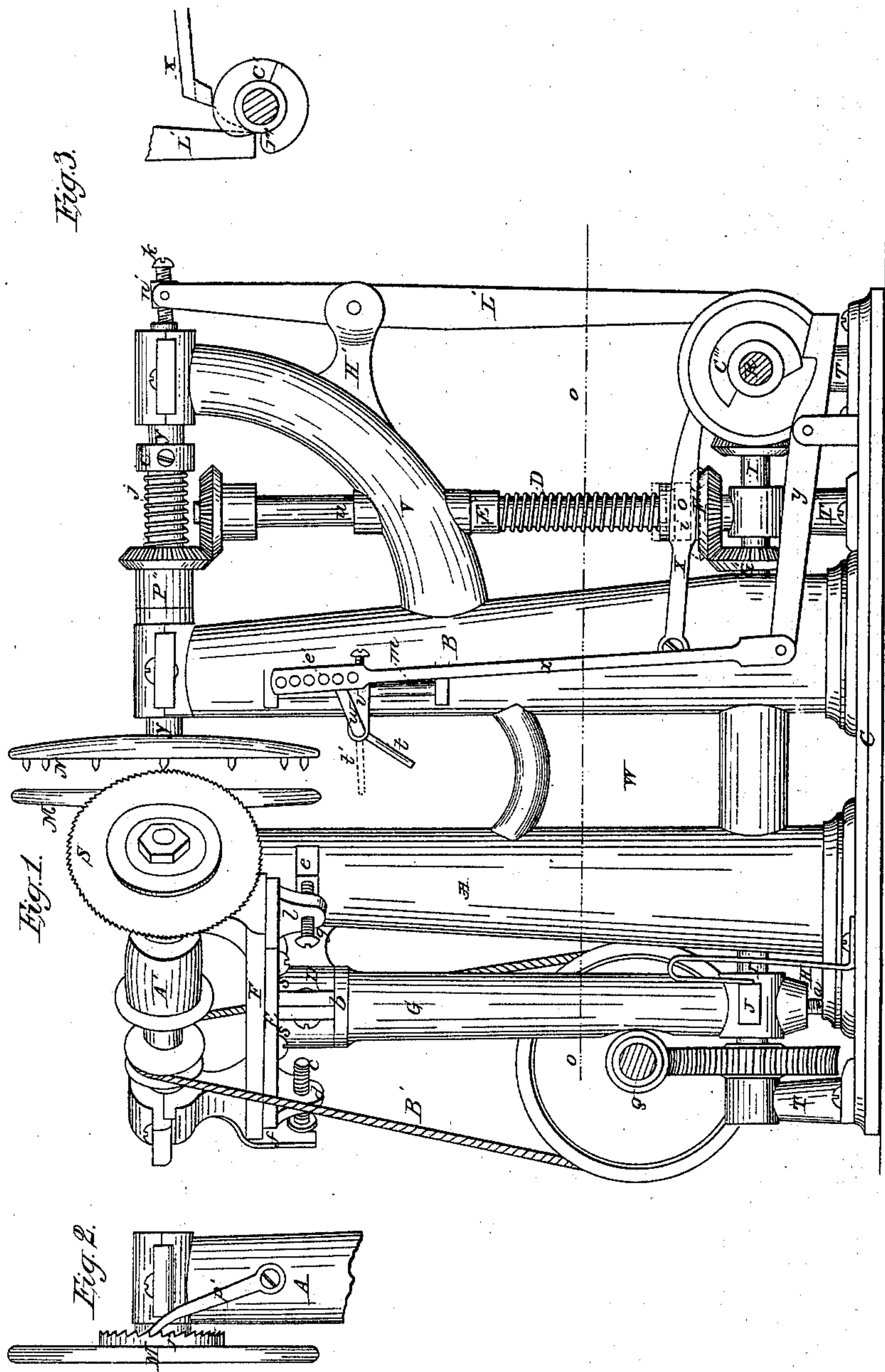


2 Sheets-Sheet 1.

J. B. Dougherty,
Making Barrel Heads.

N^o 68,856.

