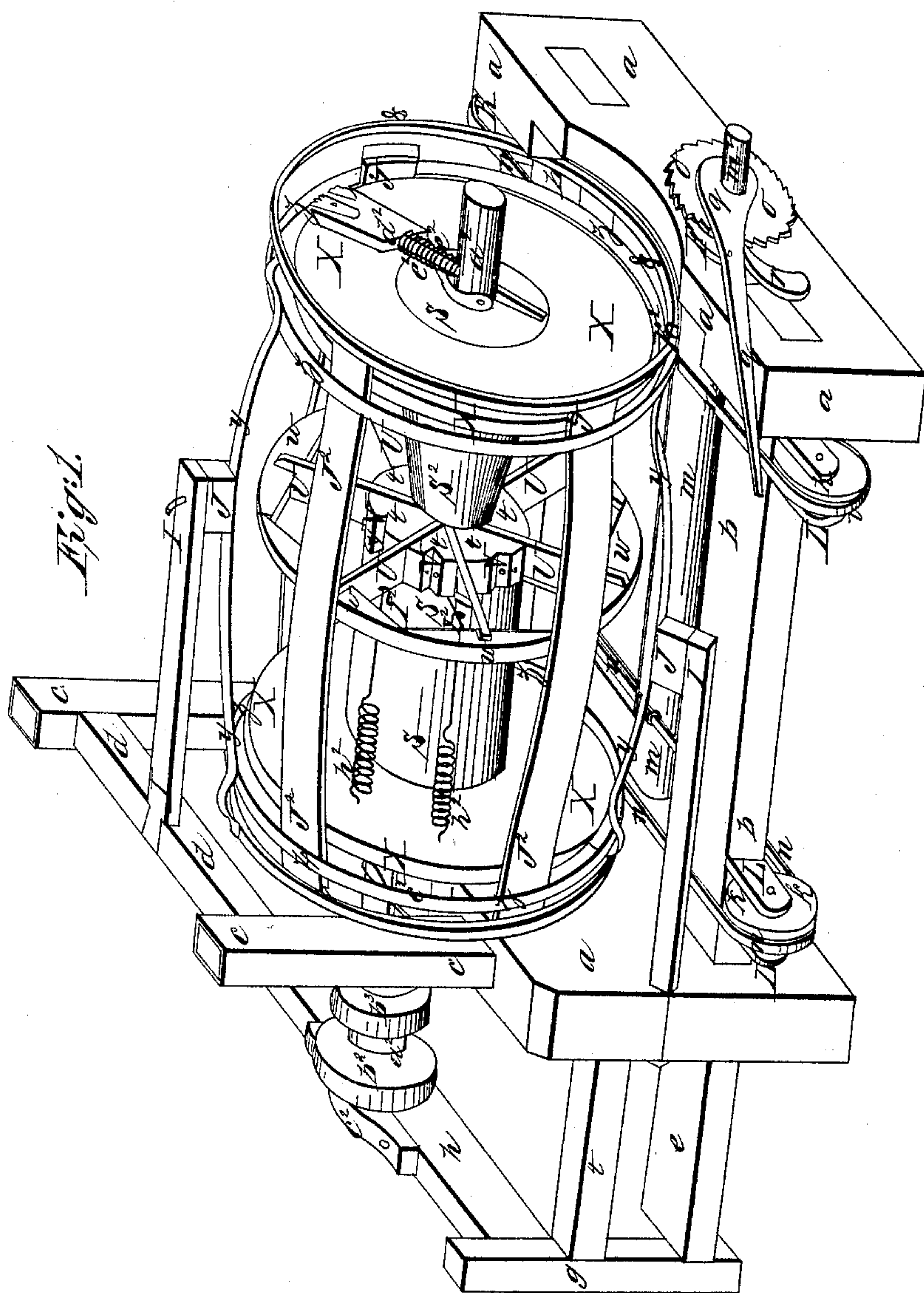


J. Rees,
Crozing Stares.

N^o 21,725.

Patented Oct. 5, 1858.



UNITED STATES PATENT OFFICE.

JACOB REES, OF ELKHORN GROVE, ILLINOIS, ASSIGNOR TO JONAH L. REES, OF SAME PLACE.

MACHINE FOR FORMING BARRELS, &c.

Specification of Letters Patent No. 21,725, dated October 5, 1858.

To all whom it may concern:

Be it known that I, JACOB REES, of Elkhorn Grove, in the county of Ogle and State of Illinois, have invented certain new and useful Improvements in Machinery for Forming and Putting Together Barrels, Kegs, Casks, &c.; and I do hereby declare that the following is a full, clear, and exact description of the method of constructing and manner of operating the same, reference being had to the accompanying drawings, making a part of this specification, in which the figure is a perspective view of the machine.

The nature of my improvements consist in constructing machinery whereby the staves of barrels, casks, and kegs, are put together, the bulge or swell formed, and the chamfering and crozing of each end are done simultaneously, and forming the barrel ready for receiving the hoops and headings.

To enable others to be skilled in the construction, and operation of my improvements the following is a description thereof.

