J. Tilley,

Crozing Staves.

No. 33,908. Patented Dec. 10, 1861.

Witnesses:

A. F. Park

C. Bell

Fig. 3.

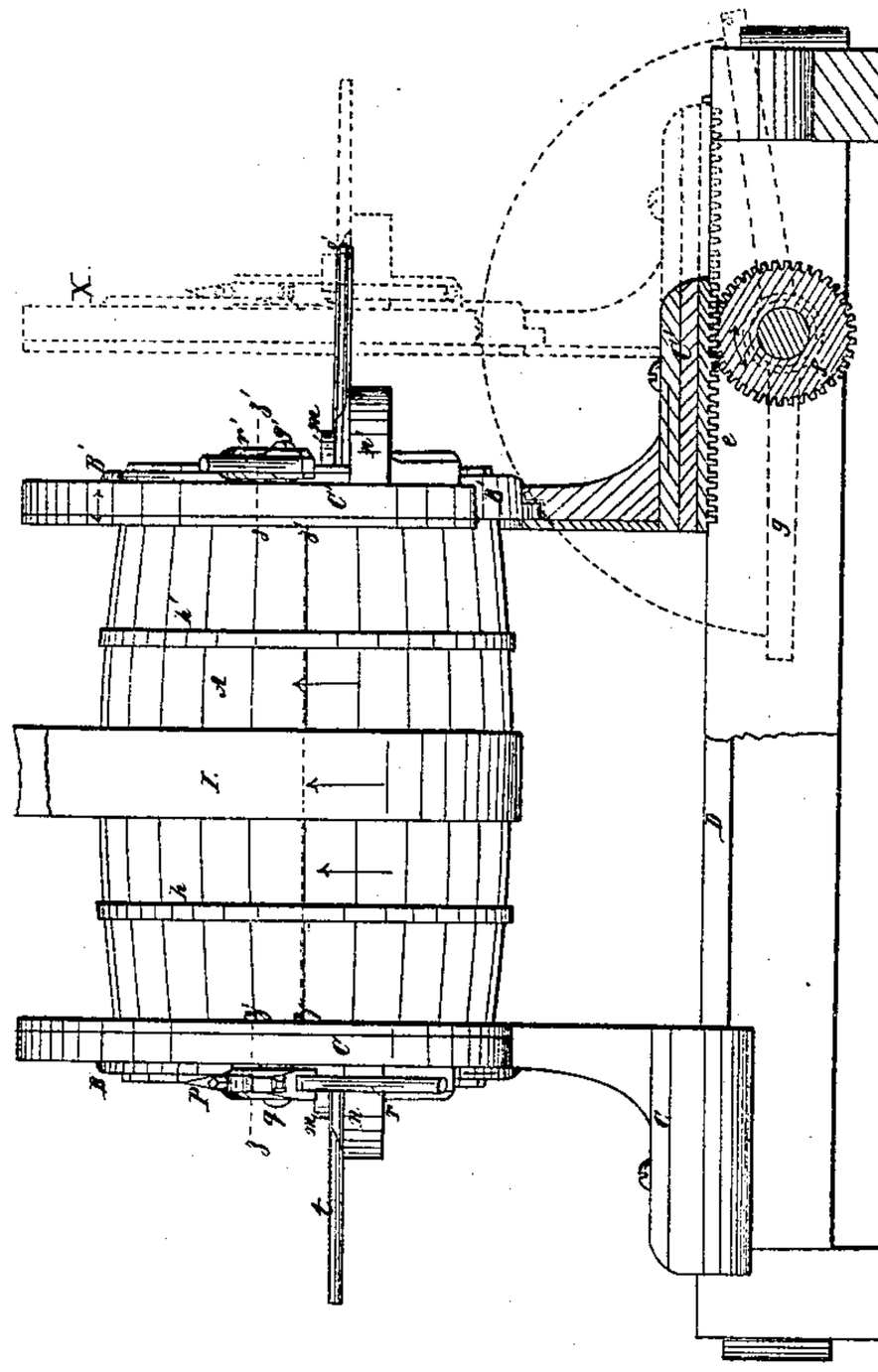

Fig. 2.

