

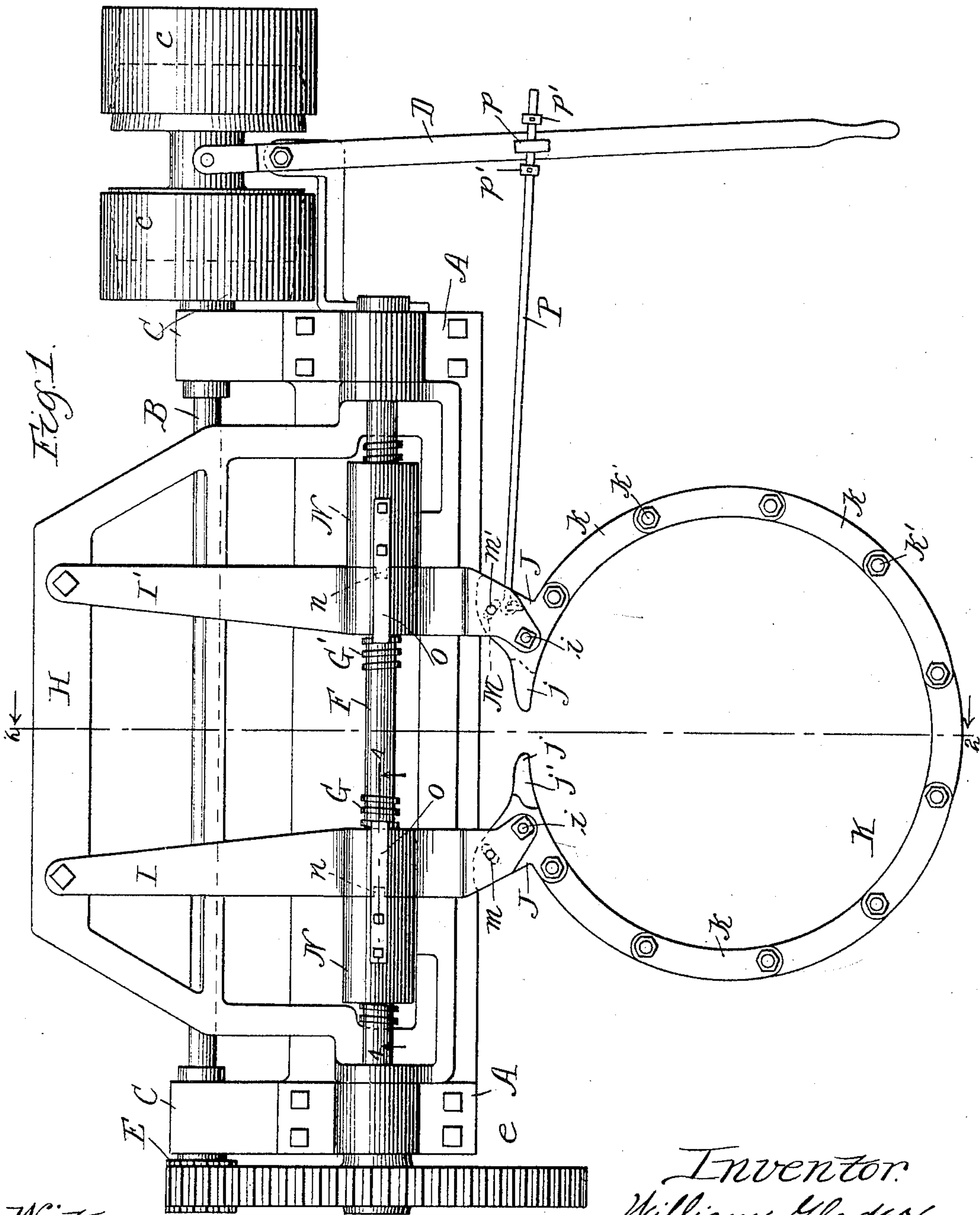
(No Model.)

2 Sheets—Sheet 1.


W. GLADER.  
BARREL HEADING MACHINE.

No. 581,712.

Patented May 4, 1897.



