

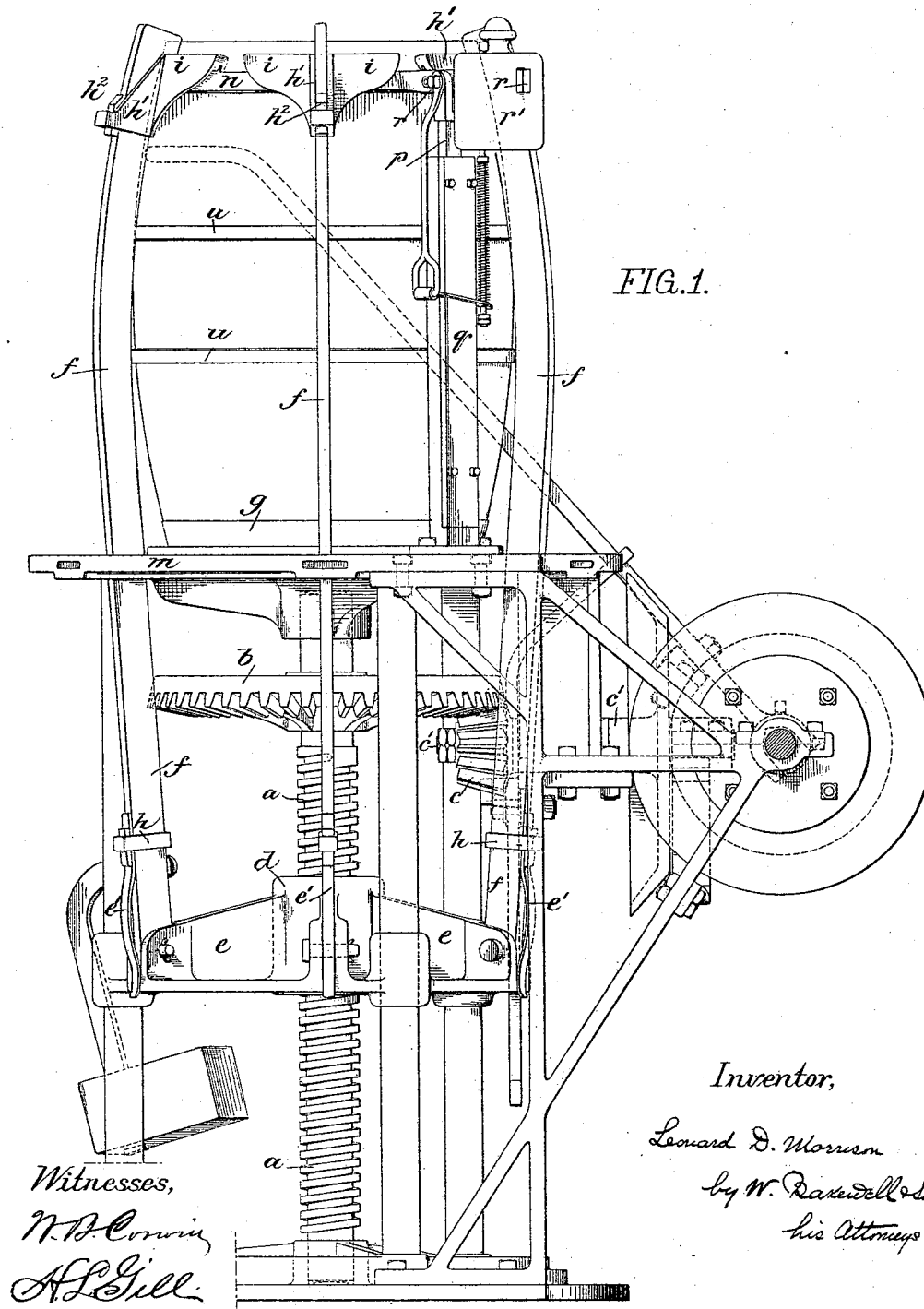
(No Model.)

3 Sheets—Sheet 1.

L. D. MORRISON.  
BARREL HOOPING MACHINE.

No. 454,803.

Patented June 23, 1891.



