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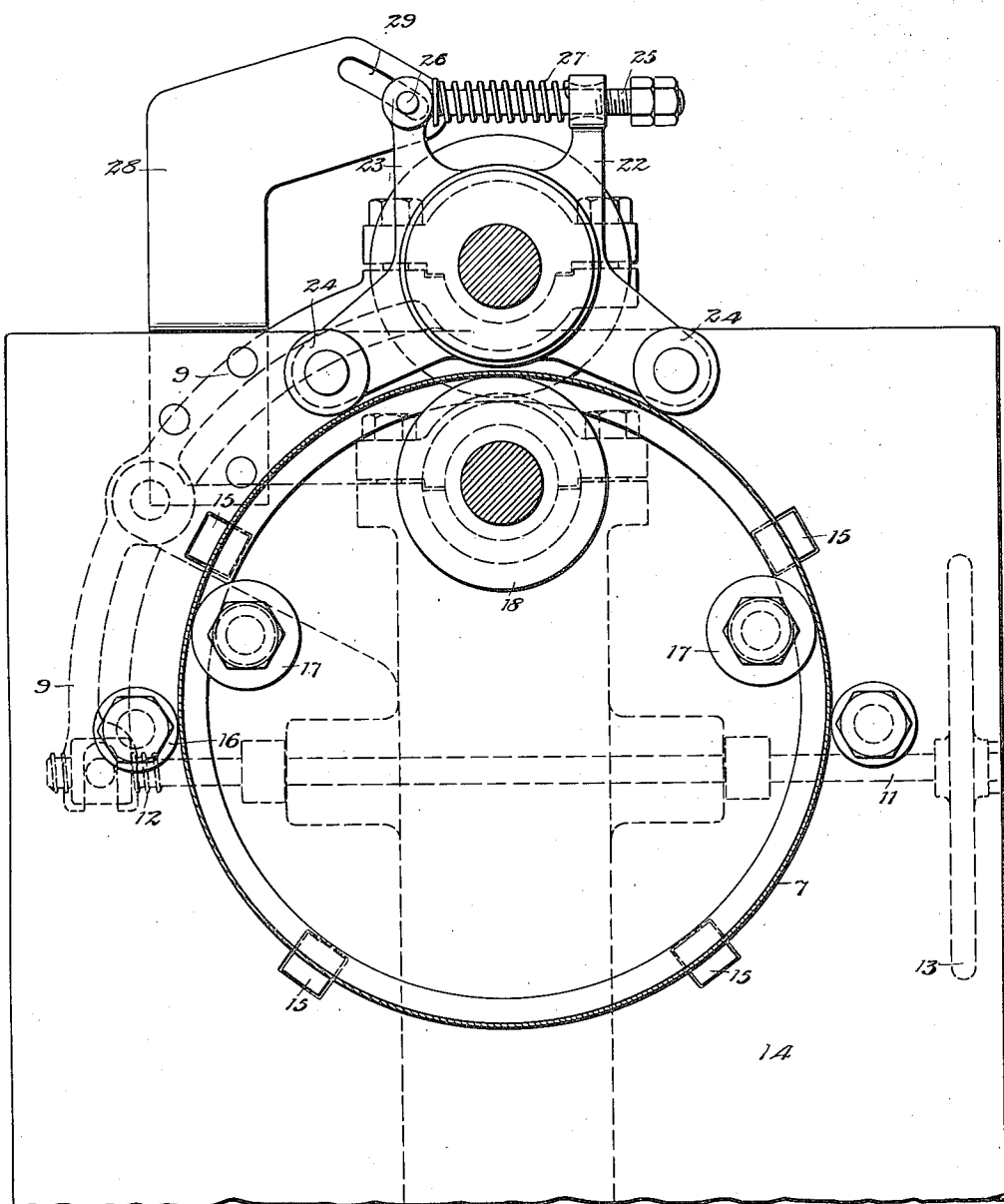
A. VAN A. FELTEN

MACHINE FOR SHAPING CYLINDERS

Filed March 11, 1922

3 Sheets-Sheet 1

Fig. 1.



