

E. F. BEUGLER.

MACHINE FOR EQUALIZING BARREL STAVES.

APPLICATION FILED MAY 22, 1908. RENEWED JAN. 18, 1912.

1,018,739.

Patented Feb. 27, 1912.

4 SHEETS—SHEET 1.

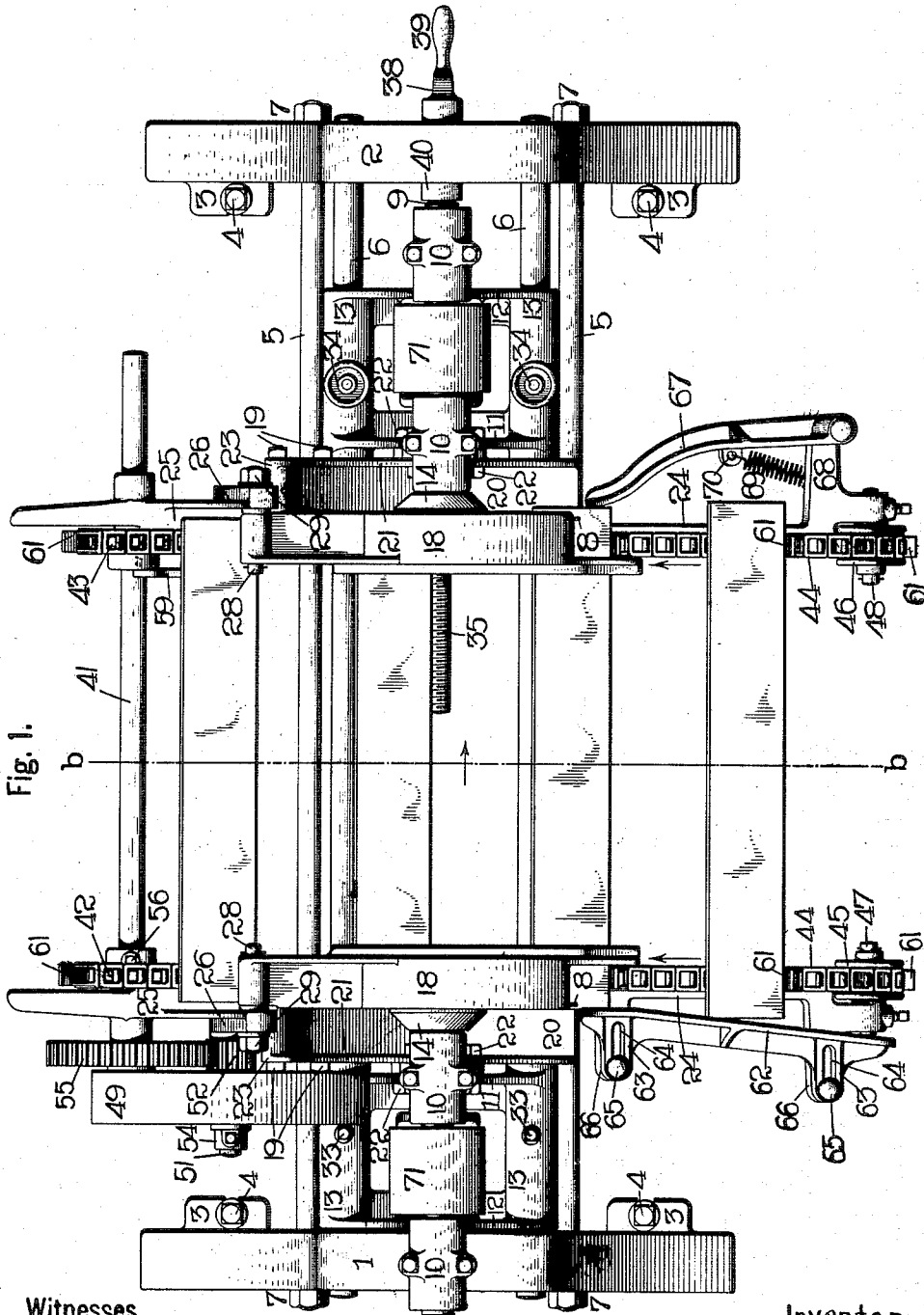


Fig. 1.

Witnesses.