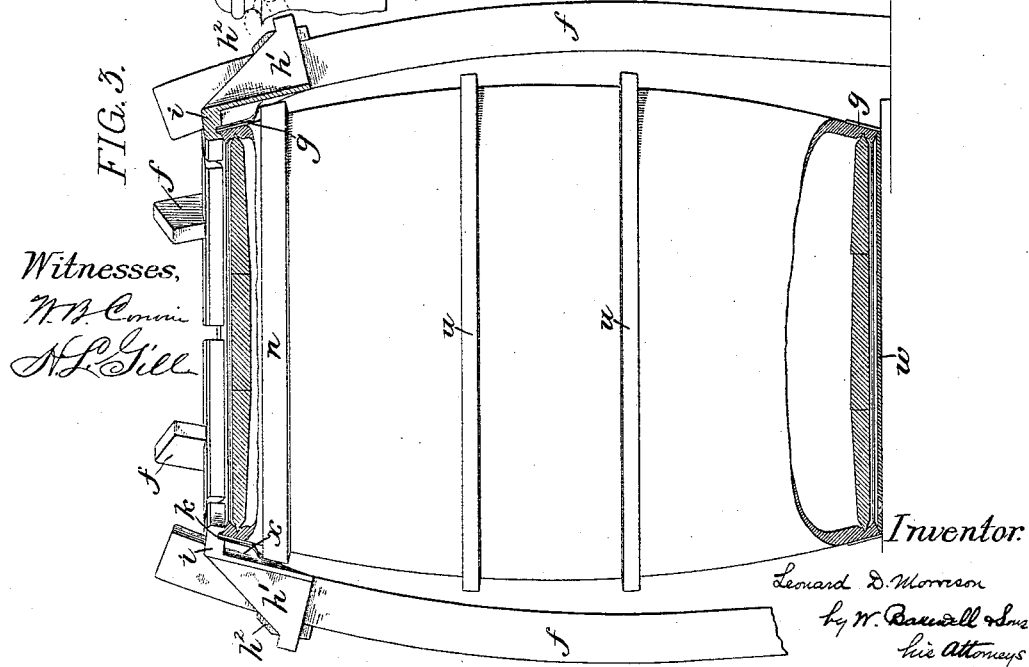
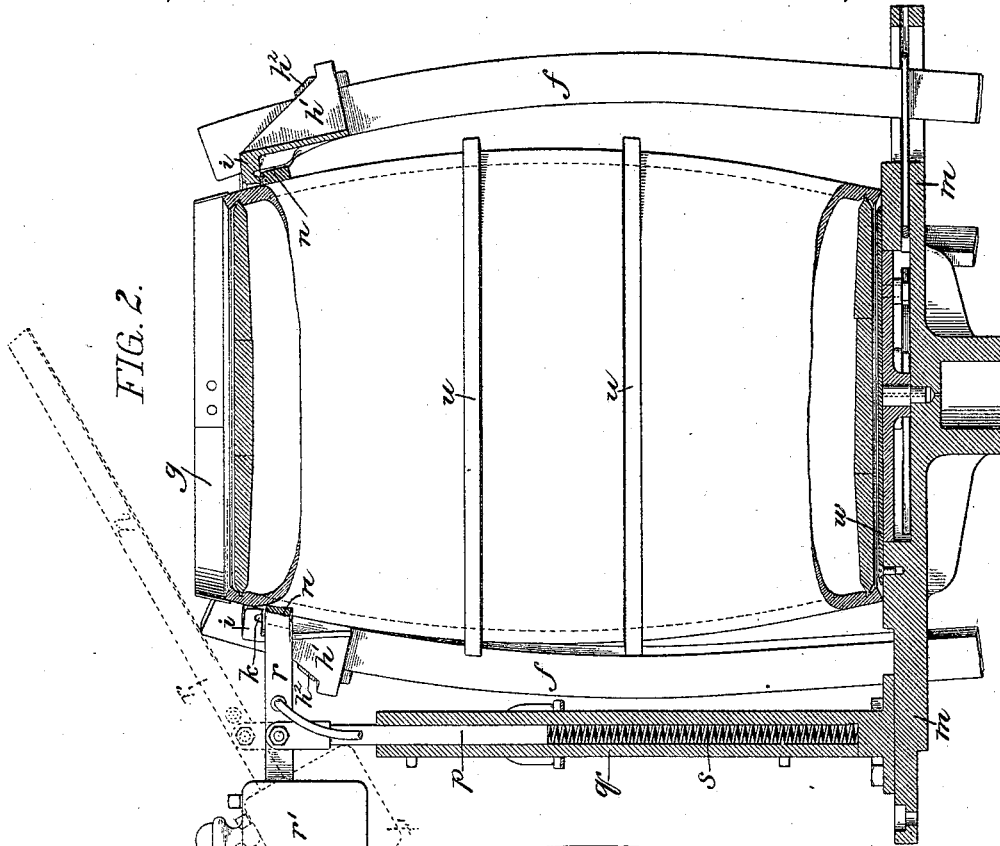
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