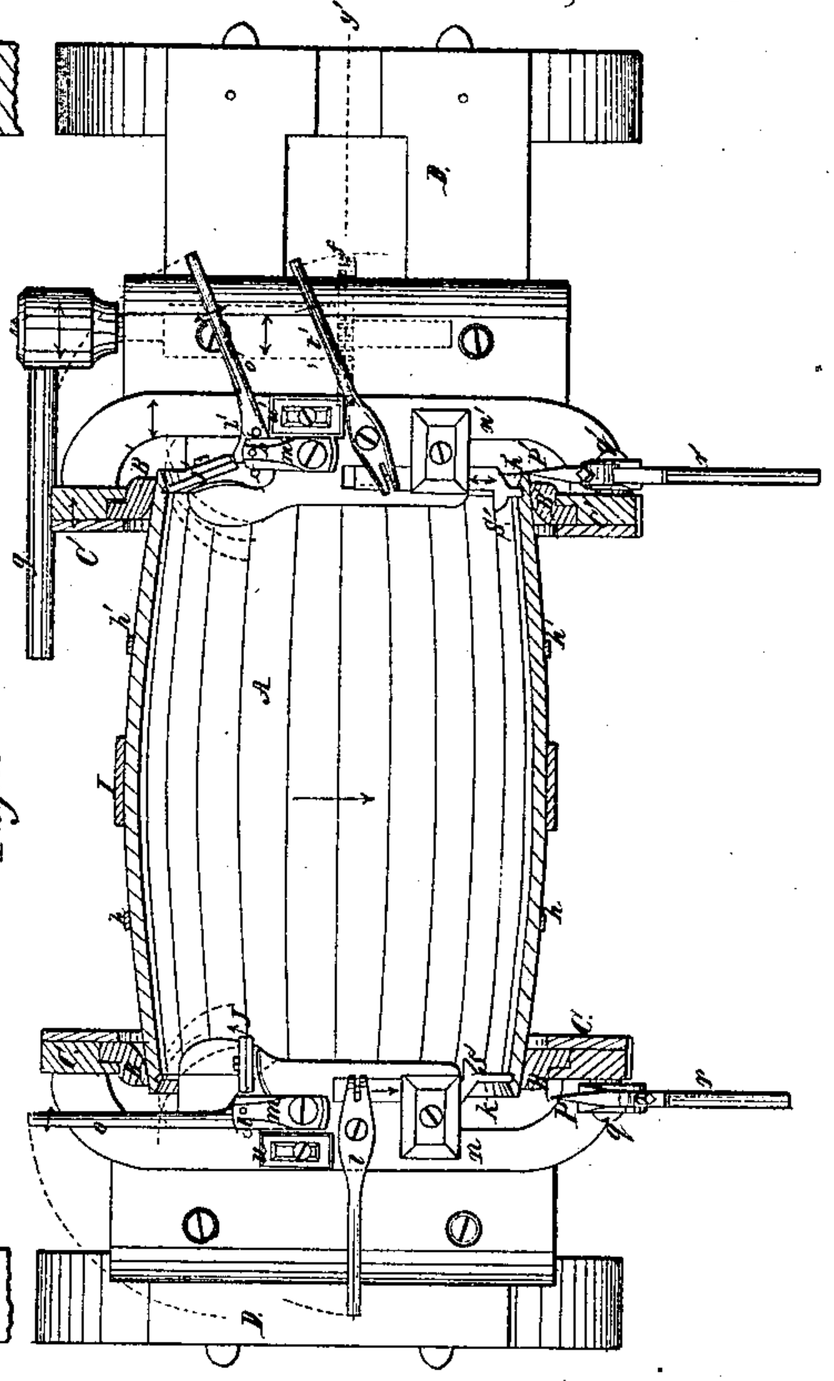

Fig. 1.

