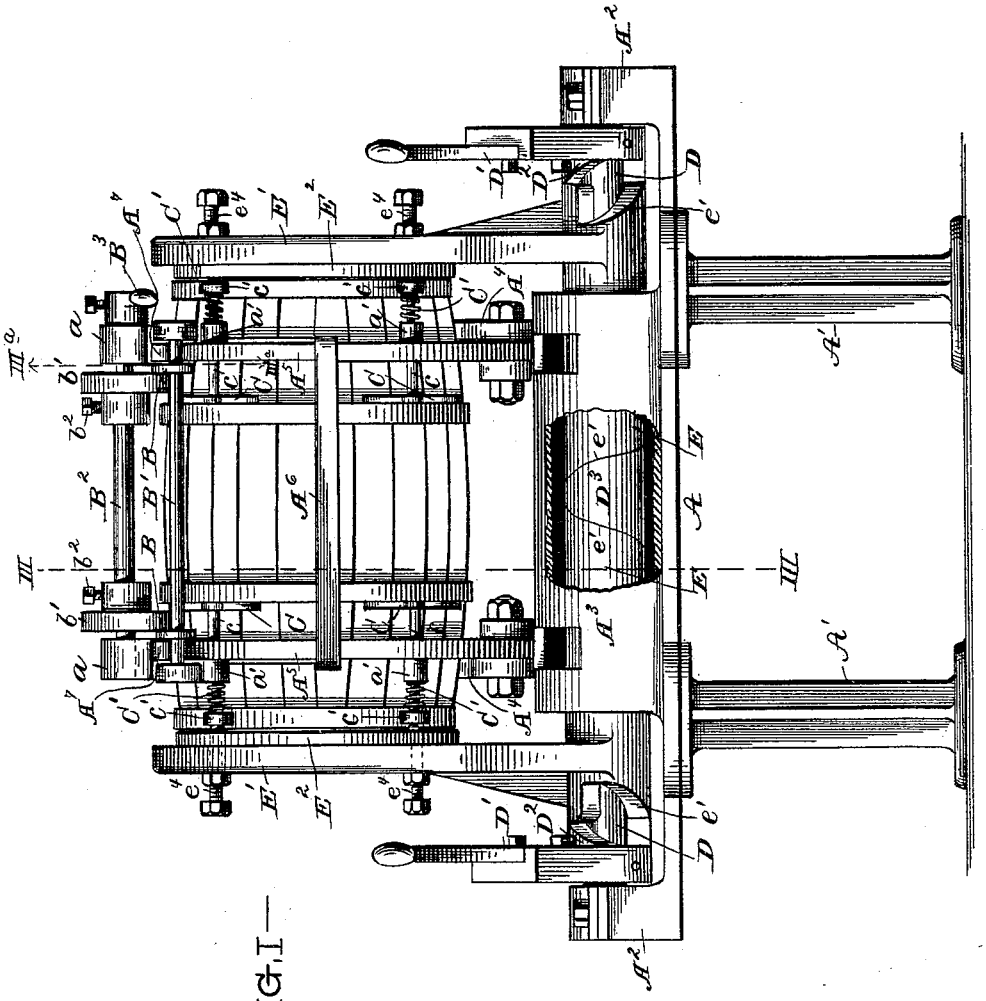
(No Model.) 3 Sheets—Sheet 1.

L. M. GREIF.

MACHINE FOR LEVELING, TRUSSING, AND HOOPING BARRELS.

No. 493,329. Patented Mar. 14, 1893.



