lifted at the other end, the structure being such that a barrel rolled upon the said frame may be
 125 raised to a proper position between the chucks to be gripped thereby.

8. A machine for tightening the hoops of barrels, comprising a frame, shafting mount-
 130 ed thereon and provided with barrel engaging and supporting chucks, means for rotating said shafting, a barrel-adjusting frame

mounted upon the machine comprising bars
hinged to the frame at one end and connect-
ed by a cross-bar at their other ends, a han-
dle formed upon the said frame, the arrange-
5 ment being such that by gripping the han-
dle a barrel rolled upon the said frame may
be lifted between the chucks of the machine
so as to be gripped thereby.

9. A machine for tightening the hoops of
10 barrels, comprising a frame, shafting mount-
ed thereon and provided with barrel engag-
ing and supporting chucks, means for rotat-
ing said shafting, a barrel-adjusting frame

mounted upon the machine, barrel-holding
dogs secured to said frame, set-screws for ad- 15
justably holding said dogs in place, the con-
struction being such that the dogs will hold
the barrel from rolling on said frame and
will raise the said barrel into the axial line
of the chucks, substantially as described. 20

In testimony whereof I hereunto affix my
signature in presence of two witnesses.

WILLIAM CURTIS.

Witnesses:

S. H. ECKMAN,

A. M. SCHROEDER.