L. M. Baugeter.
George A. Neubauer.

Inventor:

Edwin F. Beugler.

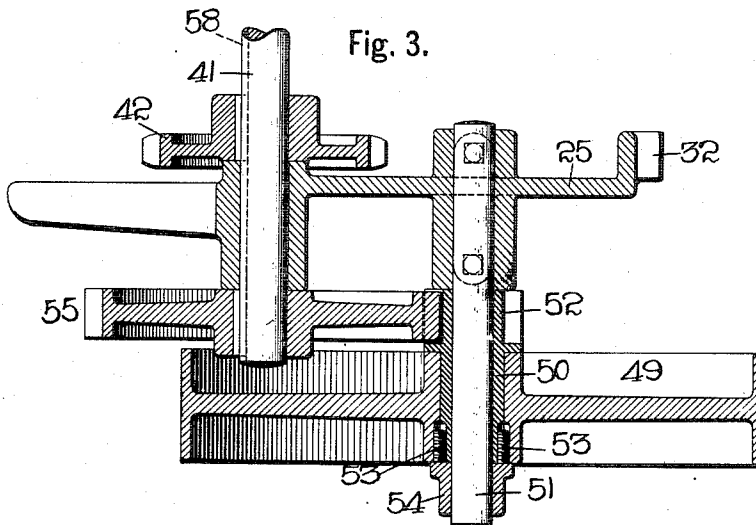
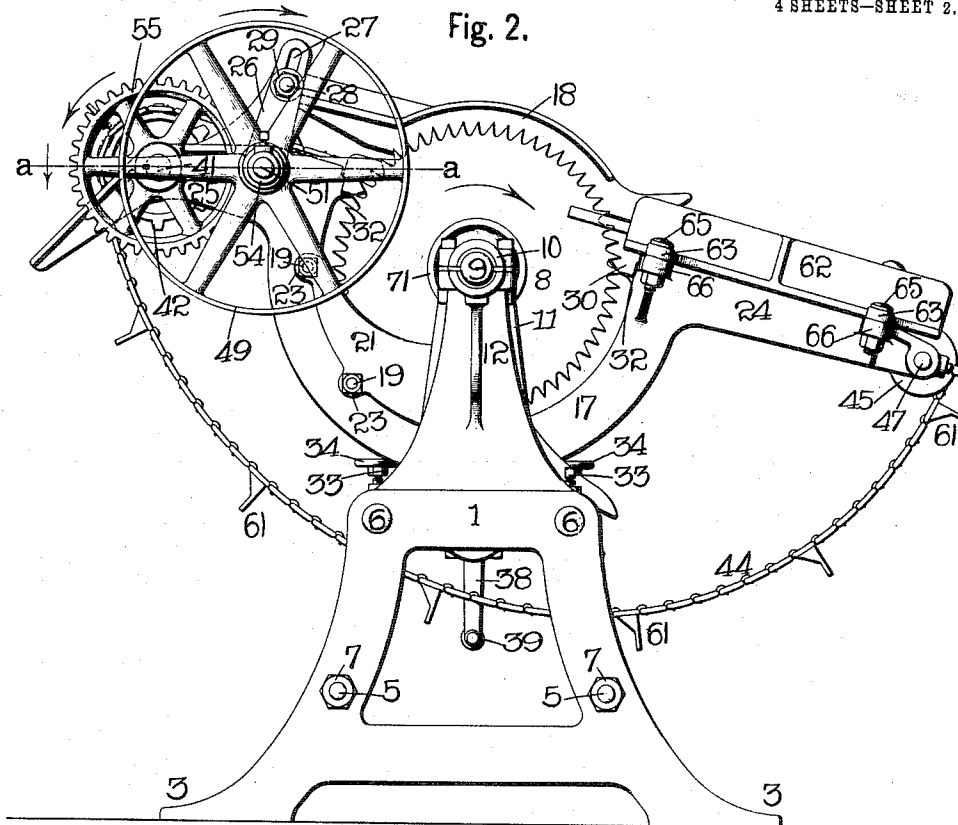
A. J. Sauer. Attorney.

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Witnesses.

L. M. Saugster.

George A. Neubauer.

Edwin F. Beugler. Inventor.

By

L. M. Saugster

Attorney.