—FIG. 1.—

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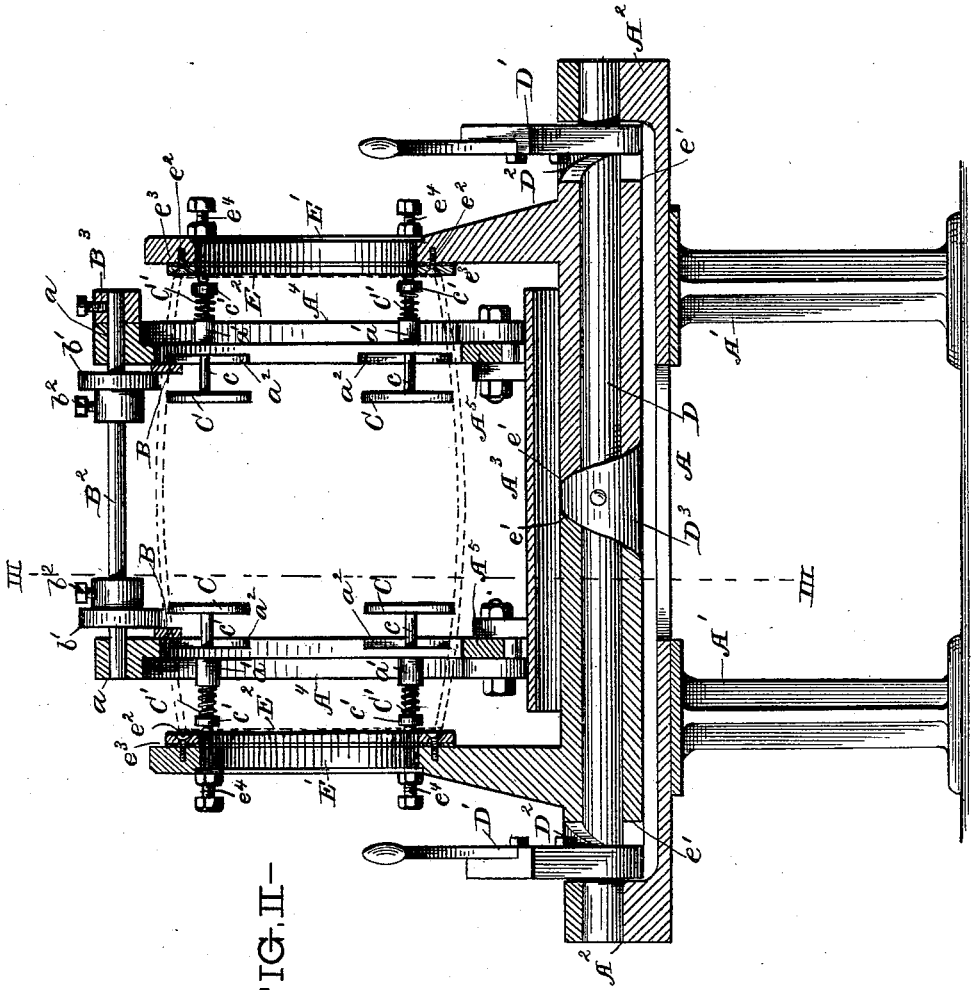

FIG. II.

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FIG. III.