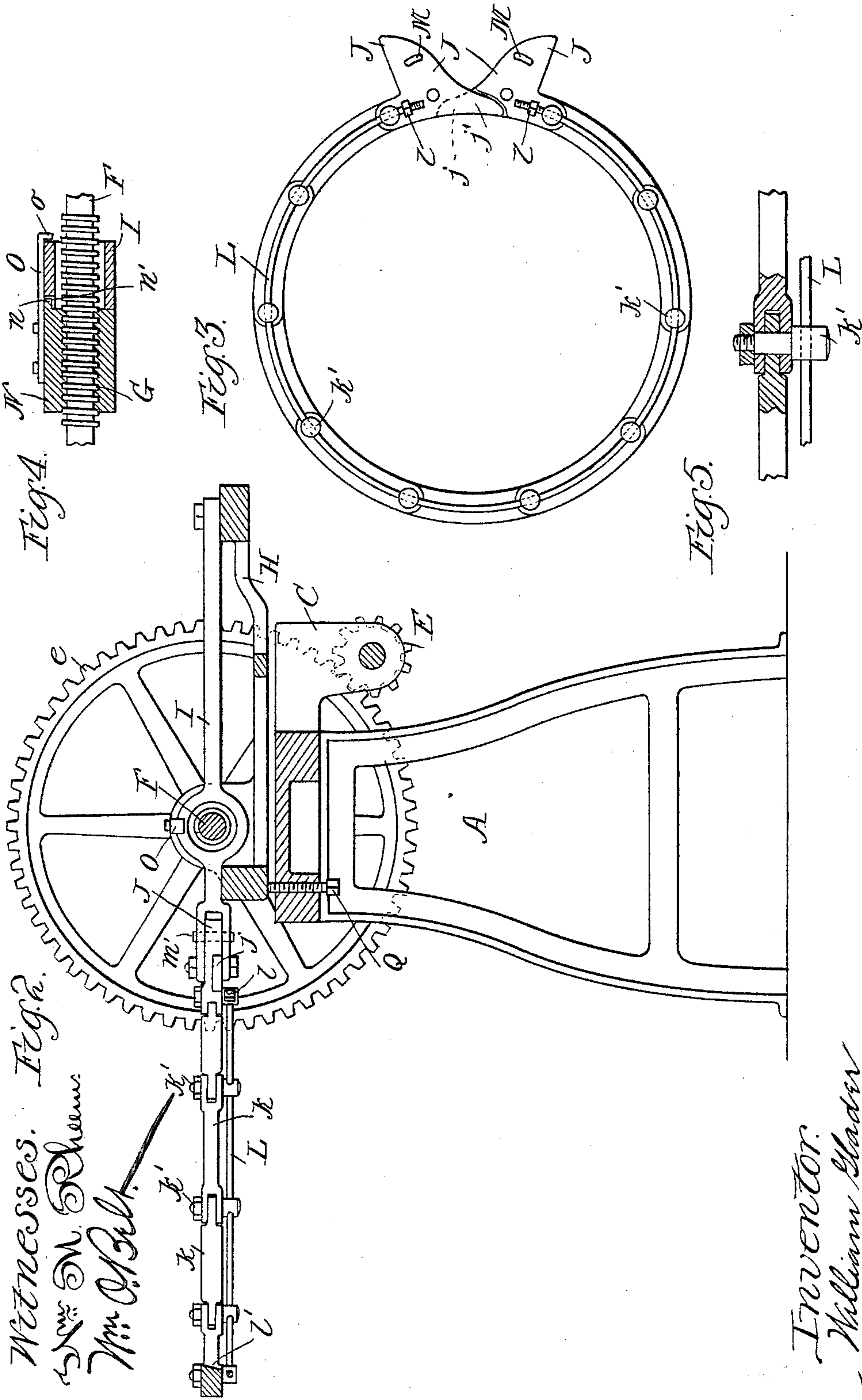
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Witnesses. *Fig. 2.*  
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# UNITED STATES PATENT OFFICE.

WILLIAM GLADER, OF CHICAGO, ILLINOIS.

## BARREL-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,712, dated May 4, 1897.

Application filed September 11, 1896. Serial No. 605,491. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GLADER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Barrel-Heading Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to certain new and useful improvements in barrel-heading machines; and its primary object is to provide a machine of sufficient strength which is adapted to be easily operated to effect the results desired in machines of this character.