WITNESSES

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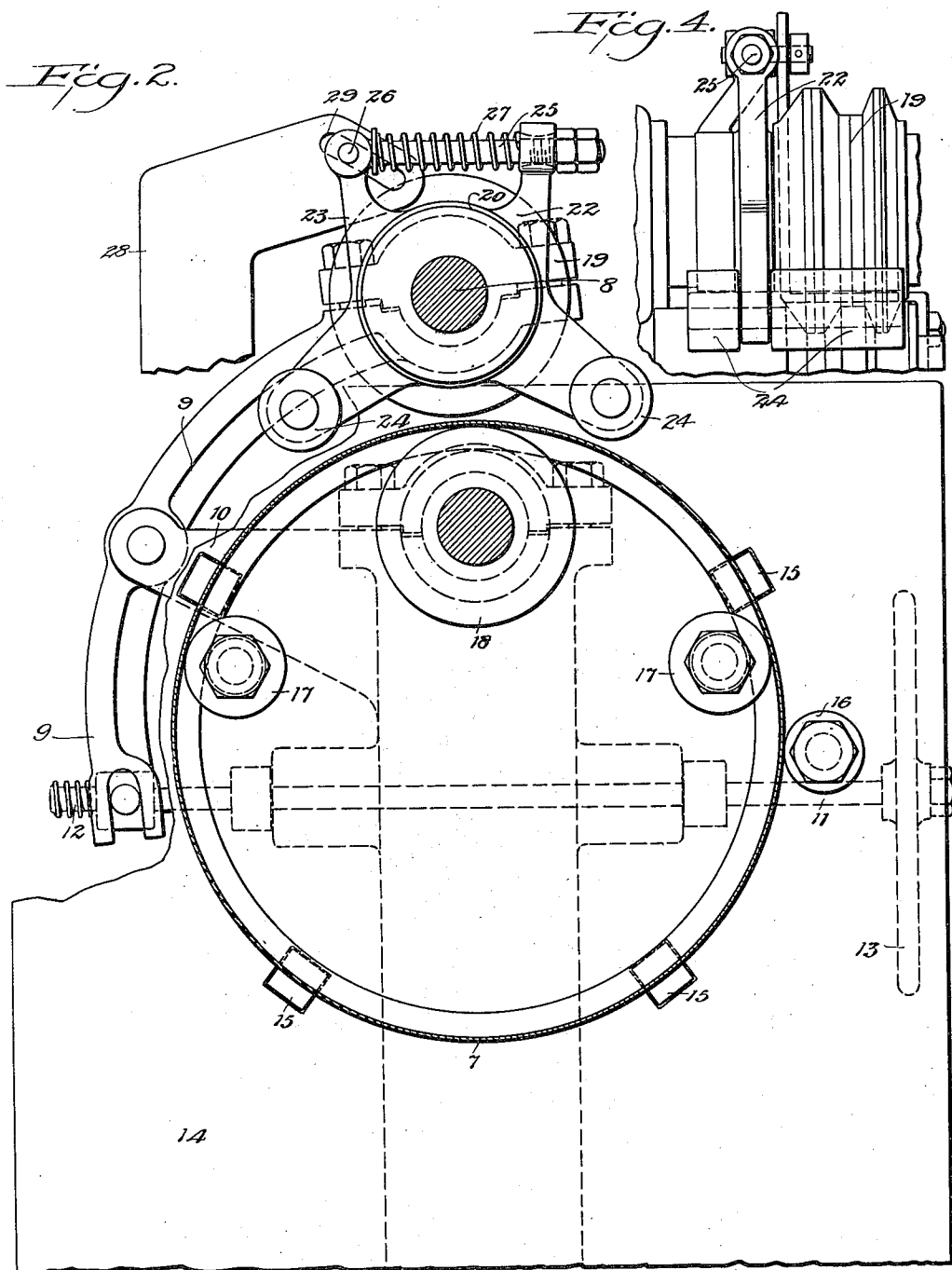
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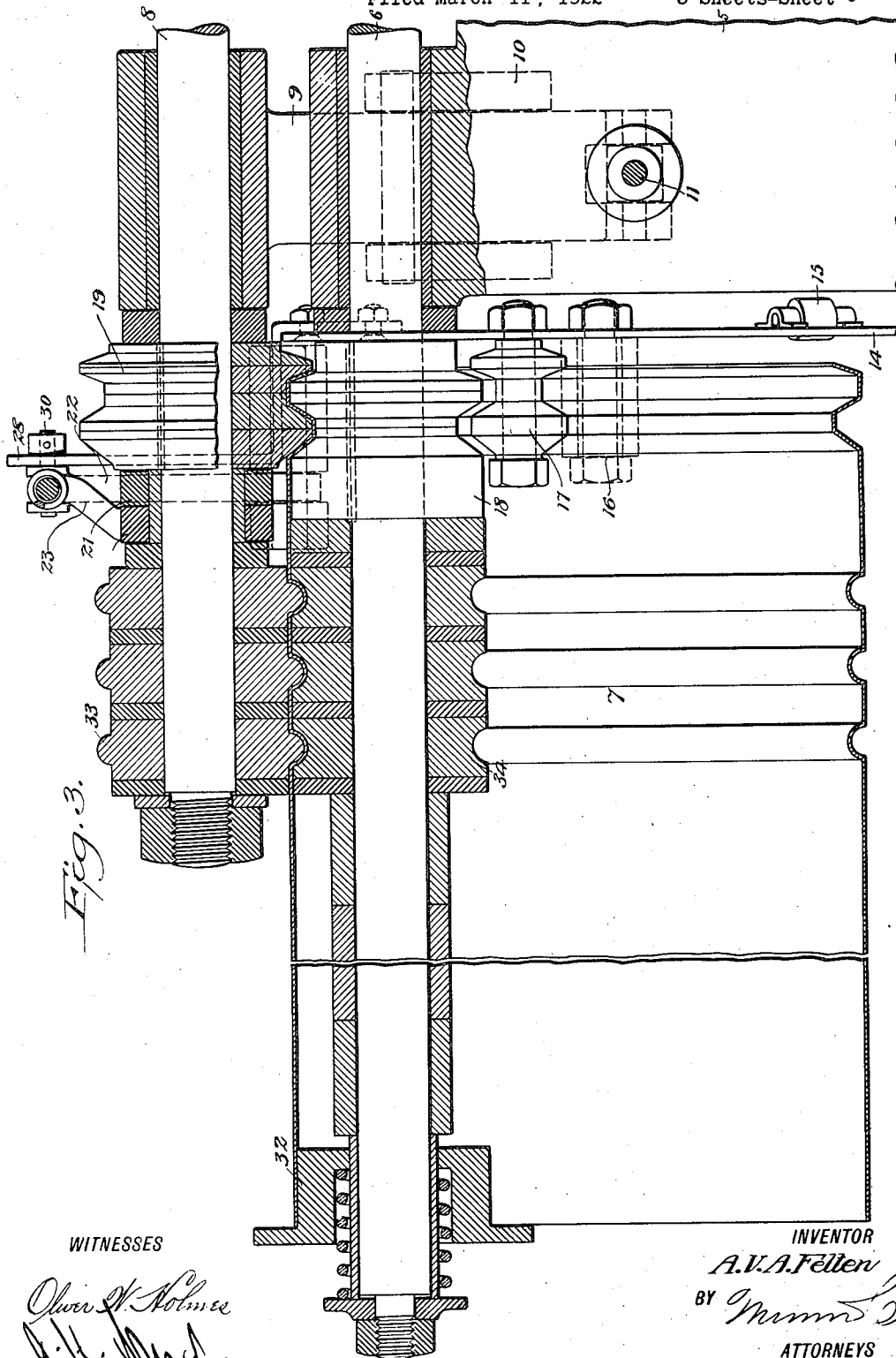
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

ABRAM VAN AKEN FELTEN, OF DANBURY, CONNECTICUT, ASSIGNOR TO THE NEW ENGLAND METAL BARREL CORPORATION, OF DANBURY, CONNECTICUT, A CORPORATION OF CONNECTICUT.