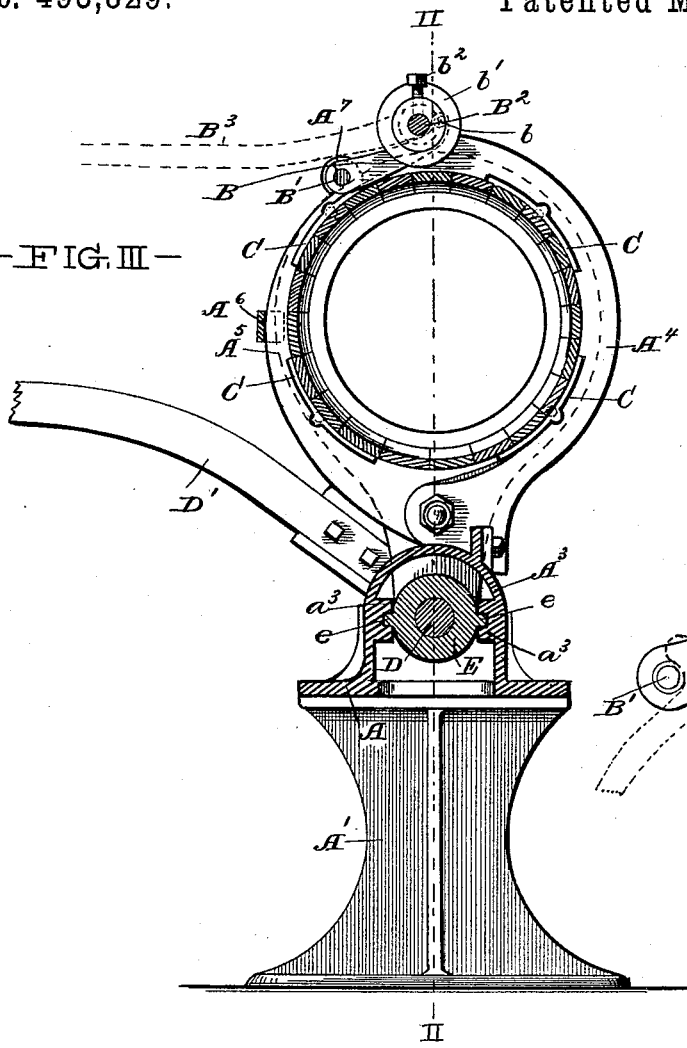


FIG. III A

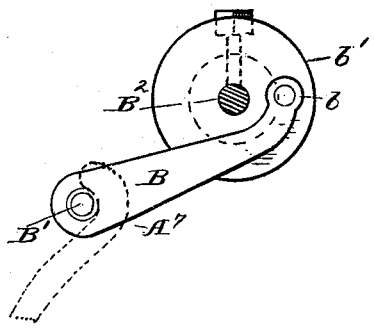
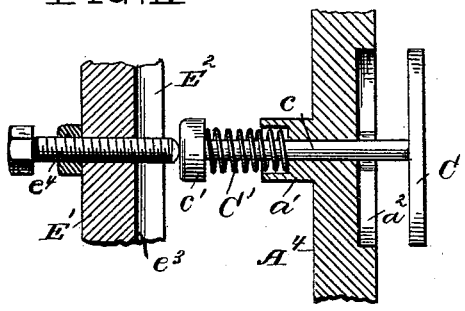


FIG. IV



Witnesses:
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UNITED STATES PATENT OFFICE.

LOUIS M. GREIF, OF CLEVELAND, OHIO.

MACHINE FOR LEVELING, TRUSSING, AND HOOPING BARRELS.

SPECIFICATION forming part of Letters Patent No. 493,329, dated March 14, 1893.

Application filed November 12, 1891. Serial No. 411,659. (No model.)

To all whom it may concern:

Be it known that I, LOUIS M. GREIF, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Machines for Leveling, Trussing, and Hooping Barrels, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The annexed drawings and the following description set forth in detail, one mechanical form embodying the invention; such detail construction being but one of various mechanical forms in which the principle of the invention may be used.

In such annexed drawings:—Figure I represents a front elevation of my improved leveling, trussing, and hooping machine for casks; Fig. II, a longitudinal, vertical section on the line II—II in Fig. III; Fig. III, a transverse, vertical section, on the line III—III, in Figs. I and II; Fig. III^a, an enlarged view of the mechanism for tightening the cask support, said view being a section taken on the line III^a—III^a, in Fig. I, and Fig. IV, a sectional detail view of one of the trussing plungers.

In the drawings the letter A indicates a base-frame suitably-supported upon legs, A′, and formed with longitudinal bearings, A^2, at its ends. The central portion of the frame is formed into a cylindrical casing, A^3, from the ends of which two semi-circularly curved arms, A^4 A^4, project. Two similarly-curved arms, A^5 A^5, are pivoted at the lower ends of said rigid arms A^4, and form, together with the same, circular cask-supports in which a cask may be supported and into which it may be placed or from which it may be removed by tilting the pivoted arms down. The pivoted arms are connected by means of a cross-bar, A^6, and the upper ends of the arms are formed into open hooks, A^7. Two links, B B, are connected at their free ends by means of a cross-rod, B′ which may engage the hooks, and the inner ends of the links are pivoted upon eccentric studs, *b*, projecting from the faces of collars, *b′*, upon a rock-shaft, B^2, journaled in bearings, *a*, in the upper ends of the rigid, curved arms, A^4. A lever, B^3, is secured upon the rock-shaft B^2 for the purpose of rocking the same. The rigid and the pivoted arms are formed with equidistant holes or bearings, *a′* in which stems or shanks, *c*, of segmental trussing-heads, C, slide, said stems having enlarged heads, *c′*, at their outer ends, between which heads and the bearings *a′*, springs, C′, are confined, said springs serving to draw the trussing-heads or hoop-drivers into correspondingly-shaped recesses, *a*^{2}, in the faces of the curved arms.