Patented Sep. 17, 1867.



Witnesses.
Wm. Cloughborough
L. M. Newton

Inventor.
John B. Dougherty

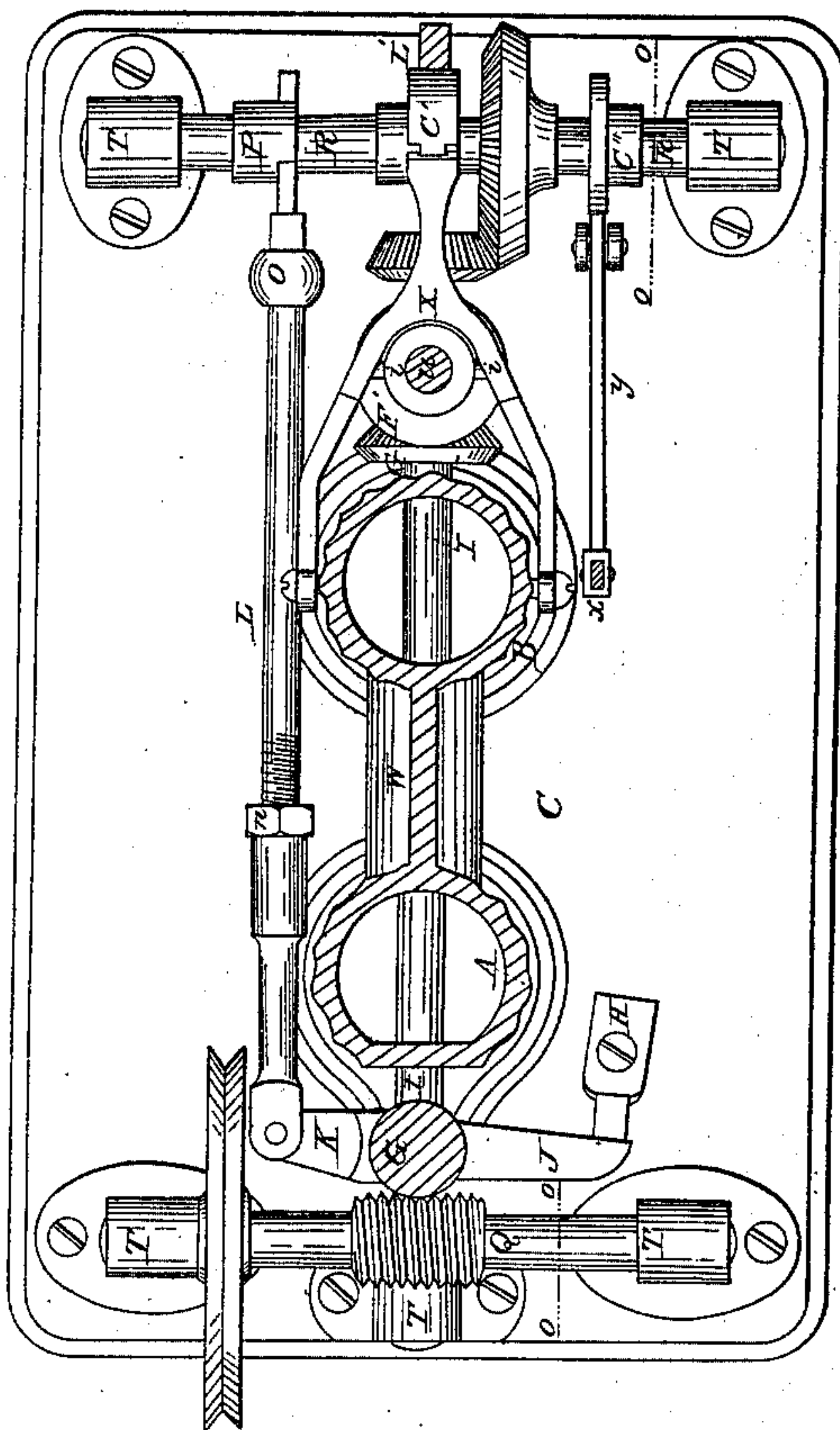
2 Sheets - Sheet 2.

