(No Model.) 3 Sheets—Sheet 1.

J. A. SEAMAN.

MACHINE FOR HOOPING BARRELS.

No. 490,316. Patented Jan. 24, 1893.

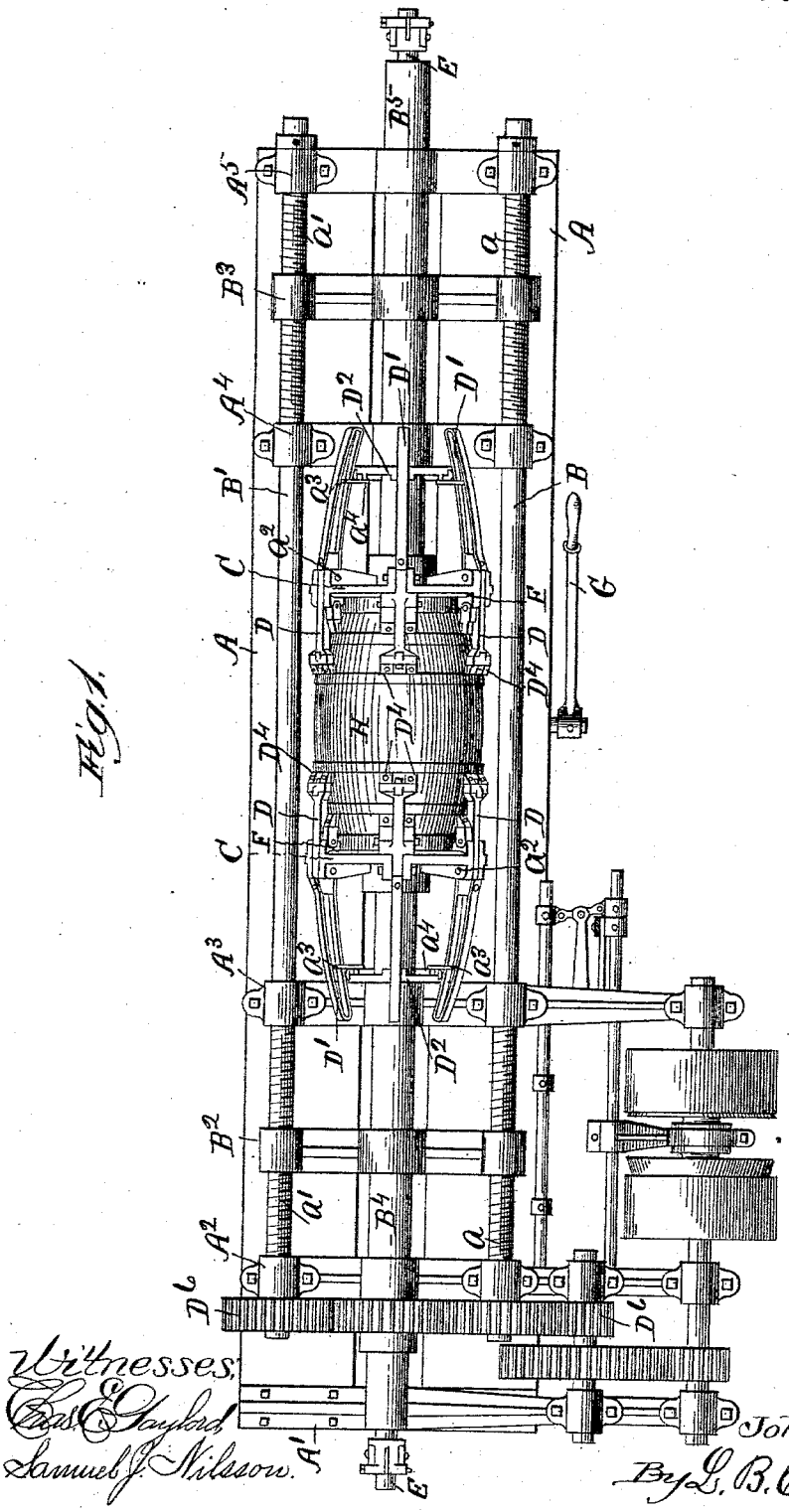

Fig. 1.

