C. J. ALLEY.

MACHINE FOR USE IN CHIMING, CROZING, AND HOWELLING BARRELS.

APPLICATION FILED AUG. 22, 1906.

900,253. Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

FIG. 1

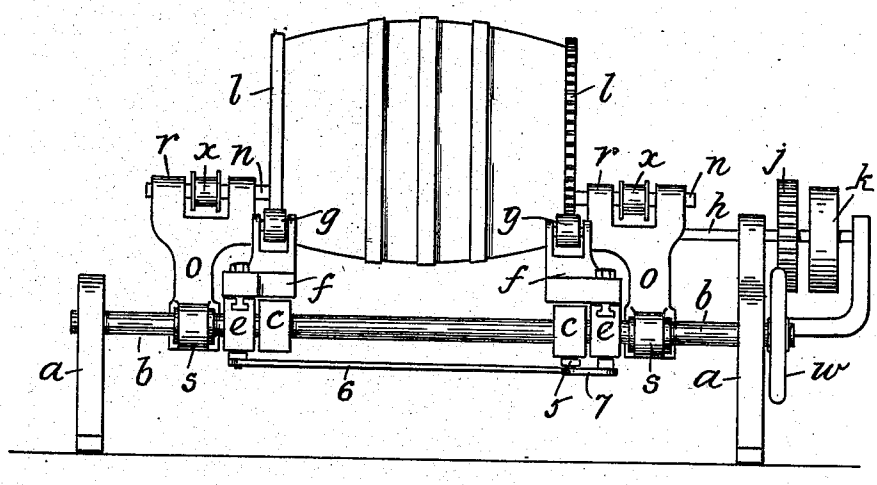
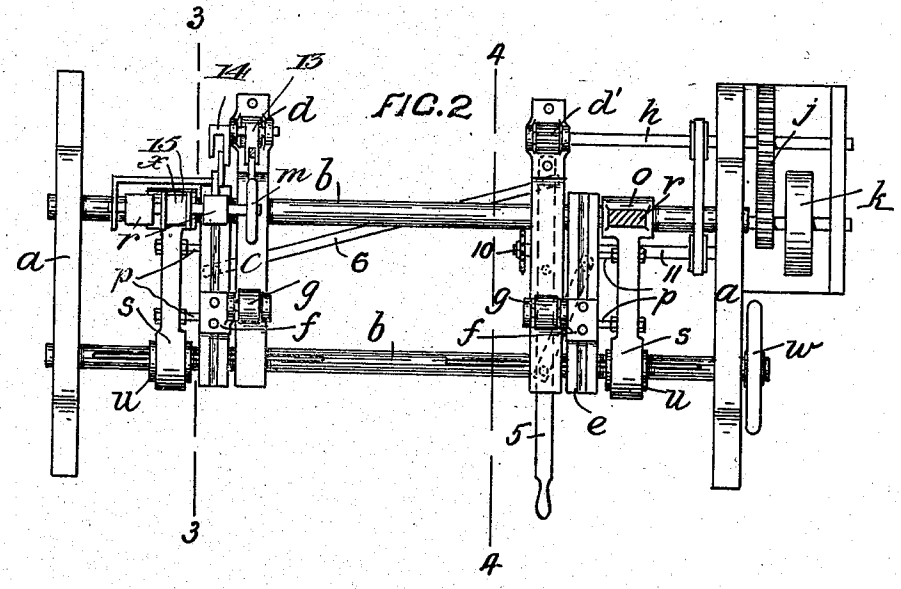


FIG. 2



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2 SHEETS—SHEET 2.