In the figure a, a, a, a, a, a , are end timbers connected together by longitudinal rails b, b, b ; c, c, c are uprights connected together by a cross rail d, d ; e, f, g, h , form a shall additional frame work attached to the main framing. At i, i, i, i , are projecting arms or supports, with suspension blocks J, J . At k, k, k, k , are small pulleys, or band wheels, supported in suitable bearings L, L, L, L , attached to the longitudinal rails b, b . At m, m , is a suitable shaft or axle to which are attached straps n, n, n, n, n, n , and which pass around over the pulley K, K . To the end of the shaft or axle at m^2 is attached a ratchet wheel o, o , and at P is a clutch attached by a loose joint to a lever handle q, q which works loosely around the end m^2 . At r , is a stop or pawl to ratchet wheel. At s, s, s, s^2 , is a cylinder like device, with an opening or bore through its center. This cylinder about the center of its length is formed with jaw like joint places t, t, t, t, t , one portion of the length of the cylinder being shaped tapering or cone like, as at s^2 , so as to admit of the forming the joint places. In said joint places are radial arms v, v, v, v, v , held in place by pins or bolts as shown in the notches v, v, v .

To the ends of the radial arms, are seg-

mental pieces w, w, w, w forming a perfect circle giving the required circumference or size of bulge or the swell of the barrel, cask or keg to be formed. At x, x, x, x are end disks, attached permanently to the cylinder s, s, s, s^2 . To the pendant blocks J, J , are connection, suspension bows, y, y, y, y to the ends of which are attached metallic, tightening bands, or clamps z, z, z, z, z, z, z , arranged immediately over and around the disks x, x . The said tightening clamps or bands are not closed or united, but instead their ends are attached to the straps or bands n, n, n, n . At $\&, \&, \&, \&$, are guide bands attached to the extremities of the bows y, y, y, y . These guide bands are open at their ends, about the usual width of a stave.

Through the perforated, or hollow cylinder s, s, s, s^2 , passes a revolving shaft or axle a^2 , to the opposite end of which, are attached band pulleys b^2, b^3 . This shaft or axle is supported at one end by suitable box bearings c^2, c^2 , while the end a^2 , extends six or more inches beyond the disk x, x . Through this end of the shaft or axle is a mortise in which is inserted the shank end of a crozing and chamfering tool d^2 . Around the shank is a spiral spring e^2 . At f^2 , is the crozing knife, and at g^2 , is the chamfering blade. At h^2, h^2 , are spiral springs, having one end inserted in the disk x, x , and the other end formed with a hook i^2, I^2 and inserted in holes formed in radials v, v .

The operation of my barrel forming machine is as follows, viz: A stave is taken in hand, and passed under and through the open ends of the iron hoops or clamps z, z at the point marked k^2 of the guide bands $\&, \&$, passing the stave horizontally across disks x, x , and also over the bulge forming segments w, w, w . In this way all the required staves to form a barrel, are arranged around the cylinder; and after all the staves are adjusted, the clamps z, z , are tightened through the action of the lever handle q, q , which being lifted upward causes the shaft or axle m, m to rotate, and as the bands or straps n, n , are connected thereto, and also to the ends of the tightening hoops, or clamps z, z , the staves J^2, J^2, J^2, J^2 , are held firmly against the disks x, x , and the swell or bulge forming devices v, v, v, v , are forced straight in position, when the seg-

mentals w, w, w, w bear up against the inside of the staves and give them the required swell or bulge.

It must be observed that in order the better to keep the staves together, confining hoop of thin metal or truss bands may be used. After the barrel is properly put together, the shaft or axle, a^2, a^2 is set in motion, by a belt passing over the pulley b^2 . There are crozing and chamfering tools, attached to the shaft or axle a^2, a^2 , outside of the disks x, x, x, x so that both ends of the barrel are crozed and chamfered simultaneously, as well also as having the ends of the staves, trimmed and dressed smoothly at one operation. It will be perceived that the barrel remains stationary in the clamps, or tightening hoops z, z, z, z , while the crozing and chamfering tools d^2 , being attached to the shaft or axle a^2, a^2 , revolve.

To detach the barrel, loosen the clamp hoops z, z, z, z , by lifting the clutch and pawl P, Y, when the shaft or axle m, m can be reversed when the straps or bands, n, n will slacken causing the clamps to relieve the barrel, when it can with little effort be slipped off the cylinder, and disks s, s, x, x . The drawing or slipping off of the barrel causes the radial arms v, v, v , to close forward, toward s^2 , and after the barrel is off, the radials z, z, z resume their position, by the agency of the spiral springs h^2, h^2 .

The spiral spring e^2, e^2 , around the shank

of the crozing and chamfering tool presses the tool up to the groove or channel of the stave, so as to cause the proper depth, and act as an automatic feeding device.

After the barrel has been formed, and slipped from off the forming cylinder, the required hoops being at hand are slipped over the end of the barrel in the usual manner and the headings inserted, thus forming and completing a barrel in a very brief space of time.

The radial arms v, v, v, v , may not only be arranged on joint pins so as to open out and close up, but may also be so constructed as to extend outwardly forming larger or smaller swells or bulges in shape.

Having described the nature, construction, and operation of my improvement in machinery for putting together staves, and forming barrels, ready for hooping and heading, what I claim as new and useful and desire to have secured by Letters Patent of the United States, is—

The construction of the cylinder s, s, s^2 , with the radial arms v, v, v, v , and segmental parts w, w, w, w, w , the disks x, x, x, x , the circular clamps z, z, z, z , and guide bands $\&, \&, \&, \&$, the suspension devices I, I, J, J, Y, Y, arranged and operated as described.

JACOB REES. [L. s.]

Witnesses:

MASON CRARY.

R. P. GRANT.