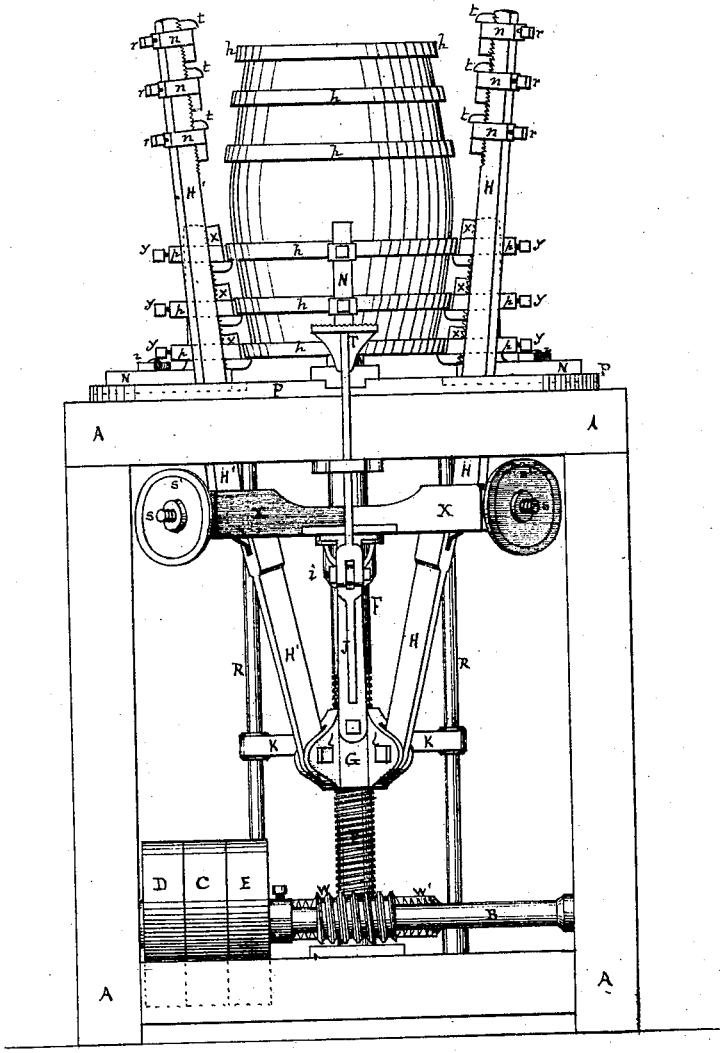
2 Sheets, Sheet 1.

P. Welch,

Trussing Barrels.

No. 109,854. Patented Dec. 6. 1870.

Fig. 1.



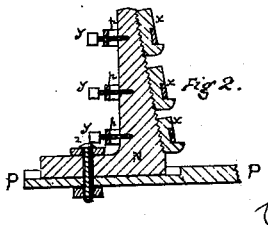


Fig 2.

Witnesses.
A. C. Bradley
F. W. Howard

Peter Welch
By his Attorney
Chas. F. Sansbury

2. Sheets. Sheet 2.

P. Welch,

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Fig. 3.