MACHINE FOR SHAPING CYLINDERS.

Application filed March 11, 1922. Serial No. 543,047.

To all whom it may concern:

Be it known that I, ABRAM V. A. FELTEN, a citizen of the United States, and resident of Danbury, in the county of Fairfield and State of Connecticut, have invented a new and Improved Machine for Shaping Cylinders, of which the following is a full, clear, and exact description.

My invention relates to a machine for shaping cylinders, and aims to provide a device of this character particularly adapted for use in connection with the making of metallic receptacles, although it is not necessarily limited to this particular adaptation.

It is an object of this invention to provide a machine of the type specified by means of which a cylinder may be treated to form a flange or corrugation in the body of the same, controlling means being also provided which will permit of an operator accomplishing this operation with that degree of nicety insuring the production of a perfect article.

A further object of this invention is that of providing a device of the character stated in which means will be provided serving at all times to retain the cylinder in proper position with the operating parts of the machine, so that the portion desired will be perfectly formed therein.

Further objects of this invention will become apparent in the annexed specification taken in connection with the drawings which latter illustrate one practical embodiment of the same, and in which;

Figure 1 is a sectional end view of a cylinder-shaping machine embodying my improved construction and showing the same in operation.

Fig. 2 is a view similar to Fig. 1 but showing the position assumed by the parts upon the operation being completed.

Fig. 3 is a sectional side view of the said machine, and

Fig. 4 is an enlarged fragmentary elevation of one of the forming rollers and associated mechanism.

It will be seen in these views that the reference numeral 5 indicates the base of the machine which serves to rotatably support a driving shaft 6 the latter carrying in a manner hereinafter described, the cylinder 7 which is to be operated upon.

As has also been shown, a second shaft 8

is rotatably carried by a yoke 9, and the latter is pivoted to a standard 10 carried by the base 5, and with a view of deliberately rocking the yoke it will be noted that I preferably employ a shaft 11 having one of its ends connected by screw threads 12 to the yoke 9, its opposite end carrying a hand wheel 13 by means of which the shaft 11 may be bodily rotated, it being noted that this rotation will serve to swing the lower end of the yoke 9, causing a corresponding movement on the part of the upper end thereof.

Further it will be noted that a shield 14 is provided, which shield is carried adjacent the outer end of the base 5, it being noted that the shaft 6 as well as the shaft 8 extends through and beyond the same. Also a series of radially disposed anti-friction rollers 15 are carried by the shield, and two pairs of supporting rollers 16 and 17 extend outwardly from this member, it being noted that these latter rollers are arranged in different planes for a purpose hereinafter specified.

Now with a view of providing a forming medium it will be seen that the shafts 6 and 8 carry female and male forming rollers 18 and 19 respectively which are preferably split and positioned at points adjacent the shield 14, and it will also be seen that a pair of collars 21 and 21 are carried by the shaft 8 at a point beyond the roller 19. These collars rotatably support crank arms 22 and 23, the lower end of each of which carries a pair of contact rollers 24. To provide means serving to normally press these latter rollers downwardly, I preferably utilize a bolt 25 having one of its ends swingingly secured as at 26 to the upper end of the upper crank arm 23, its body in slidable engagement with the upper end of the crank arm 22 while a spring 27 is disposed between these two arms and around the body of the bolt to press the said arms in opposite directions. Also to maintain the contact rollers 24 at all times equi-distant from the center of the shaft 6 it will be noted that a bracket 28 is connected to the body of the machine, and this bracket is formed with an inclined slot 29 within which the pin 30, carried by the crank arm 23 rides.