E. F. BEUGLER.

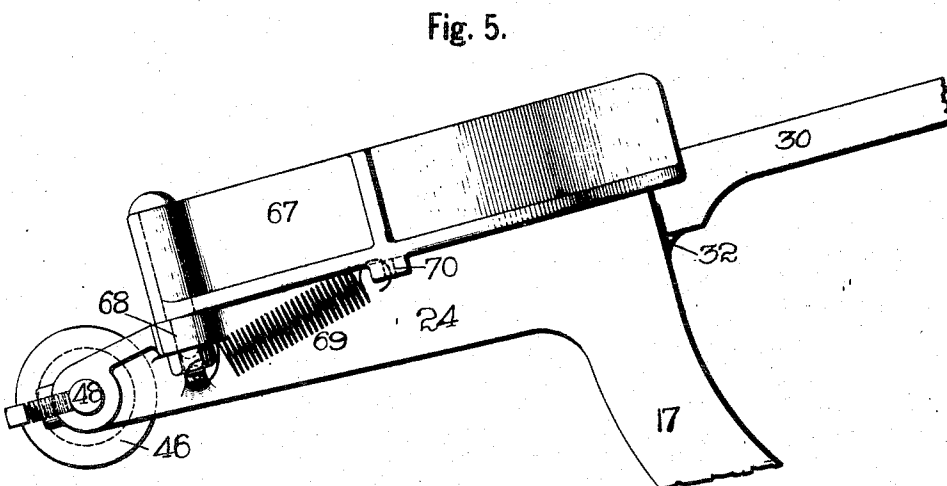
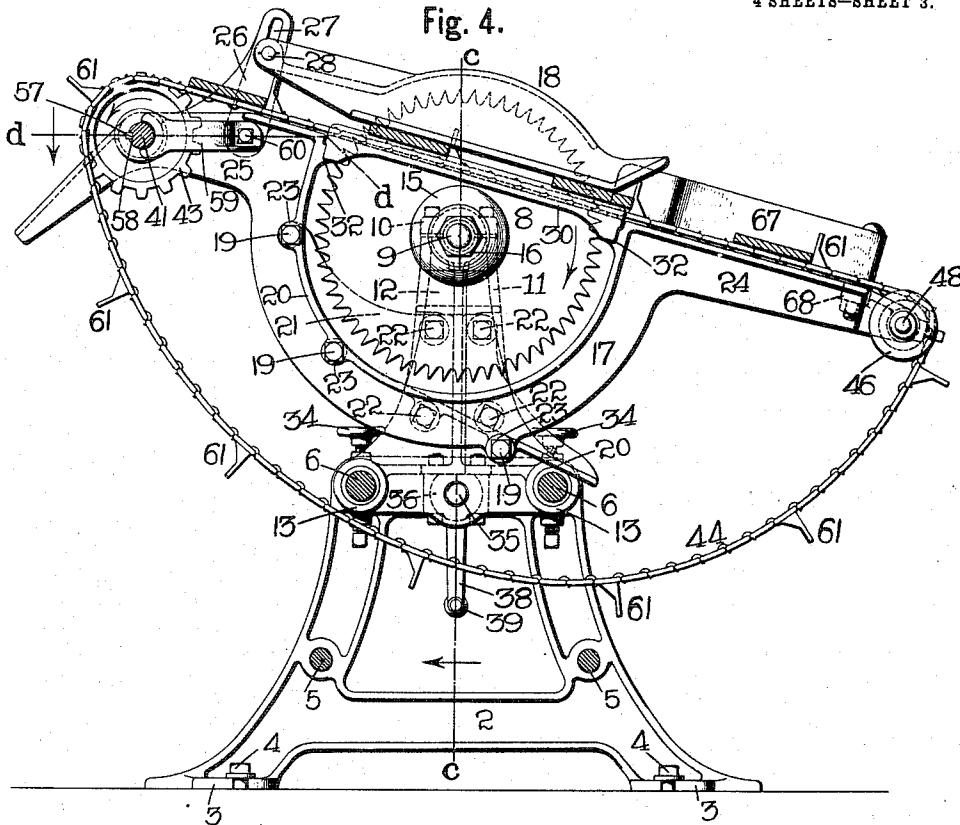
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Witnesses.