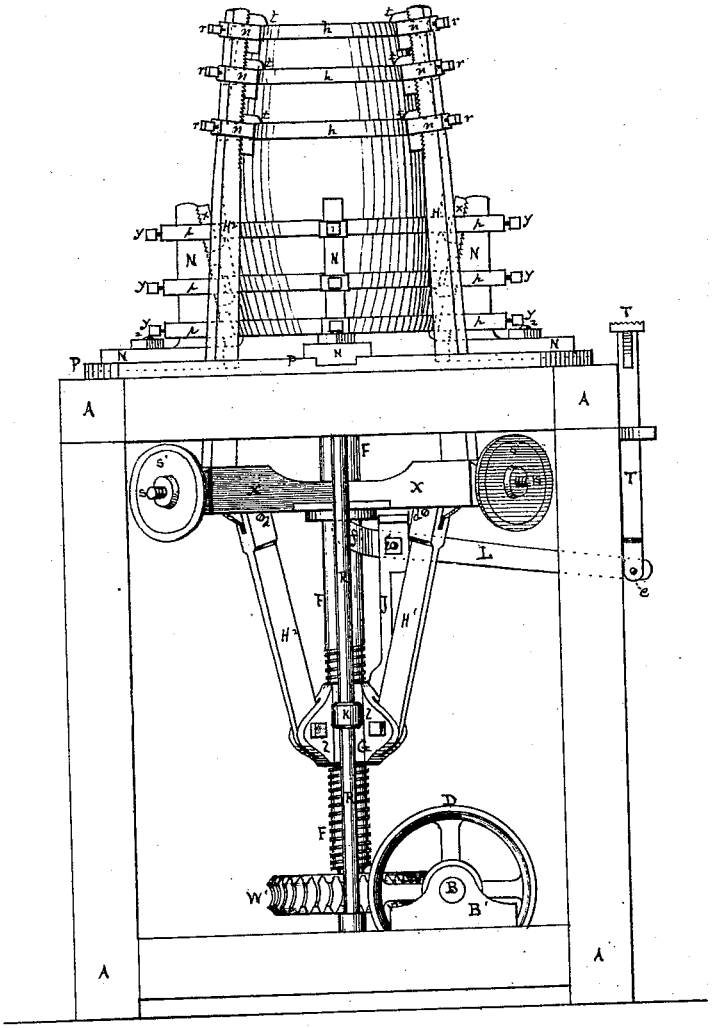
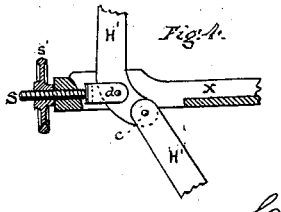


Fig. 4.



Witnesses.
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F. W. Howard

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By his Attorney
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United States Patent Office.

PETER WELCH, OF ST. LOUIS, MISSOURI.

Letters Patent No. 109,854, dated December 6, 1870.

IMPROVEMENT IN MACHINES FOR TRUSSING BARRELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PETER WELCH, of the city of St. Louis, in the State of Missouri, have invented a new and improved Machine for Trussing Barrels, Casks, &c.; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a front elevation of the machine.

Figure 2 is a vertical central section of one of the stands or rests.

Figure 3 is a side elevation of the machine.

Figure 4 is a detail view, in section, of the joint of the trussing arms.

The same letter marks the same part wherever it occurs.

The nature of the invention consists in improvements in the mode of constructing and operating the trussing-arms, in the construction and adjustment of the trussing-fingers, and in the construction and adjustment of the stands or rests which support the lower set of trussing-hoops, all as hereinafter more fully set forth.

To enable others to make and use my improved trussing machine, I will proceed to describe its construction and operation, referring to the accompanying drawing, whereon—

A indicates the frame of the machine, which supports the operative parts. The top of this frame coincides in level with the floor of the room in which the operation of trussing is carried on, the machinery below that level being placed for convenience in a lower room.

Transversely across the lower part of frame A runs the main horizontal shaft B, supported and turning in journal-boxes B′ attached to the side framing.

On shaft B are placed three pulleys, C, D, and E, the middle one of which, C, is fast, and the side ones, D and E, are loose. These pulleys are driven by two belts, not shown, one crossed and the other open, from a suitable drum.

The object of this arrangement is to reverse the motion of shaft B at will, by shifting either belt from its appropriate loose pulley to the fast pulley C.

On shaft B is a worm, W, which gears into and drives a worm-wheel, W′, attached to the lower end of an upright threaded-shaft, F. This shaft is stepped on a cross-piece of the frame, as shown, and its upper end is received and turns in a proper socket on the bottom of the bed-plate P.

A screw-thread is cut upon shaft F, and a large nut, G, plays up and down upon it in obedience to it revolutions.

The nut G has two lateral arms, K K, whose ends receive and play vertically upon the guide-rods R R, which allow vertical motion to the nut, but prevent its turning in a horizontal plane.

To the nut G are pivoted the lower ends of the four jointed trussing arms H H¹, &c. Each of these arms consists of two parts, pivoted together at *c*, fig. 4.