Thus in operation it will be appreciated that the cylinder to be operated on will have

its body 7 disposed over the extended end of the shaft 6 and the forming roller 18 carried thereby, it being of course appreciated that the shaft 11 is previously operated to swing the upper end of the yoke 9 upwardly to a point at which the forming roller 19 will not interfere with the application of the cylinder 7 to the operating portions of the machine as in Fig. 2. Also it will be noted that, incident to the disposition of the pairs of rollers 15 and 16 and 17, the body of the cylinder will pass between the same, and be held by these elements against any movement other than rotation.

The operator will now set the shafts 6 and 8 in rotation, and this rotation will obviously result in the body 7 being correspondingly moved, it being noted in this connection that the inner edge of the same is held out of contact with the shield 14 by the rollers 15.

The hand wheel 13 may now be operated to cause the inner end of the yoke 9 to be pushed outwardly, and this movement will cause its outer end to be moved inwardly towards the shaft 6. Incident to the fact that the said yoke carries the shaft 8 it will be appreciated that this movement will also cause the male forming rollers 19 and the contact rollers 24 to be moved towards the outer face of the cylinder or drum 7, it being noted, however that the crank arms 22 and 23 and the rollers 24 carried thereby are held in proper position incident to the proper guiding action afforded by the inclined slot 29 and the pin 30. Thus the rollers 24 will serve as stabilizing agents and incident to the fact that these rollers extend to both sides of the arms 22 and 23 it will be obvious that this stabilizing action will be enhanced to a maximum extent. A continuation of the movement of the yoke 9 will result in the contact rollers being pressed into engagement with the outer face of the drum, thus forcing the inner face of the same into intimate contact with the forming rollers 18 and the male forming rollers 19 will now engage the outer face of the drum to form the desired flanges adjacent the edge of the same.

Also in this connection it will be noted that if it is desired to corrugate the body of the drum 7, this may be accomplished by simply securing suitable male and female rollers 33 and 34 to those portions of the shafts 8 and 6 respectively extending beyond the forming rollers 18 and 19. Thus when this expedient is resorted to it will be appreciated that simultaneously with the co-operation of the rollers 18 and 19 a co-operation of the rollers 33 and 34 will be effected to provide the corrugations aforementioned. Further incident to the fact that the forming rollers 18 and 19 are preferably split it will be obviously understood

that any desired form of corrugation may be provided by simply detaching the major portions of these rollers from the bodies of the shafts and substituting that type of roller which is to effect the result desired.

Obviously the speed of rotation of the shafts 6 and 8 may be any desired rate, and an operator may also move the yoke 9 with that degree of speed which will insure the most efficient contact being established between the forming rollers and the face of the drum to be flanged and corrugated. Further it will be noted that by means of the spring pressed collar 32, that the cylinder or drum 7 will at all times be prevented from becoming distorted, aside from the fact that this member will initially serve to hold the inner edges of the drum in contact with the rollers 15 until such time as the flange begins to form in the body of the drum.

Further, incident to the fact that the rollers 17 are preferably shaped to correspond to the shape of the rollers 18 it will be noted that as the inner edge of the drum 7 moves out of contact with the rollers 15, incident to the flange being formed in the same, that the said rollers 17 will act as guides and will ride in the track provided by the flange portion of the drum 7 thus precluding any possibility of movement on the part of the body of the cylinder 7 other than purely rotational.

Finally it will be seen that after the contact rollers 24 have been moved initially into contact with the outer face of the cylinder to be operated upon by the action of the elements 25, 26 and 27 these elements will continue to press against the outer face of the drum until the forming roller 19 is moved to its nearest position with respect to the forming roller 18, the parts in this position being shown in Figs. 1 and 3.