FIG. 3

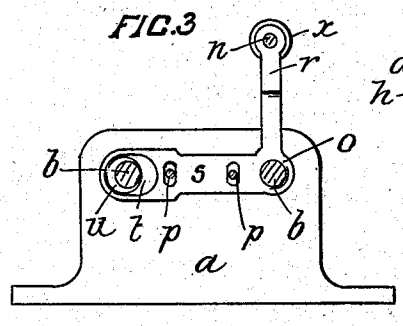


FIG. 4

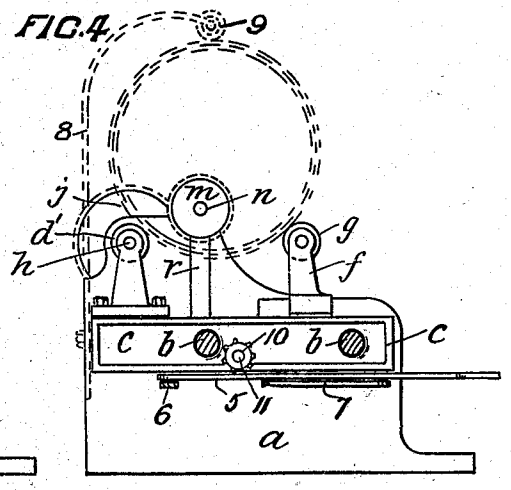
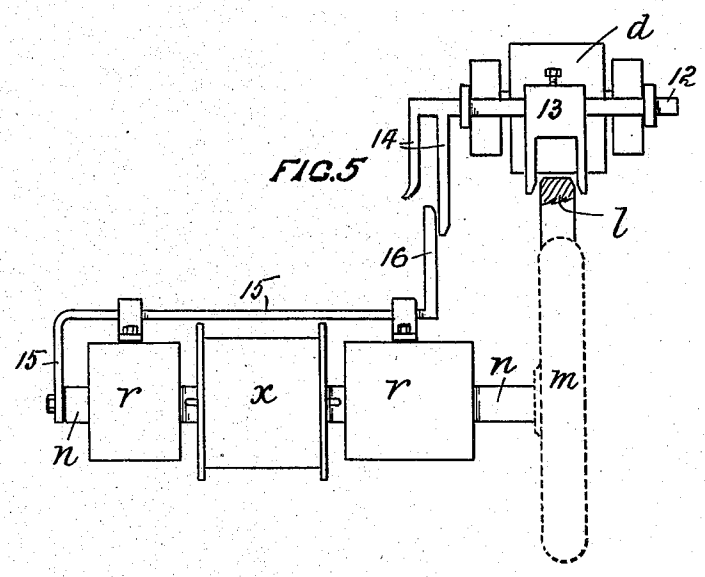


FIG. 5



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UNITED STATES PATENT OFFICE.

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MACHINE FOR USE IN CHIMING, CROZING, AND HOWELLING BARRELS.

No. 900,253. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed August 22, 1906. Serial No. 331,579.

To all whom it may concern:

Be it known that I, CHARLES JOHN ALLEY, subject of the King of Great Britain, residing at Farndon, in the Colony of New Zealand, have invented a new and useful Improved Machine for Use in Chiming, Crozing, and Howelling Barrels; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to an improved machine that has been designed for performing the operations of chiming, crozing, and howelling, in the manufacture of barrels.

In describing the machine, reference will be made to the accompanying sheets of drawings, in which:—

Figure 1 is a front elevation of the machine, showing a barrel in position therein. Fig. 2 is a plan, portions being shown in section. Fig. 3 is a cross section on the line 3—3 of Fig. 2, and looking to the left of such line. Fig. 4 is a similar view, taken on the line 4—4 of Fig. 2, but looking towards the right of such line. Fig. 5 is an enlarged detail view that will be hereinafter more fully referred to.

The machine designed comprises a frame in which the barrel to be operated upon is rotated, such frame being capable of adaptation to different sizes of barrels, and rotating cutters of any approved form, which are caused, by special means to engage with the two ends of the rotating barrel simultaneously, so as to cut such ends in the desired manner. Such frame consists of two end cheeks (*a*) that are joined together by means of a pair of circular bars (*b*), extending in parallel lines between them. These bars may be of any approved length. Upon the bars (*b*), are mounted the two heads (*c*) to each one of which, at its back end, is affixed a small roller (*d*) or (*d'*.) The heads (*c*) are adjustable in their distance apart, so that the distance between said rollers may be regulated to correspond with the length of a barrel to be operated upon. Mounted upon the bars (*b*), one upon the outside of each head (*c*), are the sliding blocks (*e*). Each of these blocks (*e*) has a bearing (*f*) secured upon its upper face, such bearing supporting an anti-friction roller (*g*) and overhanging the head (*b*) adjacent to it in such a manner, that when the block (*e*) is up against the head (*b*), its roller (*g*) will lie in the same plane as the roller (*d*) or (*d'*) carried upon such head. The rollers (*d*) (*d'*) and (*g*) are arranged at such a height above the level of the bars (*b*) that they will serve to support the ends of a barrel placed upon them, in such a manner as to allow of the barrel rotating freely.

