

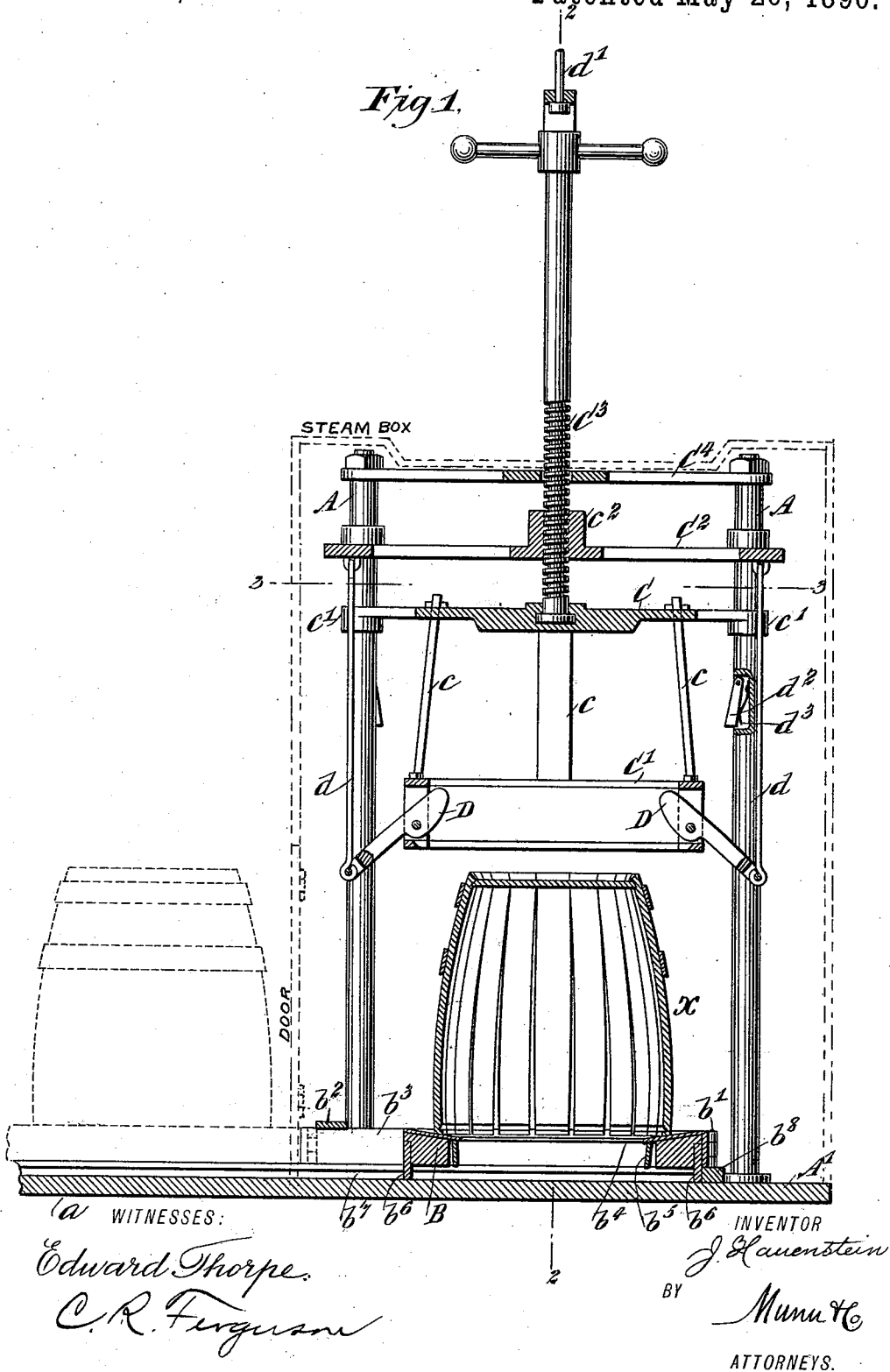
(No Model.)

3 Sheets—Sheet 1

J. HAUENSTEIN.
BARREL FORMING MACHINE.

No. 560,991.

Patented May 26, 1896.



(No Model.)