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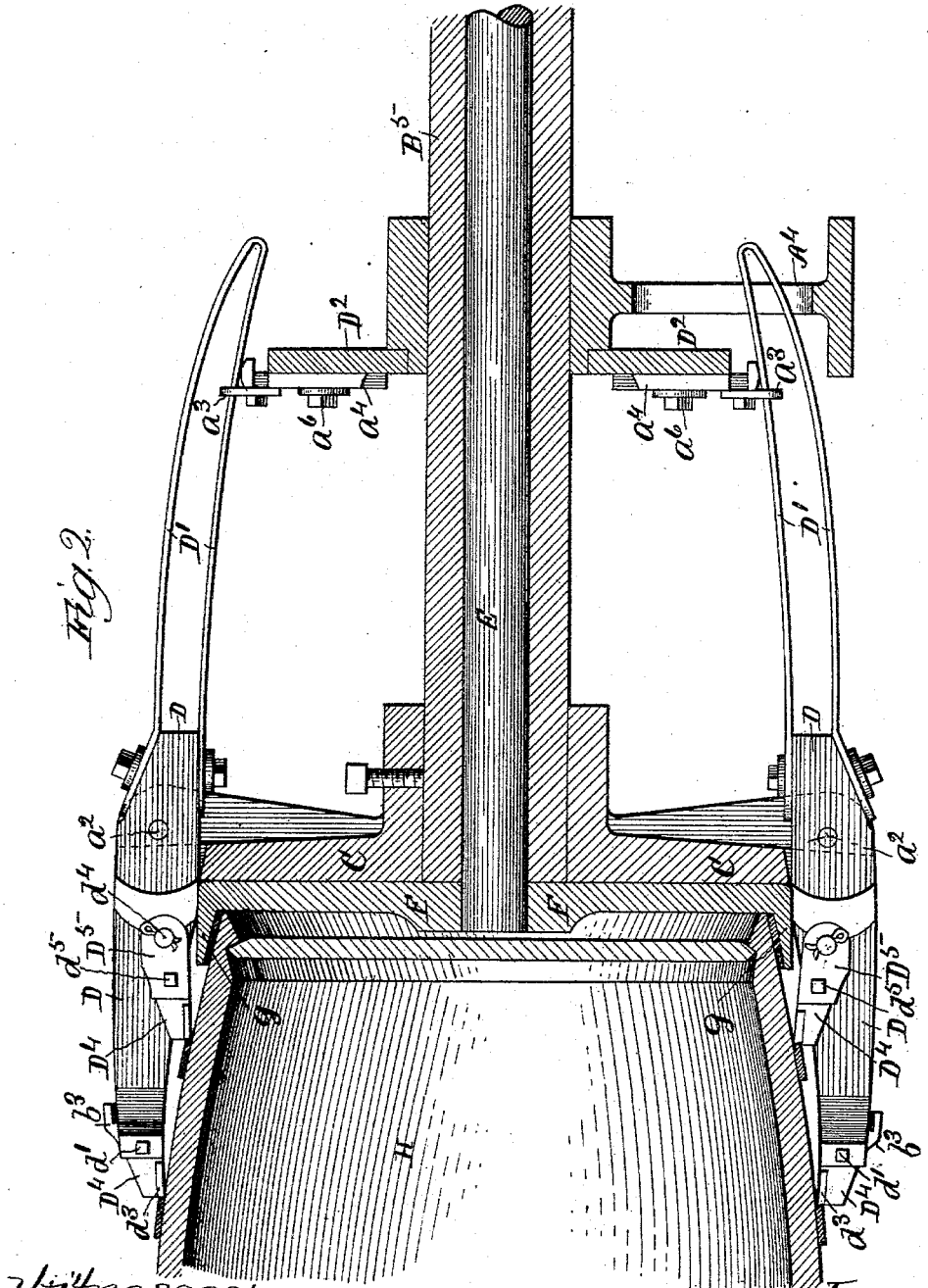

Fig. 2.