To provide for the rotation of the barrel, the roller (*d'*) is formed as a pinion, and the shaft (*h*) upon which it is mounted, is carried outwards and supported in bearings in the cheek (*a*), its outer end being connected to gearing (*j*) driven by a pulley (*k*). One of the truss hoops (*l*) that are usually employed for retaining the ends of the barrel, while being cut in the desired manner, is formed with teeth adapted to gear with the teeth of the pinion roller (*d*), so that by the operation of such pinion, the barrel placed within the machine, may be caused to revolve at any desired rate of speed.

The circular cutter heads (*m*) are secured to the inner ends of spindles (*n*) journaled in carriers (*o*) supported upon the bars (*b*), one upon the outside of each sliding block (*e*), in such a manner as to be free to slide to and fro along such bars. These carriers are connected to the respective blocks (*e*) by means of the rigid connections (*p*) so that any sliding movement imparted to the blocks, will be imparted also to the carriers. Each carrier (*o*) is composed of an upwardly extending member (*r*), the top of which provides the bearing for its spindle (*n*), and a forwardly extending member (*s*). This member is formed with a slot (*t*) (Fig. 3) extending through it, and through which slot, the front bar (*b*) passes. Surrounding this bar, and extending through the slot, is an eccentric sleeve (*u*) that is locked to the bar by means of a feather key, so that it will rotate with the bar, and will be capable of sliding along it with the carrier. This sleeve is so arranged that by the partial rotation of the bar, its eccentric face will engage with the sides of the slot (*t*), and cause the member (*s*) of the carrier, to be raised and lowered at its outer end, thus causing such carrier to rock on the back bar (*b*) and its upwardly extending member to be correspondingly moved. This movement will cause the cutter head to be moved in a corresponding plane.

The normal position of each cutter head is such that when a barrel is supported by the rollers, (*d*) and (*g*), the cutter head will be within the barrel end, and free from contact with the side thereof, as shown in Fig. 4, in which figure the barrel is represented by dotted lines. When the cutter head is

moved in the manner before described, by the partial rotation of the front bar (*b*), it will be caused to engage against the inside peripheral face of the barrel, so that the cutters carried in the head, will, by the revolution thereof, cut the barrel in the manner desired. To provide for the rotation of the front bar (*b*), a hand wheel (*w*) is fixed to one of its ends, and provision is made whereby this wheel may be locked in any position, so that the cutters will be prevented from leaving their work. Each cutter head is caused to revolve by suitable belting, driving a small pulley (*x*) secured upon its spindle.

The sliding blocks (*e*) and the cutter carriers (*o*) are mounted so as to be capable of sliding outwards from the heads (*c*) in order to allow of a barrel being rolled into the machine. When such barrel is rolled in, the blocks and carriers are caused to slide inwards again, so that the rollers (*g*) will pass beneath and support the ends of the barrel in conjunction with the rollers (*d*), while the cutter heads will enter the respective ends of the barrel, so as to be in a position to operate thereon, when tipped back in the manner described. To provide for these movements of the sliding blocks being effected, a lever (5) is articulated to the underneath face of one of the slides (*c*). This lever is connected, by means of a rod (6) articulated to it upon one side of its pivot, to one of the blocks (*e*), while the other block is connected to it by means of the rod (7) articulated upon the other side of the pivot. Thus by moving the lever (5) in one direction, the blocks (*e*) and their connections, will be moved outwards from each other, while a reverse movement of such lever will cause them to move inwards towards each other. The connections (*p*) between the blocks (*e*) and carriers (*o*), pass through vertical slots formed in the members (*s*), as shown in Fig. 3, to allow of such carriers being tipped freely.

The cutters upon the cutter heads, may be of any approved form, such as will perform the desired operations of chiming, crozing, and howelling the barrel ends, and such cutters form no feature of novelty in this invention.

To retain the barrel from jumping while being operated upon in the machine, a vertically adjustable overhanging arm (8) (shown in dotted lines in Fig. 4), is secured to the back end of each head (*c*). This arm carries a small roller (9) in its end, which roller is adapted to engage with the top of a barrel within the machine, and thus keep it from jumping.

Other means for rotating the barrels than those herein described, may be employed. For instance, they may be caused to rotate by means of an endless chain encircling them, and driven by a chain wheel (10), Figs. 2 and 4, upon a spindle (11) driven from the spindle (*h*). These means would be serviceable where the barrels differ greatly in size, and would obviate the necessity of having a toothed truss hoop (1) for each size.