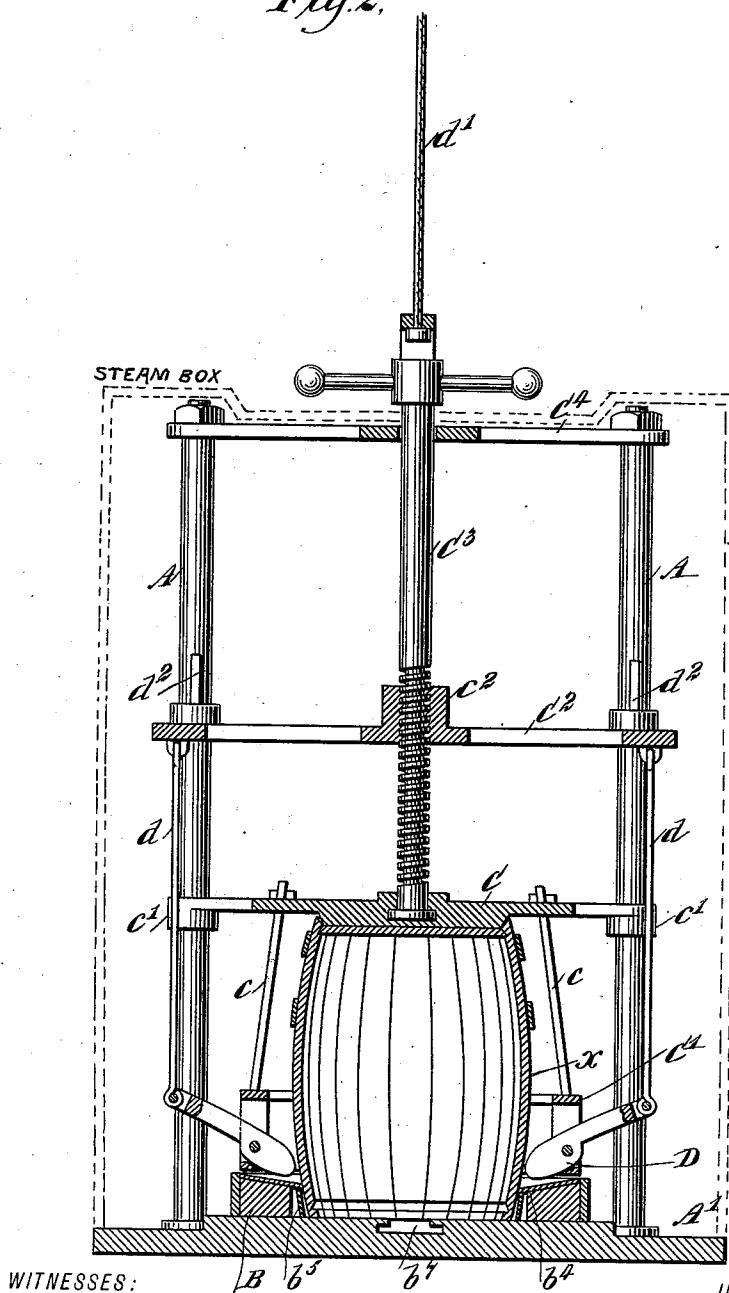
3 Sheets—Sheet 2.

J. HAUENSTEIN.
BARREL FORMING MACHINE.

No. 560,991.

Patented May 26, 1896.

Fig. 2.



WITNESSES:

Edward Thorpe
C. R. Ferguson

INVENTOR

J. Hauenstein
BY Munn & Co

ATTORNEYS.

(No Model.)

3 Sheets—Sheet 3.

J. HAUENSTEIN.
BARREL FORMING MACHINE.

No. 560,991.

Patented May 26, 1896.

Fig. 3.