Another object of the invention is to provide a tightening-band for a barrel-heading machine of such a nature that it will remain at all times in a substantially circular form corresponding to the shape of the barrel to be operated upon.

A further object is to provide means for tightening the band upon the barrel in such a manner that the band will secure all of the staves into their proper positions and means for automatically releasing the band.

With these and other ends in view my invention consists in the peculiar construction and arrangement of parts hereinafter described, and fully shown in the accompanying drawings, in which—

Figure 1 is a top plan view of my improved machine, showing the position of the parts when the tightening-band is ready to be adjusted on a barrel. Fig. 2 is a vertical sectional view taken on the line 2 2 of Fig. 1. Fig. 3 is a bottom plan view of the tightening-band, showing the same as it appears when secured on a barrel. Fig. 4 is a sectional view on the line 4 4 of Fig. 1 and showing the arrangement of one part of the screw-shaft. Fig. 5 is a sectional view through the joint of two links of the tightening-band.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the supporting-frame for my machine, which may be of any suitable character adapted to support the operative mechanism. A power-shaft B is journaled in bearings in the hangers C of the frame, and this

shaft is provided upon the outer end thereof with a pair of loose friction-clutches *c*, driven by belts in opposite directions and operated by an operating-lever D, it being understood that the construction of these clutches may be varied as desired and any means employed which will cooperate with the other parts of my machine to accomplish the results sought for. The power-shaft is provided with a pinion E, which meshes with a gear *e* on the screw-shaft F, said shaft being mounted in suitable bearings in the frame and provided with the oppositely-turned screw-threads G G'. A rocking frame H is loosely mounted on the screw-shaft F and carries the tightening-band and its supporting-levers, said frame extending a sufficient distance in the direction opposite to the tightening-band for the purpose of constituting a balance for the band.

Levers I I' are pivotally secured to the rear part of the rocking frame, their front ends being bifurcated, as shown in Fig. 2, to receive the end pieces J of the tightening-band K. This tightening-band is composed of a number of segmental links *k*, which are pivotally connected together by means of the bolts *k'*. These bolts project below the links, and a spring retaining-ring L passes through openings in the lower end of said bolts, nuts *l* being arranged on the ends of said ring to keep the same at the proper tension and located with reference to the adjacent bolts, so that the retaining-ring is capable of a limited play in the bolts. The purpose of this spring retaining-ring is to maintain the tightening-band at all times in the form of a circle corresponding substantially to the contour of the barrel to be operated upon, and whether the tightening-band is in an elevated position out of operation or in operation the retaining-ring will keep it at all times in its proper form. The inner edges of the links *k* are beveled, as shown at *l'* in Fig. 2, to conform to the shape of the barrel.

The end pieces J of the tightening-band are pivotally connected to the adjacent links by means of the bolts *k'*, and they are also pivotally secured on the bifurcated ends of the levers I I' by means of the bolts *i*, these pivots, however, being on a different radius from that of the bolts *k'*, for a purpose hereinafter described. These end pieces are pro-



vided with arms  $j$ , which are recessed, as indicated by  $j'$ , on opposite sides, so that they will overlap each other when the band is tightened upon a barrel, as shown in Fig. 3. In order to prevent the end pieces from swinging out of position at any time, they are provided with slots  $M$  to receive pins  $m'$ , which prevent the end pieces from moving more than a limited distance in any direction independent of the levers.

Nuts  $N$  are arranged on the right and left screw-threads  $G G'$ , and they are connected with the levers  $I$  and  $I'$  by means of the arms  $O$ , which are secured to the nuts and are provided with hooked ends  $o$  to engage and hold the said levers, as shown clearly in Fig. 4. These levers are provided with openings of such a diameter that they will not engage the thread on the screw-shaft, and the nuts are provided with lugs  $n$ , which engage notches  $n'$  in the levers and thereby prevent the nuts from turning with the screws when the screw-shaft is operating.

A rod  $P$  is connected to the operating-lever  $D$  and to one of the supporting-levers  $I I'$  in such a manner that when the machine has completed its operation the said rod  $P$  will automatically shift the operating-lever so as to reverse the operation of the machine. The rod  $P$  passes through the keeper  $p$  on the operating-lever, and it is provided with two stops  $p'$ , which can be adjusted so that they will engage the keeper on the lever and at the proper time shift said lever.