It is found in practice that the end of a barrel is often uneven, that is, it does not lie in one uniform plane. And again, a truss hoop may become, by use, warped or twisted. Often, too, casks are made with dipping top edges. To provide for these contingencies and for the cutter head at that end following the plane of the truss hoop, the means shown in Fig. 5, have been devised. These means consist of a sliding bar (12) that extends across the top of the bearings of one of the rollers (*d*), and is capable of longitudinal sliding movement. Adjustably secured to this bar, is a fork (13), the arms of which are adapted to pass one on each side of the truss hoop (1) when the barrel is in position within the machine. The outer end of the bar is formed as a fork (14) with arms extending forwardly, the inner one being of greater length than the outer. Connected with the outer end of the cutter spindle (*n*) is a bar (15) that extends freely along through guides in the side of the spindle bearing, and the inner end of which bar is turned rearwardly at right angles, as at (16). This rearward extension (16), is so arranged that, when the carrier (*o*) is moved inwards, it will pass the outer arm of the fork (14), but will engage with the inner arm of such fork, as is shown in the drawing, and when the carrier is tipped in the manner before described, it will pass in between the arms of such fork. The spindle (*n*) is so mounted in its bearing, as to be capable of free longitudinal movement therein, the driving pulley (*x*) being mounted on a feather key to prevent such movement affecting the plane of the pulley. It will be apparent, that by reason of the engagement of the arms of the fork (13) with the sides of the truss hoop (1), the bar (12) will be caused to move longitudinally with any bends or variations in the rotating plane of such hoop. These movements will be communicated through the fork (14) and bar (15) to the cutter spindle, so that it, too, will move longitudinally in a corresponding manner. The cutter head will thereby follow the plane of the truss hoop, and it will operate upon the barrel accordingly.

To provide for the machine being quickly adjusted to different diameters of barrels, the bearing blocks (*f*) for the rollers (*g*) are secured within grooves extending longitudinally along the sliding blocks (*e*), such grooves permitting of the rollers being moved in or out and secured at any point, in a manner that is well known in all classes of machinery.

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

1. In means for chiming, crozing and howelling barrels, a barrel supporting frame comprising a pair of heads supported upon parallel horizontal bars and capable of adjustment thereon, and each having a roller mounted on a horizontal axis at the back end thereof, a pair of sliding blocks mounted on the bars, one on the outside of each head, and each having a roller mounted thereon and adapted to lie in the same horizontal plane as the roller upon the respective head, means whereby the sliding blocks may be moved outwards or inwards along the bars, and means for rotating a barrel supported upon the rollers, substantially as specified.

2. In means for chiming, crozing and howelling barrels, a barrel supporting frame comprising a pair of heads supported upon parallel horizontal bars and capable of adjustment thereon, and each having a roller mounted on a horizontal axis at the back end thereof, a pair of sliding blocks mounted on the bars, one on the outside of each head, and each having a roller mounted thereon and adapted to lie in the same horizontal plane as the roller upon the respective head, cutter carriers mounted on the horizontal bars, one on the outside of each sliding block, and connected to the respective block, so as to be capable of movement therewith, means whereby the sliding blocks may be moved outwards or inwards along the bars, and means for rotating a barrel supported upon the rollers, substantially as herein specified.

3. In means for use in chiming crozing and howelling barrels, a barrel supporting and rotating frame slidably mounted upon a pair of parallel bars, in combination with cutter carriers mounted upon the bars, one upon each end of the frame, each of which is formed with an upwardly extending member adapted to form a bearing for the cutter spindle and with a forwardly extending portion formed with a slot therein, and eccentric sleeves mounted upon the front parallel bar and fitting within the slots in the respective cutter carriers, and means whereby such bar and the sleeves may be rotated, substantially as specified.

4. In means for use in chiming, crozing and howelling barrels, a barrel supporting and rotating frame slidably mounted upon a pair of horizontal parallel bars, and cutter carriers mounted upon the bars, one at each end of the frame, and each formed with bearings for carrying the cutter spindle arranged to allow of longitudinal movement thereof, in combination with a bar secured to one end of the cutter spindle and formed with a backwardly extending member, a bar slidably mounted upon the barrel supporting frame, a fork secured thereon adapted to engage with the truss hoop upon the barrel in the machine, and a fork upon the end of this bar adapted to engage with the backwardly extending member of the bar secured to the cutter spindle, substantially as specified.

Dated this 23d day of July 1906.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

CHARLES JOHN ALLEY.

Witnesses:

GEORGE FREDERICK MORLEY,

ERN WOODBINE JOHNSON.