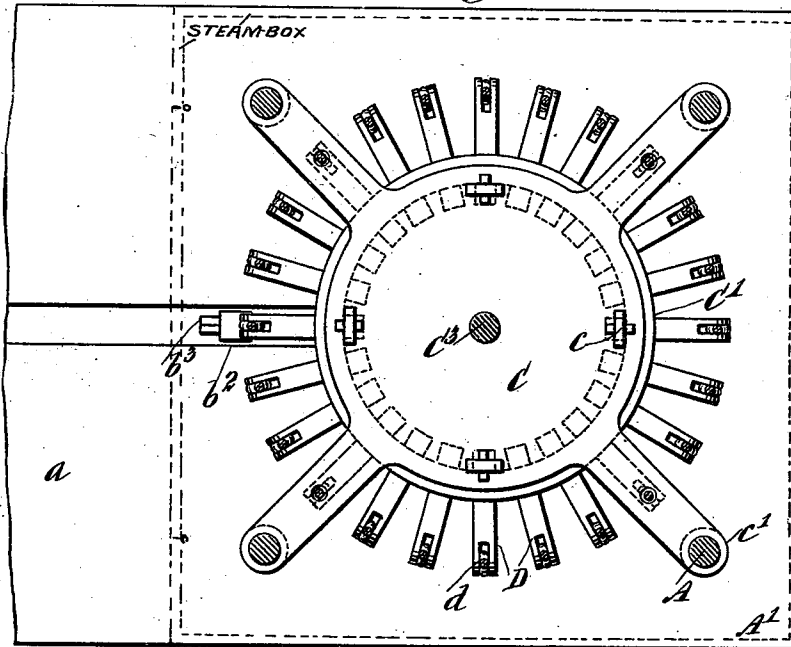
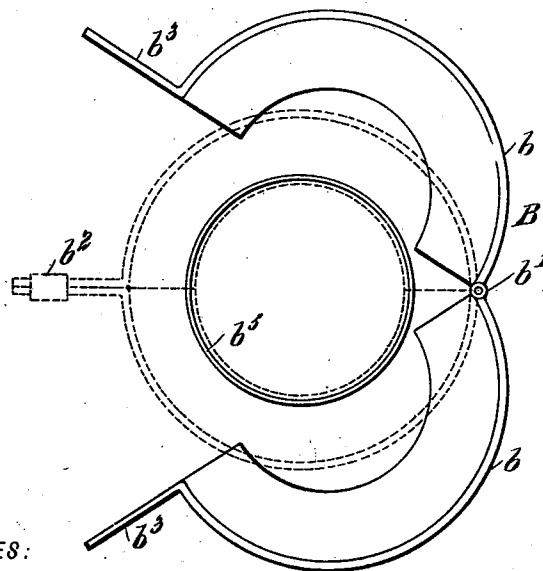


Fig. 4.



WITNESSES:

Edward Thorpe.
C. R. Ferguson

INVENTOR
J. Hauenstein
BY Munn & Co.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN HAUENSTEIN, OF NEW ULM, MINNESOTA.

BARREL-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 560,991, dated May 26, 1896.

Application filed October 22, 1895. Serial No. 566,457. (No model.)

To all whom it may concern:

Be it known that I, JOHN HAUENSTEIN, of New Ulm, in the county of Brown and State of Minnesota, have invented certain new and useful Improvements in Barrel-Forming Machines, of which the following is a full, clear, and exact description.

This invention relates to machines for forming or completing barrels, kegs, and other casks, in which the two ends are contracted relatively to the center.

In the ordinary method of making barrels and the like the staves are secured around one head by means of a hoop and then the barrel is steamed in a suitable box. After the steaming a rope is extended around the free end of the barrel-staves and by tightening the staves are drawn together until a hoop may be placed thereon. This method is objectionable, because it requires the handling of the barrel as it comes hot from the steaming-box, and by employing a rope the pressure is not equal on the several staves, and on account of this unequal pressure the vessel is not true in outline. My invention is designed to obviate these objections.

The invention consists in the construction and novel arrangement of parts, as will hereinafter appear, and be fully pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of a barrel-making machine embodying my invention with parts omitted for the sake of clearness. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1, and Fig. 4 is a plan view of a hoop-holder and barrel-carriage employed.

Referring to the drawings, A designates standards extended from a bed or platform A'. I have here shown four standards A; but it is to be understood that there may be more or less, as they serve mainly as vertical guides for certain parts to be hereinafter described. The standards A and the parts working thereon are intended to be placed permanently in a steaming-box. (Shown in dotted lines.) The bed or platform A' has a portion *a*, which extends outside the steam-

ing-box through a suitable door-closed opening.

The carriage and hoop-holder B comprise two semicircular sections *b b*, hinged together, as at *b'*, and having locking means at the free ends. As a locking means I have shown a clip *b²*, adapted to engage over portions *b³*, projected outward from the free ends of the sections *b* when the same are brought together, as indicated in dotted lines in Fig. 4. The upper surface of the ring-shaped carriage is inclined downward and inward, and the upper inner edge is provided with an inwardly-extending flange *b⁴*, beneath which a hoop *b⁵* is designed to be placed. The under side of the carriage is provided with inverted-T-shaped lugs *b⁶*, adapted to engage in a correspondingly-shaped guideway or slot *b⁷* in the bed or platform, so that when the carriage is moved into the machine it will be properly guided and centered. The inner end of the slot *b⁷* is provided with a stop *b⁸* to prevent the movement of the carriage too far inward.

C is a presser-plate and carrier for a cam-ring C', which is suspended from the plate C by means of hangers *c*. The presser-plate has outwardly-extended arms having loose or sleeve connection *c'* with the standards A, so that the plate may move vertically on the standards. Above the plate C and movable vertically on the standards is a screw-plate C², having an internally-threaded boss *c²*, through which an operating-screw C³ extends and has a swivel connection with the plate C.