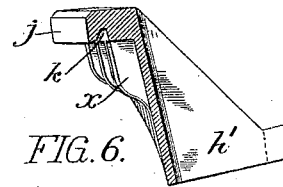
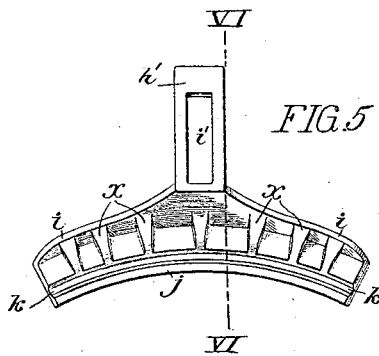
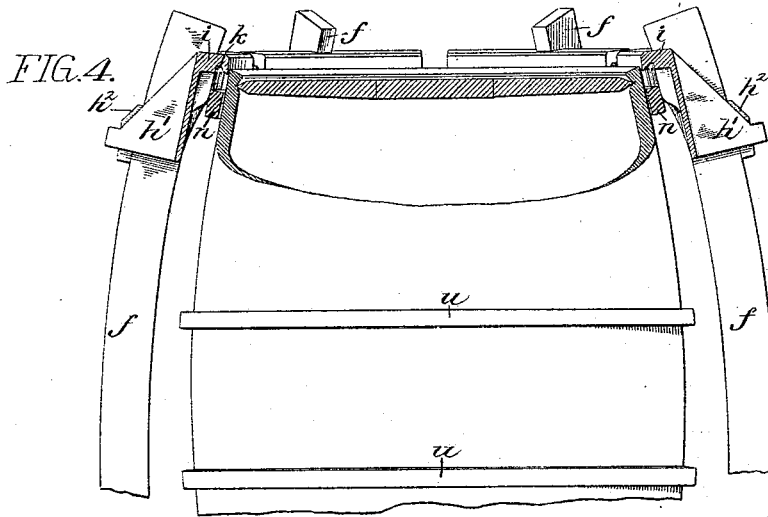
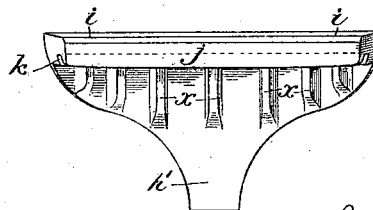


