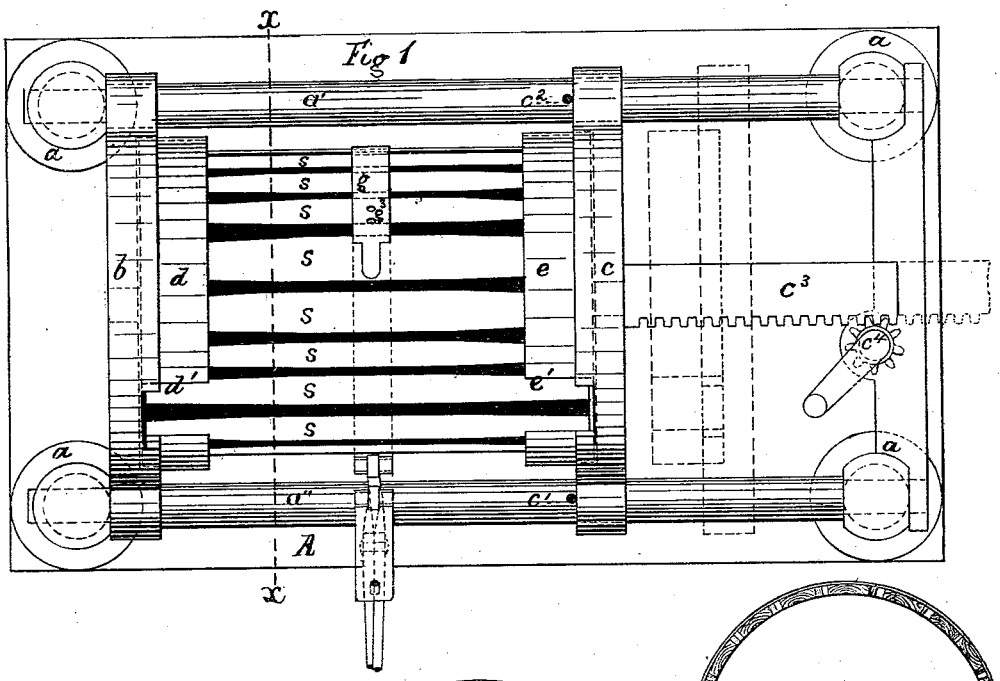
E. J. GRANGER.

Barrel-Stave Adjuster.

No. 162,231. Patented April 20, 1875.

Fig 1



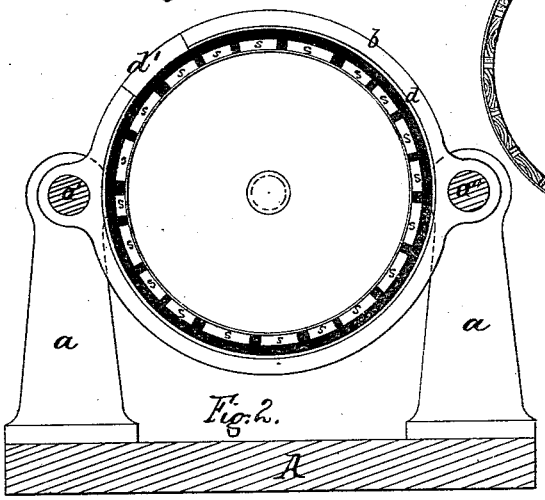


Fig. 2.

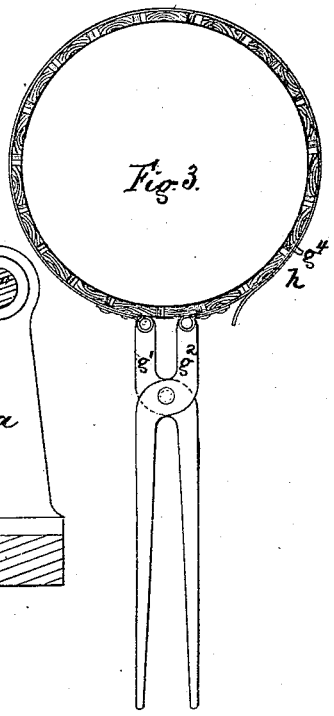


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ELIHU J. GRANGER, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN BARREL-STAVE ADJUSTERS.

Specification forming part of Letters Patent No. **162,231**, dated April 20, 1875; application filed February 27, 1875.

To all whom it may concern:

Be it known that I, ELIHU J. GRANGER, of Brooklyn, Kings county, New York, have invented certain Improvements in Barrel-Stave Adjusters, of which the following is a specification:

My invention relates to machinery for the manufacture of barrels, and has two distinguishing features, the one consisting in mechanism for facilitating the selection of a prescribed quantity of staves, and their arrangement in the form of a hollow cylinder, and the other consisting of a device for embracing the staves when arranged, and holding them with an adjustable degree of force, so that they can be extricated from the arranging mechanism, and transported and presented to a machine which forms them into a barrel, applying the hoops and inserting the barrel-heads, as hereinafter more fully described.