The operation of the machine is very simple and, it is believed, will be readily understood by those familiar with the art. The rocking frame is first tilted to bring the tightening-band in position above the barrel to be operated upon, which has been properly trussed in a manner well known in the art, and then the tightening-band is swung down over the ends of the staves. The operating-lever is manipulated to set the machine in operation, and as the screw-shaft rotates the nuts  $N$  thereon are carried inward toward each other and force the supporting-levers together, thereby tightening the band until all the staves are drawn together in their proper positions, with the head, which has been inserted, firmly seated in its proper position, after which the permanent hoop may be partially or wholly driven onto the ends of the staves, and the barrel thus completed. The position of the end pieces and their operation are such that if their pivotal points in the supporting-lever were described on the same radius as the pivotal points in the links in the tightening-band the arms  $j$  would not be brought into proper position to operate upon the staves and complete the circle which the tightening-band should form; but by arranging the pivotal points  $i$  on a different radius from the pivotal points of the links  $k'$  the arms  $j'$  will be brought together in a proper manner, as shown in Fig. 3, whereby the tightening-band is brought to the form of a complete

circle, and said arms will bear against the staves adjacent thereto and force them into their proper position with relation to the other staves, which are operated upon with the links of the band. When the tightening-band is brought to its final position, the operating-lever  $D$  will be moved over by reason of its connection with the lever  $I'$  to a position where it will shift the friction-clutches, thereby causing the power-shaft and the screw-shaft to rotate in different directions and loosening the tightening-band on the barrel, it being understood that when the operation of the screw-shaft is reversed the nuts travel back into the position shown in Fig. 1 and carry with them the supporting-levers, which are connected with the nuts by the arms  $O$ . During this entire operation of the machine the spring retaining-ring  $L$  holds the tightening-band at all times in a substantially circular form, so that when the rocking frame is tilted the links will not fold upon themselves, but will always remain in proper position to be instantly dropped into place on a barrel.

The adjusting-screw  $Q$  may be arranged in the forward part of the supporting-frame to limit the downward movement of the rocking frame, so that it will always be brought into the proper position with relation to the barrel upon which the machine is operating.

Changes in the form and proportion of parts and in the general details of construction of my invention may be made without departing from the spirit or sacrificing the advantages thereof, and I would therefore have it distinctly understood that I reserve the right to make all such changes as fall within the spirit and scope of the invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of a tightening-band composed of a number of links pivotally connected together and a spring retaining-ring carried by the band for holding said band in a substantially circular form, substantially as described.

2. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of a tightening-band composed of links pivotally connected together, and a retaining-ring secured to the band for holding said band in a substantially circular form, substantially as described.

3. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of a tightening-band composed of links, bolts pivotally connecting said links together and projecting below the links, and a spring retaining-ring secured on the lower ends of said bolts, substantially as and for the purpose described.

4. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of a tightening-band con-



sisting of links, bolts pivotally connecting said links together and projecting below the links, a spring retaining-ring secured on the lower end of said bolts, and the nuts arranged  
5 on the ends of said ring to hold the ring in place and, at the same time, to permit of a limited play in the bolts, substantially as described.

10 5. In a barrel-heading machine, the combination with a rocking frame, of a tightening-band composed of a number of links pivotally connected together, a retaining-ring secured to the band for holding said band in a substantially stiff circular form, and means for  
15 tightening said band upon the barrel, substantially as described.

20 6. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of supporting-levers carried by said frame, a tightening-band consisting of a number of segmental links pivotally connected together, the end pieces on said band pivotally secured to the supporting-levers and the arms on said end pieces arranged between the levers and adapted to

overlap each other when the band is tightened, substantially as described.

7. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of supporting-levers carried by said frame, the tightening-band, the  
30 end pieces on said tightening-band pivotally secured in the bifurcated ends of said supporting-levers, the slots in said end pieces and pins passing through the said slots and  
35 the levers, substantially as described.

8. In a barrel-heading machine, the combination with a rocking frame and suitable operating mechanism, of a tightening-band formed of links, the end links being pivoted  
40 to closing means at points farther from the center of the loop made by the band than the pivots of the links, and said end links extending beyond the pivots on the closing means to  
45 lap laterally past each other, substantially as described.

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Witnesses:

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