The lower branch of the arm is straight, but the upper branch has a slight bend in it, as shown in fig. 4

At the angle *d* of this bend it is pivoted to a fork on the end of screw S, working in the end of cross-arm X.

The cross-arms X are united at the center, where they receive and move loosely upon the upright shaft F, and rest upon a fork, *f*, in the short arm of lever L, having its fulcrum *i* in the upper end of rod J, and operated by the treadle-rod T, to which it is pivoted at *e*.

By pressing down this treadle with the foot, the operator is enabled to raise the cross-arms X at pleasure, and when the treadle is released the cross-arms fall back by gravity to their lowest position.

It results from the construction that, when the treadle is depressed, the arms H H¹, &c., are thrown toward the center of the machine, and when it is released they are thrown away from the center.

The upper branch of each of the trussing-arms passes up through a slot in the bed-plate P, and to it are attached the trussing-fingers *t*, which are held in place by collars and set-screws, as shown.

The face of the upper end of each arm and the back of each trussing-finger is ratcheted, to give a firm union to the arm and finger when pressed together by the set-screw *r*.

The trussing fingers *t* are made to correspond in number and position with the truss hoops *h*, upon which they operate.

Upon the top of frame A rests the bed-plate P, having slots in it, through which the trussing-arms, H, &c., pass up.

Grooves in the face of this plate receive the base-plates of the stands or rests N, which slide in and out in said grooves, and can be fixed in any desired position by means of the set-screws *z*, which pass up through slots in the plate P, and have nuts on their upper ends, as shown in fig. 2. By this arrangement the rests N can be adjusted to the proper position for the reception of barrels or casks of any size that it may be desired to truss.

Fingers *x x*, similar to those on the upper ends of the arms H, &c., are attached in the same manner to the rests N, as shown in fig. 2, and serve as supports to the lower truss-hoops, as shown in fig. 1.

The operation is as follows:

The casks, having been set up in the trussing-hoops in the usual way, are introduced, one by one, into the machine, the rests N being so adjusted that the lower set of truss-hoops rests upon the teeth *x*. By applying the foot to the treadle T, and pressing it down, the arms H H¹, &c., are thrown in towards the cask,

until their trussing-fingers *t* engage with the upper edges of the upper set of truss-hoops.

The proper driving-belt is then shifted onto the fast pulley C, and revolution imparted to the shaft B, and thence to shaft F, which drives down nut G, and with it draws down the arms H H^1, &c.

By this operation the upper set of truss-hoops is driven down upon the cask, and the lower set is driven up by the settling of the cask between the rests N N, &c. Thus all the hoops are driven by one operation.

When the hoops have been driven as far as required, the opposite belt is shipped onto pulley C, and its motion reversed. This releases the downward pressure upon the upper hoops, and the arms H H^1, &c., fall away from the cask, and allow it to be removed and replaced by another, while the nut G runs up shaft F, and the machine is ready for a repetition of the operation.

If it is desired to truss only one-half of the hoops at a time, the rests N may be drawn back and the lower head of the barrel placed directly on the bed-plate P.

Having thus fully described my invention,

What I claim, and desire to secure by Letters Patent, is—

1. The compound trussing-arms H H^1 H^2 H^3, composed of two branches pivoted together at *c*, and adjusted by the screw S, in the manner described.

2. The trussing-fingers *t* and *x*, constructed as described, and united to the trussing-arms and rests by ratcheted surfaces, collars, and set-screws, in the manner and for the purpose specified.

3. The rests N, sliding and adjusted in grooves in the bed-plate P, in the manner set forth, and provided with the trussing-fingers *x* as stated.

4. The combination of the treadle T, lever L, cross-arms X, and trussing-arms H H^1 H^2 H^3, in the manner and for the purpose described.

5. The combination of the worm W, driven as stated, with the worm-wheel W′, threaded-shaft F, nut G, and arms H H^1 H^2 H^3, in the manner and for the purpose set forth.

The above specification of my invention signed and witnessed at Washington this 21st day of June, A. D. 1870.

PETER WELCH.

Witnesses:

A. C. BRADLEY,

CHAS. F. STANSBURY.