For the purpose of steadying the standards the upper ends may be connected by a spider-frame C⁴, having a central hole through which the screw-shank extends. This screw-shank will also extend through the top of the steaming-box.

The cam-ring C' is provided with a series of openings, in which cam-levers D are pivoted, so that the cam ends extend within the ring to operate upon the barrel-staves, and the lever-arms extend outward and have link connections *d* with the screw-plate C². The cams are arranged quite closely together, so that they present a practically continuous contractible bearing-ring.

The parts movable vertically with relation to the standards may be lifted and lowered by any desired means. For this purpose I

have here shown a rod d' , having a swivel connection with the upper end of the screw-shank and which may have a flexible connection with a windlass supported above the machine.

Yielding stops d^2 are mounted on the standards A, against which the upper side of the screw-plate C^2 may abut when the parts are in their operating position, as indicated in Fig. 2. These stops consist of fingers pivoted at the upper end within recesses formed in the standards, and the lower ends are forced outward by means of springs d^3 within the recesses. When the parts C C^2 are lowered, the stops will be forced by the plates into the recesses, allowing the plates to pass, and when it is desired to raise the parts the stops may be moved into the recesses in any desired manner.

The operation of the machine is as follows: When a barrel x is partially formed in the ordinary way or to the extent indicated in Fig. 1, it is placed on the carriage B, which is at this time located on the extension a of the platform A' , as indicated in dotted lines in Fig. 1, and at this time the hoop b^5 will be in its position within the carriage. The carriage, barrel, and hoop are now moved into the machine within the steaming-box, and the barrel is then submitted to the steaming. After the barrel shall have been sufficiently steamed the parts comprising the cams will be lowered and the screw operated to rock the cams against the staves. A continued movement of the cams will gradually and evenly bend the lower ends of the staves toward a common center until the outer diameter is less than the inner diameter of the carriage and hoop therein. By a further operation of the screw the presser-plate will engage the upper end of the barrel, and the barrel will be forced downward with its end within the hoop b^5 . When at the limit of this movement, the cams will be in a position to clear the staves, as indicated in Fig. 2, and the parts comprising the cams may be moved upward and the carriage with the barrel drawn out of the machine. The carriage must then be released from the barrel, which may be finished by supplying a head and intermediate hoops in the usual manner.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A barrel-forming machine, comprising a carriage adapted to support a barrel and receive a hoop, a vertically-movable contractible ring means for raising and lowering the

said ring to engage the barrel-staves near the ends resting on the carriage, and mechanism for operating the contractible ring to bend the ends of the staves inward, the end of the barrel when the staves are bent inward being adapted to be forced into the hoop held in the carriage, substantially as specified.

2. A barrel-forming machine, comprising a carriage adapted to receive a hoop and support a barrel, a cam-ring, a series of levers pivoted thereto and having cam-shaped inner ends, mechanism for simultaneously operating the cams to bend the ends of the barrel-staves inward, and means for forcing the end of the barrel within the hoop held in the carriage, substantially as specified.

3. A barrel-forming machine, comprising a platform, standards extended therefrom, a sectional carriage, adapted to receive a hoop and to support a barrel, movable on the platform, a presser-plate movable vertically on the standards, a screw-plate movable vertically on the standards, a screw engaging both of said plates, a cam-ring supported by the presser-plate, cam-levers pivoted in the cam-ring, and connections between the cam-levers and screw-plate, substantially as specified.

4. In a barrel-forming machine, the combination with a ring-shaped carriage adapted to support a barrel and comprising hinged sections adapted to receive a hoop, and locking means for said sections, of cams adapted to engage the barrel-staves to bend the ends of the staves inward, and means for forcing the barrel downward, whereby its end is carried within the hoop, substantially as specified.

5. In a barrel-forming machine, the combination with standards, of a screw-plate movable vertically thereon, a presser-plate also movable vertically thereon, cams supported by the presser-plate and having connection with the screw-plate, an operating-screw engaging the screw-plate and presser-plate, and the yielding stops, substantially as specified.

6. A barrel-forming machine, comprising a contractible ring, consisting of a ring and a series of levers pivoted to said ring, and having cam-shaped inner ends, a vertically-movable plate supporting said ring, a vertically-movable screw-plate connected with the said cam-levers, and an operating-screw engaging the supporting-plate and screw-plate, substantially as specified.

JOHN HAUENSTEIN.

Witnesses:

CHARLES HAUENSTEIN,
LOUIS E. FRITSCH.