L. M. Sangster.
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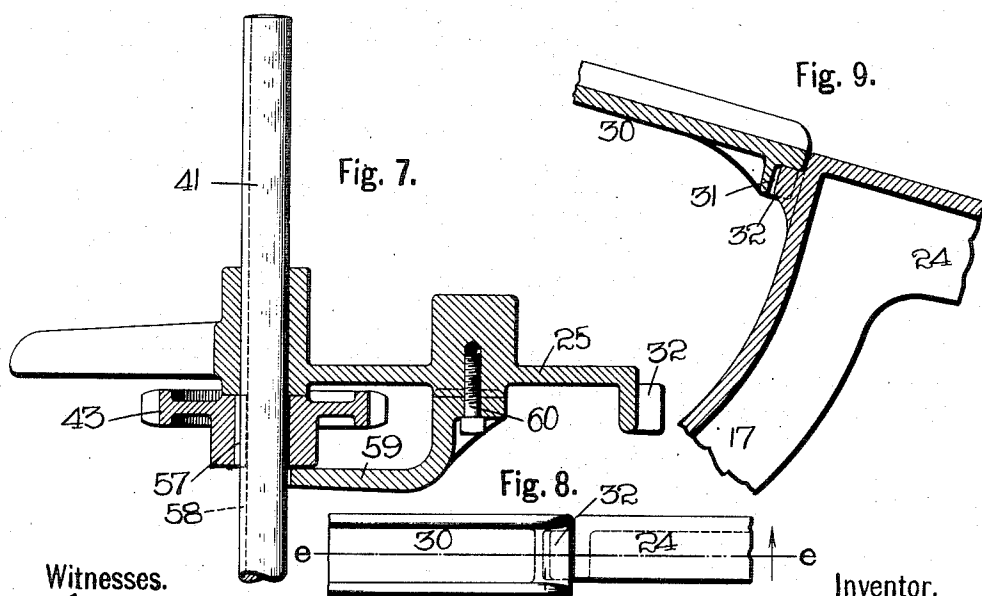
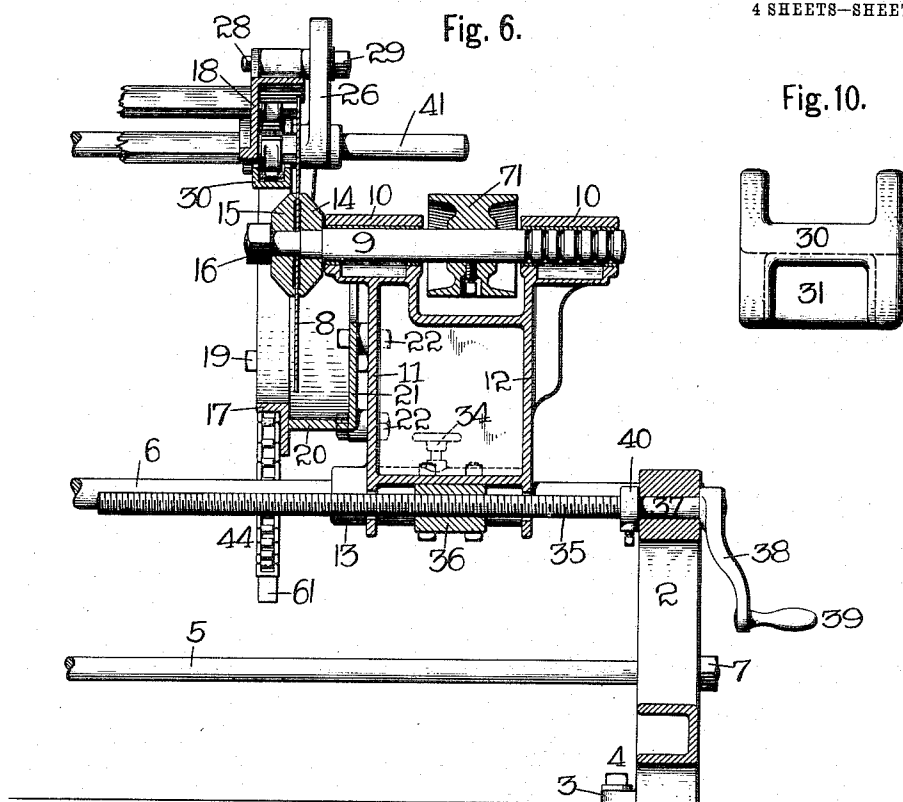
Inventor.
Edwin F. Beugler
By *L. M. Sangster* Attorney.