My arranging mechanism consists of two annular grooves upon the opposite faces of two vertical disks, one of which is stationary and the other capable of a reciprocating movement. A section of the outer wall of each groove is removed, thus forming two openings, through which the staves are introduced edgewise into the grooves, where they are held by the ends. When the staves vary in width the operator selects a series of staves of suitable widths to just make a hollow cylinder of the diameter prescribed by the annular grooves, and then, by giving the movable disk a sharp thrust in the direction of the stationary disk, forces the ends of the staves against the bottoms of the grooves, so that the ends of the staves are perfectly even.

My holding device is an adjustable clamping-band, which is clasped around the staves midway between the disks with suitable force to hold them firmly in the position they have been made to assume. This clamping-band I call a central truss, and it affords me the means of holding the staves securely, so that the movable disk can be withdrawn, and the arranged staves be removed from the adjusting mechanism, and be transported to and presented in suitable position to be operated upon by a hooping and heading machine, substantially like that shown and described in Arcalous Wyckoff's patent, dated December 19, 1865.

The accompanying drawings are as follows: Figure 1 is a top view of my stave-arranging mechanism, showing the central truss unclasped and loosely applied around a number of staves, represented as having been introduced into the guides, and showing, by dotted lines, the position assumed by the movable disk in obedience to the operation of a rack and pinion, by means of which the disk is drawn back, so that when the full number of staves have been introduced into the guides and the clamping-band adjusted they can be taken out. Fig. 2 is a transverse vertical section through the line *x x* on Fig. 1. Fig. 3 is an end view of the trussed staves as they appear when removed from the arranger, showing the levers for tightening the truss, and for facilitating the transportation of the trussed staves.

Referring to the drawings, the body of my arranging mechanism A has four vertical standards, *a a a a*, which support two parallel rails, a^1 a^2. A stationary vertical disk, *b*, is mounted upon and fixed at one end of the rails. A second vertical disk, *c*, is mounted upon and slides upon the rails from the opposite end of the machine to the stops c^1 c^2. This sliding operation is effected by means of the rack c^3, which engages the pinion c^4. The disks *b* and *c* have upon their opposite faces annular grooves, the exterior walls of which, *d* and *e*, have openings *d'* *e'*, respectively, through which the ends of the staves *s s s s s* are introduced into the grooves. The central truss or clamping-band *g* is composed of two pieces of flexible ribbon, of steel or other material, which are affixed to the ends of the jointed levers g^1 g^2. The loose end of one of these pieces of ribbon is perforated with one or more holes, g^3, and the loose end of the other piece of ribbon is provided with a projecting pin, g^4, so that these two ends may be hooked together, as shown at *n* in Fig. 3.

The operation of my machine is as follows: The movable disk is arranged at such a position on the rails, by means of the rack and pinion, that the distance between the bottom of the opposite grooves is a little greater than

the length of the staves. The truss is opened and laid between the rails, with the levers hanging down in front of the machine, substantially as shown in Fig. 1. The operator then places staves in the grooves, inserting them through the openings d' e' until he has introduced as many as the grooves will receive. The staves are tapering, but their edges touch in the middle, and when they vary in width the operator selects those of a proper width to just make a cylinder corresponding in diameter to the diameter of the grooves, which thus answer the purpose of measuring the quantity of staves required for a barrel. A few quick movements of the disk *c* back and forth serve to drive the ends of the staves against the bottom of the stationary groove, so as to make them even. The ends of the truss are then hooked together, and the jointed levers clasped at the ends like a pair of tongs. This tightens the clamp and holds the staves securely, while the disk *c* is drawn back and the staves slipped out of the stationary groove.

The staves thus clamped together form a hollow cylinder, and are capable of being transported and presented to a barrel-forming, a hooping, and heading machine, substantially like that shown and described in Arcalous Wyckoff's patent aforementioned.

Trussing barrel-staves in the middle is a novelty, and is important, because it leaves both ends of the clamped staves free for the application of hoops, or for the operation of a barrel-forming machine.

I claim as my invention—

1. A barrel-stave adjuster consisting of two disks, one of which is capable of receiving a sliding motion toward and from the other, both disks being provided upon their opposed faces with annular grooves of prescribed diameter, each of which grooves has an opening in its outer wall to admit of the insertion of staves, for the purpose of facilitating the selection of the quantity of staves required for a barrel and their arrangement in a cylindriform position, all constructed and operating substantially as herein shown and described.

2. A central truss, as herein described, consisting of flexible ribbons of steel or other material, provided with a device for hooking or clasping their loose ends together, and connected at their opposite ends with a pair of jointed levers or tongs, for tightening them when clasped around the staves, and for holding the staves in their cylindriform position when extricated from the adjusting-grooves, substantially as and for the purposes set forth.

3. The combination of the stave measuring and adjusting grooved disks herein described with an adjustable central truss or clamping-band, provided with the levers or tongs g^1 and g^2, for holding the staves in a cylindriform position, substantially as set forth.

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Witnesses:
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