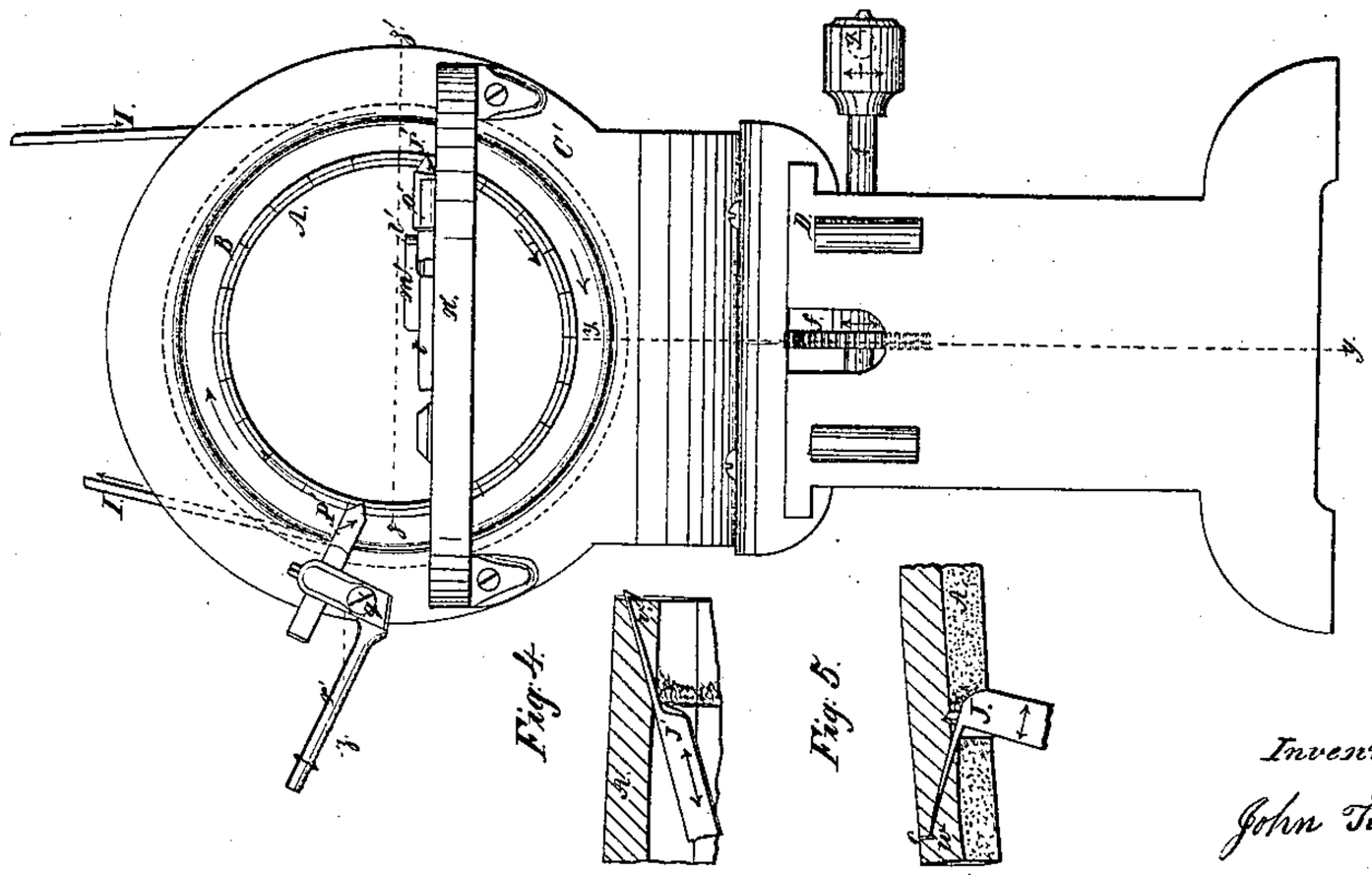

Fig. 4.

Fig. 5.

Inventor:

John Tilley.

UNITED STATES PATENT OFFICE.

JOHN TILLEY, OF WEST TROY, NEW YORK.

IMPROVEMEMT IN MACHINES FOR CHAMFERING BARRELS.

Specification forming part of Letters Patent No. **33,908**, dated December 10, 1861.