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N^o 68,856.

Patented Sep. 17, 1867.

Fig. 4.



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W. J. Lambourn
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Inventor.
John B. Dougherty

United States Patent Office.

JOHN B. DOUGHERTY, OF ROCHESTER, NEW YORK.

Letters Patent No. 68,856, dated September 17, 1867; antedated September 4, 1867.

IMPROVEMENT IN BARREL-HEAD MACHINES.

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, JOHN B. DOUGHERTY, of Rochester, in the county of Monroe, and State of New York, have invented certain new and useful Improvements in "Machines for Turning Barrel-Heads;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1, Sheet A, is a side elevation of my invention, the shafts Q and R being shown in section, as indicated by the red line *o* in fig. 4, Sheet B.

Figure 2 is a detached elevation of the reverse side of the clamping-plate M and the top of the supporting column A, and showing the pawl *p'*.

Figure 3 is a detached view of the reverse side of the double or compound cam C', which works the lever X and the clamping-lever L'.

Figure 4, Sheet B, is a top view of the parts below the plane indicated by the red line *o* in fig. 1.

Similar letters indicate corresponding parts in all the figures.

This invention consists in providing an automatic barrel-head turning machine, and its nature will be better understood by reference to the drawings and specification.

To enable others to make and use my invention, I will describe its construction and operation.

The supporting columns A and B are cast upon the base or bed-plate C. There is a journal-box or hanger, D, cast upon the side of A. The saw-frame F is attached by screw-bolts *s* to the cross-bar E, cast upon or otherwise attached to the top of the vertical shaft G. This shaft is made with a large opening transversely through the lower end for the shaft I to pass through loosely. The foot of the shaft is sustained by an adjustable or screw centre, *a*, by means of which it is kept with the collar *b* snugly against hanger D. The cross-bar E is provided at one end with a lug, *d*, through which the set-screw *c* is tapped. This screw has a groove turned in the head to receive the fork *f*, which is fixed to the end of the saw-frame. By turning the screw one way or the other when the bolts *s* are loosened the saw-frame may be set so as to throw the saw further from or nearer to the centre of the clamping-disks, so as to cut larger or smaller heads, as may be desired, with the same machine, and after the adjustment is effected the bolts *s* should be tightened. The set-screw *g* is tapped through the lug *l*, and the end strikes against the stop *e*, cast upon the column A, and limits the throw of the saw S in that direction. There is a heavy strap-spring, H, bolted to the base-plate C, so as to press against the arm J of the shaft G and force the saw back from the working position as soon as the head is properly turned. There is an arm, K, fig. 4, Sheet B, on the reverse side of shaft G, to which is hinged the rod L. This rod is made in two parts and connected together by a male and female screw and a jam-nut, *n*, whereby the rod may be lengthened or shortened to compensate for any wear, or to change the throw of the saw to turn thick or thin heading. The opposite end of the rod is supported in a hanger, O, and it is pressed forward and held by the cam-plate P long enough to keep the saw in its working-position, while the clamp-disks M and N shall make about two or three inches (more or less) more than a full revolution, when it is released by the cam, and is forced back by the spring H. The shafts I, Q, and R are each hung in suitable pillar-blocks T. The block T' answers also for the step in which the lower end of the vertical shaft U runs. This shaft is supported above by a bearing through the arm or hanger V of the column B. This shaft I is driven by the screw or worm-gear and the band B' from the saw-mandrel, and it has a constant motion, as has also the cam-shaft R, but the shafts U and Y have an intermittent motion produced by the mitre pinion F' being feathered to the shaft U and made to slide upon it vertically at proper intervals by the forked lever X, which is hinged to the column B, as seen in figs. 1 and 4, and is coupled to the pinion F' by lugs *i*, fig. 4, which take in a groove turned in the hub, and the outer end of the lever being operated by the double or compound cam C', figs. 3 and 4. The top of the spiral spring D' rests against the collar E', which is fixed to the shaft U, and the other end forces the pinion into gear with its fellow G' whenever the said cam is in a position to relieve the end of the lever. The pinion P'' is feathered to the shaft Y, which is made to slide longitudinally. This shaft is provided with a fixed collar, C''', and the spiral spring *j* drives the shaft to the right when permitted by the recess *r'* in the cam C', relieving the end of the lever L', which is hung to a projecting hanger, H', cast on the arm V. The upper end of this lever is forked, and is provided with a pivoted nut, *n'*, through which the set-screw *k* passes. The end of the screw