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J. A. SEAMAN.

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Fig. 3.

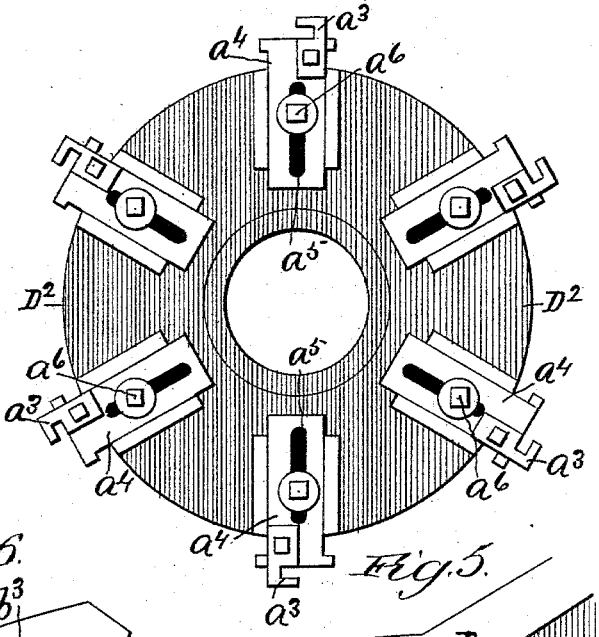


Fig. 6.

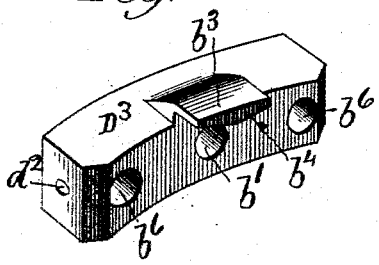


Fig. 5.

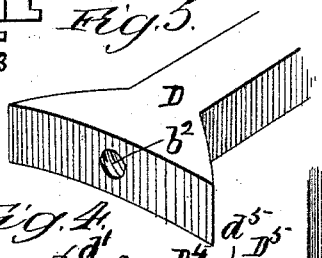


Fig. 4.

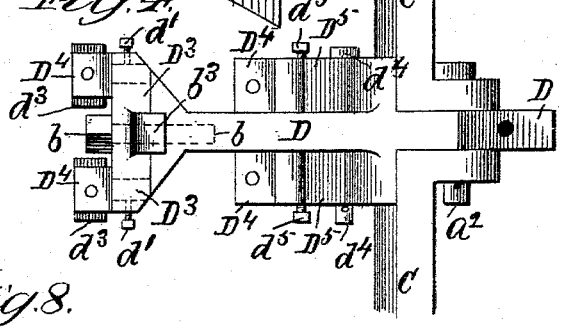


Fig. 7.

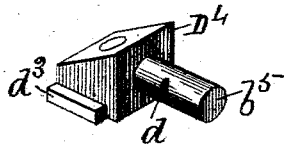
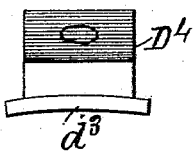


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN A. SEAMAN, OF CHICAGO, ILLINOIS.

MACHINE FOR HOOPING BARRELS.

SPECIFICATION forming part of Letters Patent No. 490,316, dated January 24, 1893.

Application filed October 19, 1891. Serial No. 409,222. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. SEAMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Hooping Barrels, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan; Fig. 2 a broken-away vertical longitudinal section; Fig. 3 a face-view of a guide-disk or plate; and Figs. 4, 5, 6, 7 and 8 detached details of the drivers.