FIG. 7.



Witnesses,  
*W. A. Corwin*  
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Inventor,  
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by *W. B. Russell & Sons*  
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# UNITED STATES PATENT OFFICE.

LEONARD D. MORRISON, OF NEW YORK, N. Y., ASSIGNOR TO THE STANDARD OIL COMPANY OF NEW YORK, OF SAME PLACE.

## BARREL-HOOPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 454,803, dated June 23, 1891.

Application filed September 23, 1890. Serial No. 365,918. (No model.)

*To all whom it may concern:*

Be it known that I, LEONARD D. MORRISON, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Barrel-Hooping Machinery, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of a barrel-hooping machine provided with my improvement. Fig. 2 is a side view partially broken away and showing the drive-arms provided with hand-pieces adapted to engage with the chine-hoop. Fig. 3 is a similar view, the chine-hoop being driven home. Fig. 4 is a like view of the upper part of a barrel, showing the hand-pieces in position to drive the catch-hoop. Fig. 5 is a bottom plan view of one of the hand-pieces. Fig. 6 is a cross-section on the line VI VI of Fig. 5, and Fig. 7 is an elevation of the same.

Like symbols of reference indicate like parts in each of the figures.

My improvement consists in a combination of devices for putting the end or chine hoop on wooden barrels, and it is designed to be used in connection with the well-known barrel-hooping machines in which a number of vertical arms are pivoted to a frame or head, which is threaded so as to form the nut of the screw by which the arms are raised to enable the arms to engage the hoop which is to be driven and lowered to drive down the hoop over the staves of the barrel. As ordinarily constructed in trussing-machines, these arms are arranged at equal distances around the barrel and are hooked or notched at their upper end, so as to enable them to engage the hoop and thus draw it down as the arms are simultaneously lowered by the screw which operates the head to which they are attached. As the chine-hoop is of iron and presents its thin edge to these hooks or notches, of the ordinary construction, just mentioned, the hooks have a very narrow bearing upon the hoop, and the result is that the hoop is apt to be strained or twisted, in which case it will not lie evenly on the surface of the staves, especially if, as is apt to be the case, it is bent at the point where the arms engage it. To

enable the arms to take a wider and more uniform hold on the upper edge of the chine-hoop, I have made my improvement, which consists in the use, in connection with the vertical arms of the machine, of hand-pieces having guide-ribs, substantially as hereinafter described, one of which hand-pieces is preferably detachably connected with the upper end of each arm, which hand-pieces, extending outwardly on each side of the driving-arms and being curved in the shape of the arc of a circle and having a groove, substantially corresponding in curvature to the chine-hoop, into which the chine-hoop enters, draw down the hoop with uniformity, and thus prevent its being twisted or bent, as before described.

My improvement is especially designed to overcome the difficulty experienced in barrel-hooping machines of ordinary construction, that the chine-hoop, when first placed on the barrel, is unsupported by it, excepting slightly at its lower edge, and that it is very difficult by means of machinery acting on the hoop to draw or force it downward onto the barrel without either pushing it inward or pulling it outward, thus bending the hoop out of shape and rendering it unfit for use.

Referring to Fig. 1 of the drawings, *a* represents the vertical screw-shaft by which the machinery is operated, having a horizontal bevel-wheel *b* keyed thereto, which wheel meshes with a bevel-pinion *c*, keyed to a power-shaft *c'*, which is driven by power applied in any convenient manner. On the shaft *a* is a cross-head, the hub *d* of which forms a screw-nut within which the screw-shaft *a* turns. From the hub *d* spokes *e* branch radially, of any desired number, of uniform length, to the extremities of each of which is pivoted one of the arms *f*, which extend upwardly in a substantially vertical direction around or through apertures in the base-plate or table *m*, on which the barrel to be hooped is placed, so that as the vertical shaft *a* is revolved in one direction or the other the cross-head and the arms pivoted thereto are correspondingly elevated or depressed, the arms being slightly curved so as to accommodate them to the bilge of the barrel and to cause the upper end to approach the chine of the

barrel sufficiently close to engage the chine-hoop *g*. The arms *f* are held in position by the adjustable springs *e'*, which are secured to the arms by a loop and wedge *h*, or otherwise, as may be found convenient, and bear against the outer extremity of the spokes *e* of the cross-head. These arms *f* are not hooked at the upper end, as in the ordinary constructions before described, but are or may be of substantially uniform width and thickness with that portion of the arm which when the arms are elevated surround the barrel. A slotted hand-piece *h'* (shown in detail in Figs. 5, 6, and 7) is secured to each of the arms *f*, near to its upper end, by means of a key *h<sup>2</sup>*, or by a set-screw, or otherwise, as may be preferred. Each of these hand-pieces may be curved and project on each side of the arm to which it is attached, the projections being preferably of equal length on each side of the arm, so as to give a firm hold and uniform bearing on the outer edge of the chine-hoop. The curved projection *i* is also flanged inwardly toward the center of the barrel, so as to form a ledge *j* to rest on the top of the catch-hoop, and a groove *k* in the under side of the ledge, having substantially the same curvature as the chine of the barrel, serves to receive the upper edge of the chine-hoop and to prevent its being bent out of shape when being driven home. This groove should be substantially V-shaped in cross-section, so as to receive the hoop readily and yet hold it firmly to its circular form without permitting it to be bent, crushed, or twisted out of shape, the bottom of the groove, however, not being pointed at its inner end but wide enough to receive and hold the hoop without permitting it to get wedged or fastened in the groove. On the under side of the hand-pieces are ribs *x*, which extend to the outer edge of the groove *k*, as shown in Figs. 5, 6, and 7, the function of which will be described hereinafter.