To all whom it may concern:

Be it known that I, JOHN TILLEY, of the village of West Troy, in the county of Albany and State of New York, have invented a new and useful Improved Machine for Chamfering, Leveling, and Crozing Barrels, Kegs, and Casks; and I do hereby declare that the following is a full and exact description of my improved machine and invention, reference being had to the annexed drawings, which make a part of this specification, in which—

Figure 1 is an end elevation; Fig. 2, a horizontal section at and plan of parts below the lines *z z'*; and Fig. 3, a side elevation and partial vertical longitudinal section at the line *y y'*, all of a machine which embodies my invention.

The same letters refer to like parts in all the figures, and the arrows therein indicate the directions in which the parts are moved.

One part of my invention relates to the construction of the apparatus for clamping and holding the open bulging cylinder of staves or barrel A preparatory to and during the operation of revolving the barrel in dressing its ends, and that part of my invention consists in constructing and arranging two circular barrel-holding rings B B' loosely within or upon two annular or open supporting-stocks C C', one or both of the latter being made suitably movable to readily admit, clamp, and release the barrel, so that the said rings B B' shall not only serve as "truss-hoops" to squeeze together and firmly hold the ends of the staves in a circle for the action of the chamfering and other end-dressing cutters, but shall also serve as the axles upon and with which the barrel is revolved and as guides to prevent the barrel from moving either endwise or sidewise while revolving under the action of the cutters, and so that not only the two ends and the inner surface of the barrel, but also its outer surface shall be left so uncovered that the barrel can be properly revolved by a running belt I or other suitable means applied directly to the outer surface of the barrel, and that the chamfering, leveling, and crozing of both ends of the barrel and also the smoothing off of most of both the inner and outer surfaces thereof may all be effected simultaneously or without changing the barrel, all essentially as shown and indicated by the annexed drawings.

In the annexed drawings, D is a horizontal bed-piece on which the two upright annular or open stocks C C', which support the two rings B B', are mounted, with the said rings parallel and directly opposite to each other, and upon which bed-piece D the stock C' can be moved toward and from the fixed stock C, as indicated by the dotted lines at *x* in Fig. 3, by means of a rack *e* and lever-pinion *g f* or their equivalent, so as to allow the cylinder of staves A to be readily clamped by and released from the said rings. The inner sides of the rings B B', Fig. 2, are made flaring, so that when the staves are set up and held together by two truss-hoops *h h'* about half-way between the middle and ends of the barrel and placed endwise between the rings B B' the ends of the bulging cylinder of staves will enter the flaring side of the rings as the stock C' is moved toward the stock C and will be squeezed together by and pressed through so as to extend somewhat outside of the rings, and thereby held firmly in circular form to receive the action of the cutters. The rings B B' are respectively secured to and fitted to freely turn on their axes within or upon the stocks C C' in planes substantially parallel to each other, so that the rings B B' not only form the chucks for holding the barrel, but also serve as the axles upon which it is revolved to receive the action of the crozing, leveling, and chamfering cutters.

Another part of my invention relates to the manner of arranging the leveling and chamfering cutters in combination with the apparatus for holding the revolving barrel or open bulging cylinder of staves. This part of my invention consists of the arrangement, in combination with the apparatus for holding the revolving barrel with both its ends uncovered, of two groove-cutting chamfering-knives J J' and two groove-cutting leveling-knives P P', the knives J J' being located within the cylinder described by the revolving barrel and made movable, so as to cut scores or grooves in the barrel from its inner surface outward toward its ends, substantially in the planes of and so as to thereby form the chamfers of the barrel, and the knives P P' being placed outside of the cylinder described by the revolving barrel and made movable, so as to cut grooves in the barrel from its outer surface inward toward its axis, sub-

stantially in the planes of and so as to thereby make the leveled ends of the barrel, all essentially as is indicated by the annexed drawings.