It will be appreciated that numerous modifications of structure might readily be resorted to without in the least departing from the scope of my claims; which are:

1. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for movably supporting said second shaft, collars carried by said second shaft, crank arms secured one to each of said collars, a spring interposed between the upper ends of said arms for pressing the same in opposite directions, and cylinder contacting rollers carried by said arms.

2. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for movably supporting said second shaft, collars carried by said second shaft, crank arms secured one to each of said collars, a spring interposed between the upper ends of said arms for pressing the same in opposite direc-

tions, cylinder contacting rollers carried by said arms, and means for retaining said contact rollers at points equi-distant from the center of said first named shaft during co-operation of said forming rollers one with the other.

3. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for movably supporting said second shaft, collars carried by said second shaft, crank arms secured one to each of said collars, a spring interposed between the upper ends of said arms for pressing the same in opposite directions, cylinder contacting rollers carried by said arms, a bracket formed with an inclined slot and a pin carried by one of said crank arms and extending into said slot.

4. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for moving said shafts with respect to each other whereby to operate upon a cylinder interposed between said forming rollers, and a spring pressed collar carried by one of said shafts and bearing against one end of said cylinder to prevent longitudinal movement thereof relative to said shafts.

5. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for moving said shafts with respect to each other whereby to operate upon a cylinder interposed between said forming rollers, and a spring pressed flanged collar carried by one of said shafts and bearing against said cylinder to prevent movement thereof longitudinally of said shafts.

6. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for moving one of said shafts relative to the other, a shield disposed adjacent to said forming rollers, radially extending rollers movably carried by said shield, and a plurality of outwardly extending rollers rotatably carried by said shield.

7. A cylinder shaping machine including a shaft, a second shaft, co-operating forming rollers carried by said shafts, means for moving one of said shafts relative to the other, a shield disposed adjacent to said forming rollers, radially extending rollers movably carried by said shield, and a plurality of outwardly extending rollers rotatably carried by said shield, certain of said rollers lying in different planes.

8. A cylinder shaping machine including shafts, cooperating forming rollers carried by said shafts and between which a cylinder to be formed is mounted, means for moving one of said shafts relative to the other to

engage and disengage one of said forming rollers with said cylinder, a shield disposed adjacent said forming rollers, and a plurality of other rollers carried by said shield for contact with said cylinder, certain of said other rollers being arranged in different planes with respect to the remaining ones thereof.

9. A cylinder shaping machine including shafts, cooperating forming rollers carried thereby and between which a cylinder to be formed is mounted, a shield against which one end of said cylinder is engaged when being formed, and other rollers carried by said shield and engageable with said cylinder, certain of said other rollers being arranged in different planes with respect to the remaining ones thereof.

10. A cylinder shaping machine including cooperating forming rollers between which a cylinder is engaged, shafts carrying said rollers, a movable support for one of said shafts capable of adjustment to move said shaft relative to another of said shafts, guiding means carried by the first named shaft and engageable with said cylinder, and means for yieldably maintaining said guiding means in engagement with said cylinder.

11. A cylinder shaping machine including cooperating forming rollers between which a cylinder is engaged, shafts carrying said rollers, a pivoted support for one of said shafts movable to adjust the same relative to another of said shafts, and guiding means for said cylinder movable with the first named shaft when adjusted with respect to said other shaft and also having movements relative to said first named shaft.

12. A cylinder shaping machine including cooperating forming rollers between which a cylinder is engaged, shafts carrying said rollers, a pivoted support for one of said shafts movable to adjust the same relative to another of said shafts, guide rollers for said cylinder movable with the first named shaft when adjusted with respect to said other shaft, and means permitting relative movement between said guide rollers whereby the same are spaced equidistant from said other shaft when in engagement with said cylinder.

13. A cylinder shaping machine including cooperating forming rollers, shafts for carrying the same, a support pivoted intermediate its ends and carrying one of said shafts at one end thereof, and means engaging the opposite end of said support for moving the same about its pivot to adjust said shaft toward and away from another of said shafts.

ABRAM VAN AKEN FELTEN.