The operation of the machine will be readily understood from what has already been stated, the arms *f* being actuated in the usual manner by the cross-head *d e* and screw-shaft *a*.

In Figs. 1 to 4 I have shown a catch-hoop *n*, the purpose of which is to draw the staves closely together at the chine of the barrel, so as to enable the chine-hoop to be more readily placed in position to be driven home by the hand-pieces *h'* on the arms *f*. This catch-hoop consists of a hoop, (see Figs. 2 and 3,) preferably of iron, slightly larger in circumference than the chine of the barrel, having a radially-projecting arm *r*, which is pivoted to a plunger *p*, placed within the tubular cavity of a hollow standard *q*, and resting on a spiral spring *s*, contained therein. The standard *q* may be secured to the table *m*. At the outer end of the arm *r*, beyond its pivotal point, is an adjustable balance-weight *r'*. The catch-hoop *n* is readily placed over the chine of the barrel or raised

therefrom by means of the weighted and pivoted arm *r*, the spring-piston *p* permitting the arm to be raised from a pivotal point. This will be sufficiently obvious from inspection of Fig. 2 of the drawings, where the catch-hoop is shown by dotted lines in an elevated position.

It is not necessary for me to describe the details of construction of the catch-hoop more fully, as it is the invention of another. The barrel composed of staves held together by truss-hoops is placed on the table *m* of the machine, and then the catch-hoop *n* is lowered over the chine of the barrel and is drawn down by the hand-pieces *h'* to the position shown in Fig. 1. The chine-hoop *g* is then placed on the chine of the barrel, as shown in Fig. 2, the arms *f* are again elevated and lowered, so that the hand-pieces *h'* engaging the hoop drive it into place, forcing the chine-hoop downward uniformly, so as more forcibly to draw the staves together, and thus hold the barrel-head very firmly in place. The catch-hoop is then lifted off the barrel, which is up-ended, and a chine-hoop is driven on the other end of the barrel in a like manner by my apparatus.

As a general rule the staves of the barrel when it is put together are still warm, and when they cool after the barrel is formed a certain amount of shrinkage takes place. The chine-hoops, therefore, are not driven completely home when the barrel is first formed, and sometimes, therefore, project slightly above the chine of the barrel and are liable to be bent or driven home by resting on the flat surface of the table *m* when the chine-hoop at the other or upper end of the barrel is being operated on by the driving-arms. To obviate this difficulty I employ a preferably circular plate *w*, (shown in Fig. 3,) which is slightly less in diameter than the chine-hoop, and is secured to the face of the table *m*, so as to support the barrel by the staves, and prevents the chine-hoop from being driven home or bent by the downward pressure of the driving-arms on the chine-hoop at the upper end of the barrel, the chine of the barrel resting on the beveled edges of the circumference of the plate.

In lieu of a circular plate, a polygonal plate might be used, or a number of arms projecting radially, like the spokes of a wheel. This plate *w* is not claimed in this patent, as it may be used in conjunction with another similar plate for partially driving the chine-hoop and forms the subject-matter of another application for patent filed June 3, 1891.

On the inside of the hand-pieces *h'* are a number of vertical projections or ribs *x*, which extend on the ledge *i* of the hand-pieces to the outer edge of the groove *k*, where they terminate, as shown in Figs. 5 and 6. The purpose of these ribs is to prevent the hand-pieces from coming close enough to the barrel to permit the ledge *i* to engage the chine while the catch-hoop *n* is on the barrel and

before the hoop is driven down. As soon, however, as the catch-hoop is driven down and the arms are raised again to engage the chine-hoop which is then placed on the chine  
5 of the barrel, these ribs guide the hands so as to cause the chine-hoop to enter the groove  $k$  in the under side of the ledge of each hand-piece.

I claim—

10 In a barrel-hooping machine, the combination, with driving-arms and suitable mechanism for operating the same, of a series of hand-pieces attached to the arms and having guide-

ribs on their inner face, each hand-piece having a curvature substantially that of the  
chine of the barrel, and a similarly-curved 15 and substantially V-shaped groove in its under surface to engage the upper edge of the chine-hoop, substantially as and for the purposes described. 20

In testimony whereof I have hereunto set my hand this 2d day of August, A. D. 1890.

LEONARD D. MORRISON.

Witnesses:

W. B. CORWIN,  
JOHN K. RUPERTUS.