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4 SHEETS—SHEET 4.



Witnesses.

L. M. Gaugster.
George A. Neubauer.

Inventor.

Edwin F. Beugler.
By *Attorney.*

UNITED STATES PATENT OFFICE.

EDWIN F. BEUGLER, OF BUFFALO, NEW YORK, ASSIGNOR TO E. & B. HOLMES
MACHINERY COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW
YORK.

MACHINE FOR EQUALIZING BARREL-STAVES.

1,018,739.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed May 22, 1908, Serial No. 434,227. Renewed January 18, 1912. Serial No. 671,886.

To all whom it may concern:

Be it known that I, EDWIN F. BEUGLER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improved Machine for Equalizing Barrel-Staves, of which the following is a specification.

This invention relates to an improved machine for equalizing barrel staves and the principal object of the invention is to rapidly and accurately cut the ends of staves so that they will be exactly the same in length.

The invention also relates to certain details of construction, all of which will be fully and clearly hereinafter described and claimed reference being had to the accompanying drawings in which,—

Figure 1 is a top plan view of the improved machine. Fig. 2 is an end elevation of the improved machine. Fig. 3 is an enlarged horizontal section through the driving mechanism and a fragment of the machine on line *a a*, Fig. 2. Fig. 4 is a vertical transverse section through the machine on line *b b*, Fig. 1. Fig. 5 is an enlarged end view of a fragment of the machine frame, showing the pivoted stave guide. Fig. 6 is a central vertical longitudinal section through the movable end of the machine on line *c c*, Fig. 4. Fig. 7 is an enlarged horizontal section on line *d d*, Fig. 4. Fig. 8 is an enlarged plan view of a fragment of the machine frame and the bridge bar. Fig. 9 is a section on line *e e*, Fig. 8, showing the method of supporting the bridge bar. Fig. 10 is an enlarged detached end view of the bridge bar.

In referring to the drawings in detail, like numerals designate like parts.

The frame of the machine consists of two end members 1 and 2, of skeleton form, each of which is provided with enlarged feet 3, through which bolts 4, may be passed to secure the frame members to a floor or other suitable foundation as shown in Fig. 1, and cross connecting or tie rods 5 and 6, upon some of which portions of the machine parts are supported. The rods are preferably four in number being arranged in upper and lower pairs. The lower pair of rods 5, are threaded at their ends and fitted through openings in the side frame members and nuts 7, are screwed upon the projecting

threaded ends to securely lock the rods to the side frame members 1 and 2. The upper pair of rods 6, form slide rods upon which certain portions of the mechanism is supported. The equalizing mechanism consists of two opposed sawing mechanisms between which the staves are fed by suitable mechanism, the saws being separated the proper distance to cut or trim the opposite ends of the staves so that they will be of the desired length.

The two opposed sawing mechanisms are identical in construction so that a description of one will suffice for both. The sawing mechanism consists of a circular saw 8, which is mounted on an arbor 9, journaled in bearings 10, in the upper portion of the vertical end members 11 and 12, of a frame. Tubular members or sleeves 13, are formed at the lower ends of the members 11 and 12, which extend transversely and serve to connect the said members, and through which the upper pair of tie rods 6, pass. The saw 8 is fastened to the inner end of the arbor between two lock washers 14 and 15, by a lock nut 16.

A housing for the saw is provided consisting of a lower member 17, which is of substantially a U shape, and an upper member 18. The lower member is supported by a chute to which it is fastened by bolts 19. This chute is interposed between the member 17, of the saw housing and the inner vertical end member 11 of the saw frame. It has a horizontal bottom wall 20 which extends obliquely rearwardly and then curves upwardly, as shown in Fig. 4 and a vertical web or flange 21 through which bolts 22, are passed to secure the chute to the vertical end member 11 of the saw frame, see Fig. 6.