This invention relates to that class of mechanism for mechanically driving or forcing the hoops onto barrels, kegs and vessels of a similar character. The operation is automatically performed; the different hoops being forced on from both ends of the package simultaneously. Heretofore great difficulties have been met with in doing this work mechanically for the reason that the drivers could not be made to properly adjust themselves to the increasing diameter of the vessel and any irregularities of surface that might be encountered. It has also been a difficult matter to mount a sufficient number of drivers within the circumscribed circle so that very thin metal hoops could be used and driven evenly.

The object, therefore, of this invention is to overcome these objections by providing a machine wherein the drivers have an automatic adjustment, with reference to the increasing diameter and circumference of the vessel, as the hoops are forced on, so as to conform to any uneven surface that may be met with. The mechanism employed for operating the drivers is the same as that set forth in Letters Patent No. 376,487, issued to me the 17th, day of January 1888.

Referring to the drawings, A A represent two bed-timbers, forming the longitudinal part of the supporting-frame, and A' A^2 A^3 A^4 and A^5, are the transverse parts of the frame mounted on the bed-timbers.

B B′ are two horizontal endless screw-shafts running lengthwise with and arranged at a suitable height above the base-timbers. These screw-shafts have a rotary, but not an endwise, movement and are provided with suitable journal-bearings in the transverse parts of the frame, as shown in Fig. 1. The parts a a' of these shafts have a right and left screw-thread, so that when rotated in one direction the driver-heads travel inwardly, and outwardly when the motion is reversed.

B^2 B^3 are two cross-heads mounted upon the threaded parts of the shafts B B′ and upon the hollow shafts B^4 B^5. The perforated ends of these cross-heads are correspondingly threaded with reference to the threaded shafts so as to have a forward and backward movement thereon. The hollow shafts B^4 and B^5 are arranged between and parallel with the screw-shafts. These hollow shafts have an endwise movement only, and that is imparted to them by means of the cross-heads mounted rigidly thereon.

The circular companion driving-heads, C C, are rigidly mounted on the inner ends of the hollow shafts by means of set screws as seen in Fig. 2. These heads carry the drivers which are mounted around the periphery of the same.

The driver-arms, D, are pivoted to the heads C, as at a^2 (Fig. 2.) and are adapted to have an automatic movement away from and toward the barrel. To the outer ends of the arms D are secured the inner ends of the flat spring-arms D′. These spring-arms engage loosely with the guide-hooks a^3, forming a part of the gage-plates a^4, adjustably secured to the inner faces of the disks D^2, as shown in Figs. 2 and 3. The disks D^2 are rigidly secured to the transverse parts of the frame, as shown in Figs. 1 and 2. The gage-plates a^4 are provided with the elongated slots a^5 through which are inserted the clamping-bolts a^6, thus providing for an in-and-out adjustment of the gage-plates, in setting the springs for the purpose of holding the driver-arms at the proper angle with reference to the barrel or similar vessel before engagement therewith.

To the inner ends of the respective driver-arms is pivoted the head-block D^8; (Fig. 6) the pivot-bolt b passing through the central aperture, b', therein and into the aperture b^2 (Fig. 5.) in the end of the driver-arms D. That portion of the bolt, b, entering the driv-

er-arms is threaded as is the aperture b^2, so that these parts have a threaded engagement. This provides for a transverse rocking movement of the block D^3; such movement being limited by the stop b^3, formed on the upper-side of the block, and beveled, as at b^4, from the center outwardly on the underside, as shown in Fig. 6. The head-pieces D^4 (Fig. 7.) are provided with stems b^5 which engage loosely with apertures b^6 near the respective ends of the head-blocks. There are two of the head-pieces D^4 attached to each of the series of head-blocks, as shown in Fig. 4. Each stem b^5 is provided with an elongated slot d (Fig. 7.) receiving the end of the small screw-bolt d' inserted through the aperture d^2 in the respective ends of the head-blocks. This feature permits a slight transverse rocking movement of the head-pieces D^4, within the limit of the slot d or as the work may require. By this arrangement the head-pieces have an independent adjustment with reference to the head-blocks, as well as with them, so that no matter how uneven or irregular the surface may be a continuous contact with the hoop is assured. The driving-plates d^3 are rigidly secured to the head-pieces D^4, and are the parts having actual contact with the hoops. These parts are curved (Fig. 8.) to correspond to the circle of the barrel.