A shaft, D, is journaled with its ends in the bearings A^2 at the ends of the base-frame, and has one or two levers, D′, secured upon it, said levers serving to rock said shaft. Two cam-collars, D^2, are secured upon the shaft with their curved cam-surfaces facing inward, and a short cam-sleeve, D^3, is secured upon the middle of the shaft, having curved cam-surfaces at both ends, corresponding to the cam-surfaces of the cam-collars. Two sleeves, E E, slide upon the shaft and have suitable, longitudinal guides, *e*, which slide upon horizontal guides, *a*^{3}, in the cylindrical casing A^3 of the base-frame, and the ends of said sleeves E are formed with curved cam-surfaces, *e′*, which correspond and co-operate with the cam-collars and the central cam-sleeve. Two heads, E′ E′, project upward from the cam-sleeves E and register with the circular openings formed by the rigid and pivoted arms. Said heads have rings, E^2, upon their inner faces, said rings serving to bear against the ends of the staves of a cask supported in the cradle formed by the rigid and pivoted arms, and against the end-hoops. The rings are secured to the sliding heads E′ by means of screws, *e*^{2}, and washers, *e*^{3}, of varying thicknesses may be interposed between the rings and the heads so as to adjust the rings to operate upon casks of different lengths. Screw-bolts, *e*^{4}, pass through the heads and register with the stems of the hoop-drivers so that they may form adjustable stops adapted to press against the outer heads of the latter and force them inward when the heads are moved inward by the cams upon the rock-shaft.

In practice, when the machine is to be used, the upper lever B^3 is rocked so as to loosen the links B, that the cross-rod B′ may be lifted out of the hooks of the pivoted arms, and said arms tilted forward. The cask or package,

which has its hoops loosely placed upon it, is placed in the cradle formed by the curved arms and the pivoted arms are swung upward and engage the cross-rod of the links which thereupon are tightened by rocking the upper lever forward. The cask is slightly compressed by the curved arms and is firmly held in position to be leveled and trussed. One or both of the lower levers are now depressed, and the lower rock-shaft is rocked, causing the cam-collars upon the same to force the cam-sleeves and the leveling-head upon the same inward, to level the ends of the cask and drive the end-hoops home. The screw-bolts in the leveling heads are forced against the hoop-drivers when the heads are forced inward, and said drivers force the hoops evenly and tightly upon the cask, trussing and hooping the same.

It is obvious that a cask may be perfectly leveled and trussed in this machine, as the sliding heads will exert even pressure at both ends of the cask, the curved arms will maintain the proper, round shape of the cask, and the hoops will be evenly driven home upon the cask, rendering the cask thus treated more even and complete in its finish than a cask upon which the hoops have been driven by hand.

By adding or removing washers between the heads and the rings upon the same, casks of varying lengths may be treated, and the hoops may be driven more or less upon the cask by screwing the screw-bolts in the heads farther in or out.

Other modes of applying the principle of my invention may be employed for the mode herein explained. Change may therefore be made as regards the mechanism herein set forth, provided the principles of construction respectively recited in the following claims are employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a machine for leveling, trussing and hooping casks, the combination of circular cask supports within which the cask may be held, hoop drivers arranged in a circle in each of said supports to slide in parallel lines to the axial line of the same, and heads having means for sliding them toward and from the cask supports in the axial line of the same and against and away from the outer ends of the hoop drivers, substantially as set forth.

2. In a machine for leveling, trussing and hooping casks, the combination of circular cask supports having means for contracting them, hoop drivers having their stems sliding at equidistant points through said cask supports, and leveling heads having means for sliding them toward and from the cask supports and engaging the stems of the hoop drivers to force them inward and to allow them to slide outward, substantially as set forth.

3. In a machine for leveling, trussing and hooping casks, the combination of circular cask-supports, hoop-drivers having stems sliding through said cask-supports at equidistant points, leveling heads having means for sliding them toward and from the cask-supports, and adjustable stops in said heads and registering with the stems of the hoop-drivers, substantially as set forth.

4. In a machine for leveling, trussing and hooping casks, the combination of a shaft having means for rocking it and provided with two cam-collars and with a cam-sleeve at its middle, cam-sleeves sliding upon the shaft and co-operating with the cam-collars and cam-sleeve upon the same, and leveling heads upon said sliding cam-sleeves, substantially as set forth.

5. In a machine for leveling, trussing and hooping casks, the combination of circular cask-supports, hoop-drivers having their stems sliding at equidistant points through said supports and having springs forcing said stems outward, leveling-heads having means for sliding them toward and from the cask-supports, and screw-bolts passing through the heads and having their ends registering with the ends of the stems of the hoop-drivers, substantially as set forth.

In witness whereof I claim the foregoing to be my invention and I have hereunto set my hand this 2d day of November, A. D. 1891.

LOUIS M. GREIF.

Witnesses:
WM. GREIF,
WM. SECTUR.