Enlargements or lugs 23 are formed upon the outer surface of the bottom wall 20 of the chute, through which the bolts 19 pass. This chute carries the sawdust and cuttings from the staves forward and deposits them in front of the machine whence they may be easily and conveniently removed when desired. The lower member 17 of the saw housing is provided with oppositely extending portions 24 and 25 which incline slightly from the horizontal and which form supports for the stave feeding chains.

The upper member of the housing is curved at one end to permit the entrance

of staves and is pivotally secured at the opposite end to a perpendicular arm 26 projecting upwardly from the portion 25 of the lower member. This arm has a vertical slot

27 in its upper end in which a pin 28 is secured by a nut 29, see Figs. 2 and 6. The upper member 18 is pivotally supported upon the pin 28 as shown in Figs. 1, 4 and 6.

A bridge bar 30 spans the space between the upper ends of the U shaped lower member 17, and serves to support the staves as they pass over the space. The bridge bar is merely dropped into place being provided at its end with recessed seats 31 in which inwardly projecting lugs 32 extending from the inner sides of the upper end of the U shaped frame member, fit to prevent lateral or longitudinal displacement of the bridge bar, substantially as shown in Figs. 8 and 9.

One of the saw mechanisms which is normally the stationary saw mechanism is fastened to the slide rods by set screws 33 while the other saw mechanism which is normally the adjustable saw mechanism is fastened to the slide rods by hand screws 34. Although the stationary saw mechanism is immovably fastened to the slide rods, all adjustments being obtained by moving the adjustable saw mechanism, it may in rare instances require change in position for some purposes which can be attained by loosening the set screws 33 and sliding the saw mechanism by hand.

The adjustable saw mechanism is moved on the slide rods to secure the required adjustment by means of a screw bar 35 which is threaded through a screw sleeve 36 attached to its frame, as shown in Fig. 6. The screw bar 35 has a plain surfaced outer end 37 which is journaled in a bearing opening in the side frame member 2 and a crank 38 is fitted upon the outer projecting end of the bar, see Fig. 6. The crank 38 is provided with a handle 39 by means of which it may be rotated to revolve the screw. To prevent longitudinal movement a collar 40 is fastened on the bar by a set screw. This collar fits against the inner surface of the frame member 2, see Fig. 6.

The stave feeding mechanism is carried by the frames of the two saw mechanisms, and consists of a long shaft 41 which extends between and is journaled in suitable bearings in the short projecting portions 25 of the lower members of the housings for the two saws, two sprockets 42 and 43 mounted on opposite ends of the shaft 41, and chains 44, which extend in parallelism with each other and with the circular saws, being supported on the sprockets 42 and 43 and idle flanged rollers 45 and 46, which are rotatably mounted on short shafts 47 and 48, attached to near the outer ends of the two longer portions 24 of the lower members of the housings, see Fig. 1. Both of the

chains are driven from a single pulley 49 which is mounted on a sleeve 50, rotatably supported on a short stationary shaft 51, attached to the frame of the stationary saw mechanism.

The sleeve is grooved out at intervals on its inner end to form a pinion 52, as shown in Fig. 3, and the pulley is locked rigidly to the sleeve by screws 53 which are screwed into openings formed partially in the pulley and partially in the sleeve, substantially as shown in Fig. 3. A collar is fitted on the outer projecting end of the shaft 51 and prevents longitudinal displacement of the pulley and pinion from the shaft, which covers and conceals the screws. The pinion 52 meshes with a gear wheel 55, mounted on the shaft 41. The pulley 49 is connected in the usual way to any suitable source of power. The sprocket 42 of the stationary member is fastened rigidly to the shaft 40 by a screw 56 and the sprocket 43 is unrotatably secured to the shaft 41 by an inwardly projecting key or feather 57 which fits in a longitudinal groove 58 cut in the surface of the shaft, see Fig. 7. A finger 59 which is fastened to the frame of the adjustable saw mechanism by a screw bolt 60 projects on the inside of the sprocket 43 as shown in Fig. 7, so that the sprocket is supported against independent longitudinal movement in either direction on the shaft 41, between a part of the frame and the finger 59. By this means the adjustable saw mechanism together with one half of the feed mechanism is slidable bodily on the slide rods 6 and the shaft 41 so that the adjustable saw and that half of the feed mechanism carried by its frame is always in alinement at any point of adjustment.