On each side of the main driver-arms are located two short arms D^5 D^5, (Figs. 2 and 4.) connected thereto by the pivot-bolt d^4, which provides for an up-and-down adjustment thereof. The same head-pieces D^4 are inserted in these short arms and adjustably retained therein by the crew-bolts d^5. These short arms drive the quarter hoops; thus both the bilge and quarter hoops are driven from one main arm. The short arms D^5, D^5, are pivoted to said main arms D, D, between the pivotal points and driving ends of the latter, whereby said shorter arms will follow the main arms in their adjustment toward and from the barrel, for the purpose before described, the short and long arms engaging and driving on the barrel separate hoops simultaneously. By this arrangement the driving mechanism has a positive contact with the hoops, and readily yields to the requirements of the operation, so that the parts having direct contact with the hoops will not slip over or dig into the wood-surface of the vessel.

Motion is transmitted to the endless screw-shafts, actuating the driving mechanism, by the train of gears, D^6, as shown in Fig. 1, being the same as that set forth in the patent herein referred to.

The plunger-shafts E E are located inside of the hollow shafts and have an independent endwise movement with reference thereto. On the inner ends of the plunger shafts are mounted disks F provided around their peripheries with a number of lugs g, projecting toward the work, as shown in Fig. 2. These lugs pass over the ends of the vessel, the surface of the disks coming in contact with and driving the end hoop at the proper time. The disks, F provided with the lugs g also bring the vessel into a centering position during the process of driving the hoops. The plunger-shafts are operated by the hand-lever G and connections, which are the same as set forth in the patent referred to. By this construction a greater number of drivers may be used than is possible under the ordinary arrangement. The drivers for the bilge and quarter hoops being mounted on the same supporting arm, the latter follows in the pathway of the former.

In operation, the barrel or vessel H is first placed in proper position in the centering and holding-heads mounted on the plunger shafts, the revoluble screw-threaded shafts are then set in motion and the hollow shafts moved inwardly, bringing the drivers in contact with the bilge and quarter hoops in their order; the end hoops being set up last by the driving heads coming in contact with the centering disks on the plunger-shafts. The motion of the screw-shafts is then reversed and the drivers returned to their normal position.

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

1. A barrel hooping machine, wherein the series of drivers have an automatic adjustment, both toward and away from the barrel, and laterally with relation to the circumference of said barrel, substantially as described.

2. In a barrel hooping machine the combination with a drive arm and its head block, of two head pieces carried thereby, said pieces having an independent rocking movement both with reference to each other and to the head block, substantially as described.

3. In a barrel hooping machine, a driving head piece having a universal movement with respect to the barrel, substantially as described.

4. In a barrel-hooping machine, the combination of the circular driving-heads, the series of driver arms, D, pivoted thereto, the spring-arms, D′, secured to the outer ends of said driver-arms, the disks, D^2, and the adjustable gage-plate, or plates, a^4, provided with guide-hooks adapted to engage the arms D′ whereby the driver-arms may be set to approach the work at a proper angle, substantially as described.

5. In a barrel-hooping machine, the combination of a driver-arm, D, the head-block, D^3, pivoted to the inner end thereof and having a limited rocking movement, the companion head-pieces, D^4, provided with stems b^5 having an elongated slot and loosely inserted in said head-block, and the screw-bolts, passing through the respective ends of the head-block and engaging with said elongated slot, whereby the head-pieces are adapted to have an in-

dependent rocking movement, both with reference to each other and the retaining head-block, substantially as set forth.

6. In a barrel hooping machine, the combination with the main driving arms pivoted intermediate their lengths, of shorter driving arms pivoted to said main arms between the pivotal points and driving ends of the latter, whereby said shorter arms will follow the main arms in their adjustment toward and from the barrel, substantially as described.

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