In the annexed drawings, the chamfering-knives J J′, Fig. 2, are pivoted at *l l′* to arms *m m′*, fast on rests *n n′*, fixed to the barrel-supports C C′, and have handles *o o′*, by which the person or persons operating the machine can move the knives J J′ to cut the chamfers *k k′* as the barrel is revolved. The leveling-knives P P′ are pivoted at *q q′* to the stocks C C′, and have handles *r r′*, by which the operator or operators can move each of those knives to cut a score *c*, Fig. 5, in the outside of the revolving barrel to level its ends. By this arrangement of the chamfering and leveling knives J J′ and P P′ with the barrel-holding apparatus the excess of wood *w*, Fig. 5, can be cut off and thereby removed from both the chamfer and end of the barrel in a mass together as the barrel is revolved by simply cutting two scores or grooves substantially in the direction of and in depth equal to the width of the chamfer and leveled end of the barrel, respectively, thus avoiding the expenditure of time and power which is required in some barrel-machines to cut away that excess of wood in the form of numberless chips or shavings.

In Fig. 2 the cutters J′ and P′ are shown in the positions which the knives occupy in respect to the revolving cylinder of staves A just as the knives finish the chamfering and leveling of the barrel, and in the same figure the knives J and P are shown removed from the staves preparatory to the removal of the finished barrel and the insertion of an undressed one. The parts *m m′*, to which the knives J J′ are pivoted, may be made adjustable, so that those knives can be set to cut the chamfers *k k′* at different inclinations, as indicated by dotted lines in Fig. 2 at the letters J *l* and J′ *l′*, and both the chamfering and scoring or leveling cutters J J′ P P′ may be made to move, so as to cut off and chamfer the ends of the barrel, as above described, in or upon suitable ways or guides, instead of upon pivots *l l′* and *q q′*, as shown by the annexed drawings.

S S′, Fig. 2, are sliding crozing-cutters, and *t t′* the handles they are operated by. The stops *u u′* control the depth of the crozes. All these parts are mounted on the stocks C C′, which latter may also have movable howeling-cutters to make even the inner surface of the barrel toward its ends as the barrel is revolved. With all the cutters thus mounted on the stocks C C′ the barrels will all be crozed and chamfered to one size.

Now I do not broadly claim as new an apparatus for clamping and holding a revolving barrel or open bulging cylinder of staves with both ends of the staves exposed or uncovered; neither do I claim an arrangement of movable chamfering and leveling cutters with both ends of an apparatus for thus holding a revolving barrel so that the chamfering and leveling of both ends of the barrel can be thereby effected simultaneously or without changing the barrel and so that the excess of wood which is removed from each end of the barrel in leveling its ends shall be cut off in one mass or without being all cut into chips or shavings; and I do not claim the arrangement, in combination with an apparatus for holding a revolving cylindrical body, of two knives mounted to move endwise and cut two continuous grooves substantially in the plane or direction of and thereby form two chamfers on and around the cylindrical body, as in some machines heretofore made for chamfering the disk-like heads for barrels. In my improved machine the chamfering-knives J J′ are arranged to move and cut the grooves away from each other, and thereby form the chamfers on the inner surface of the revolving cylinder of staves, instead of being arranged to move and cut the grooves toward each other, and thereby form the chamfers on the outer surface or edge of a revolving disk or barrel-head; and I do not claim cutting off or leveling the ends of a hollow revolving cylinder by means of two knives arranged in combination with an apparatus for holding the revolving cylinder so that the said knives can be moved to cut scores or grooves in and around the cylinder as it is revolved from its outer side inward toward its axis and substantially in the planes of its leveled ends; nor do I claim any part or combination or arrangement of parts shown or specified in Nos. 4,218, 23,097, and 26,206 of United States Letters Patent for inventions.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The rotary truss-rings B B′ when constructed and arranged with the end stocks C C′, mounted together and one or both made movable, all substantially as and for the purpose herein set forth.

2. The arrangement of the two groove-cutting chamfering-knives J J′ and the two score-cutting leveling-knives P P′, in combination with the apparatus for holding the revolving cylinder of staves with both ends of the staves exposed, as and for the purpose herein set forth.

JOHN TILLEY.

Witnesses.

CHARLES W. ROOT,

AUSTIN F. PARK.