The chains 44, are each provided at intervals with lateral feed lugs 61 which catch against the edge of the staves and feed them toward the saws. The staves are centered at the beginning of their feeding movement by lateral guides between which they pass. These guides are of differing shape, one being attached to the longer portion 24 of the lower member of the housing of the stationary saw frame and the other yieldingly pivoted to the companion portion 24 of the adjustable saw frame.

The first mentioned guide which is bolted in place consists of a long metal block 62 which is provided with lateral extensions 63 having slots 64 through which bolts 65 are passed to secure the block to lateral lugs 66 formed on the portion 24 of the housing of the stationary saw, see Fig. 1. This permits a limited range of adjustment for the block 62 so that it may be brought into correct position and then locked rigidly in place with the bolts 65.

The guide attached to the frame of the adjustable saw consists of a curved bar 67

which is pivoted at its front end to a lateral extension 68 of the housing of the saw and a spiral spring 69 which is fastened at its respective ends to an intermediate eye lug 5 70 on the bar 67 and to the extension 68. The spring 69 serves to tension the bar against the ends of the staves and to force them toward the fixed guide so that all of the staves are centered exactly before they 10 reach the saws. Each of the saws 8 is rotated by a pulley 71, which is connected by a belt to a suitable source of power. The pulleys are mounted on the saw arbors 9 between their bearings 10, see Figs. 1 and 6.

15 The advantages of this improved construction are that one of the saw mechanisms is adjustable in its entirety and simultaneously with one half of the feed mechanism so that the saw mechanisms and feed mechanisms are always in perfect alinement, that 20 the staves are automatically centered with respect to the saws before reaching the same, and that all of the staves are cut so that they are exactly the same length.

25 I claim as my invention.

1. In a machine for equalizing staves, the combination with a main frame, saw frames mounted on the main frame, saws rotatably supported in said saw frames, housings inclosing said saws, and stave feeding mechanism supported from said housings.

2. In a machine for equalizing staves, the combination of a main frame, saw frames mounted on the main frame, saws rotatably supported in said saw frames, housings inclosing said saws; each of said housings consisting of a lower U shaped member supported from the saw frame, and an upper member pivoted at one end to one of the 40 upper terminals of the U shaped member and stave feeding mechanism supported from the lower members of the housings.

3. In a machine for equalizing staves, the combination of a main frame, saw frames 45 mounted on the main frame, saws rotatably supported in said saw frames, housings inclosing said saws; each of said housings consisting of upper and lower members and stave feeding mechanism supported from 50 the lower members of the housings.

4. In a machine for equalizing staves, the combination of a main frame, saw frames

mounted on the main frame, saws rotatably supported in said saw frames, chutes for the sawdust fastened to the saw frames and 55 housings for the saws, each consisting of a lower member fastened to one of the chutes and an upper member pivoted to the lower member.

5. In a machine for equalizing staves, the 60 combination of a main frame, saw frames mounted on the main frame, saws rotatably supported in said saw frames, chutes for the sawdust fastened to the saw frames, housings for the saws, each consisting of a 65 lower member fastened to one of the chutes and an upper member pivoted to the lower member and stave feeding mechanism supported from the lower members of the housings. 70

6. In a machine for equalizing staves, the combination of a main frame, saw frames mounted on the main frame, saws rotatably supported in said saw frames, chutes for the sawdust fastened to the saw frames, said 75 chutes each being provided with a horizontal bottom wall which extends obliquely rearwardly and then curves upwardly and a vertical flange through which bolts are fitted to secure the chute to the saw frame, and 80 housings for the saws each consisting of a lower member fastened to one of the chutes and an upper member pivoted to the lower member.

7. In a machine of equalizing staves, the 85 combination of a main frame, saw frames mounted on the main frame, saws rotatably supported in said saw frames, housings inclosing said saws; each of said housings consisting of a lower U shaped member supported from the saw frame and provided 90 with oppositely extending portions, a removable bridge bar which spans the space between the upper ends of the U shaped member, and stave feeding mechanism supported from the housings and including feed 95 chains which pass over and are supported by the bridge bars and oppositely extending portions of the lower members of the housings.

EDWIN F. BEUGLER.

Witnesses:

L. M. SANGSTER,

GEORGE A. NEUBAUER.