may be pointed and made to enter or rest in the "centre" in the end of the shaft Y. The space between the clamping-collars M and N, when closed together, is regulated by this set-screw, and the machine is thereby adjusted to any desired thickness of heading. The clamping-disk M, or circle, (for it may be made in skeleton form,) is hung to this shaft and moves with it. The other clamp-plate or collar N is hung or has its axis in the top of column A, as seen in fig. 2, and is provided with a ratchet, *r*, and pawl, *p'*, to prevent it from turning backward at any time. There is a vertical rod, *m*, attached to each side of the column B. To each of these is fixed, by a set-screw, *u*, an arm, *v*. In the end of these arms is hung a rock-shaft having two or more arms or rests *t*. The crank-arm *w* of this shaft is connected to the counterbalanced lever *y* by the rod *x*. By means of the set-screws *u* and the holes *e'* in the rod the rock-shaft may be raised or lowered to adapt the machine to larger or smaller heading. The lever *y* is operated by the cam C''. The shaft I passes loosely through the columns and through the web W, which connects them together, as shown.

When the parts are all properly adjusted relatively the heading to be turned is placed by the attendant upon the rests *t* of the rock-shaft, they being in the position of the dotted lines *t'*. The clamps are then closed by the cam C', forcing the end of the lever L' to the outer circle. The rests then drop to their present position. The saw is then swung into its working position. The end of the lever X drops from the position shown in fig. 3, having passed the raised portion of the side cams or bearings of the cam to the position shown in fig. 1. The pinion F' is thereby thrown in gear, and when the clamps are turned once around, and two inches, more or less, beyond the cam P, relieves the end of the rod L, and the spring H throws the saw back, immediately after which the feed ceases by the pinion being thrown out of gear, and the clamp N is released by the end of the lever L' dropping into the notch *r'*, as before described and shown in fig. 3, and at the same instant or a little previous the rests *t* are readjusted. As soon as the clamps part the finished head drops out and the attendant supplies the material for another, and so on.

I propose to use a more dishing saw for turning half-barrel heads than for those for whole barrels. The machine is driven by the band B' from the saw-mandrel, that being driven by an ordinary flat band on the pulley A'.

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

1. An automatic barrel-head turning machine, when the automatic movements or adjustments are produced by suitable cams, P, C', and C'', and their necessary connecting-rods, substantially as herein shown and described.
2. In combination with the sliding or clamping-shaft Y, the feathered pinion P'', spiral spring J, collar C'', lever L', and cam C', they being arranged and operating conjointly in the manner and for the purposes shown and described.
3. The arrangement of the set-screw *k*, pivoted nut *n*, and the lever L', in connection with the clamping-heads M and N, substantially as shown and described and for the purposes set forth.

JOHN B. DOUGHERTY.

Witnesses:

WM. S. LOUGHBOROUGH,

L. M. NEWTON.