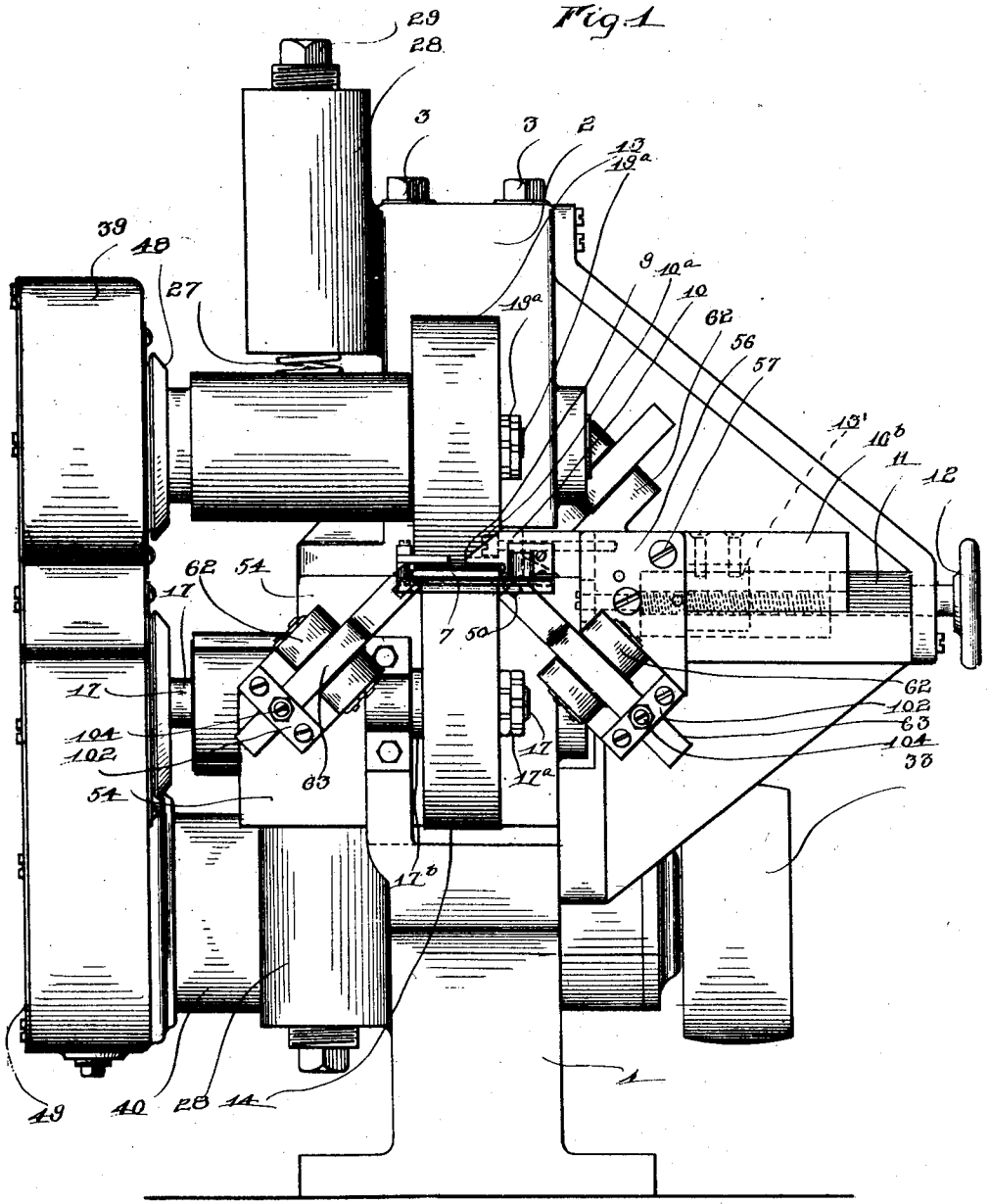
Nov. 20, 1928. 1,692,755

E. S. MIX ET AL

BEVELING MACHINE FOR STRIP MATERIAL

Filed Dec. 12, 1925 6 Sheets-Sheet 1

Fig. 1



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BY Davis & Simmons
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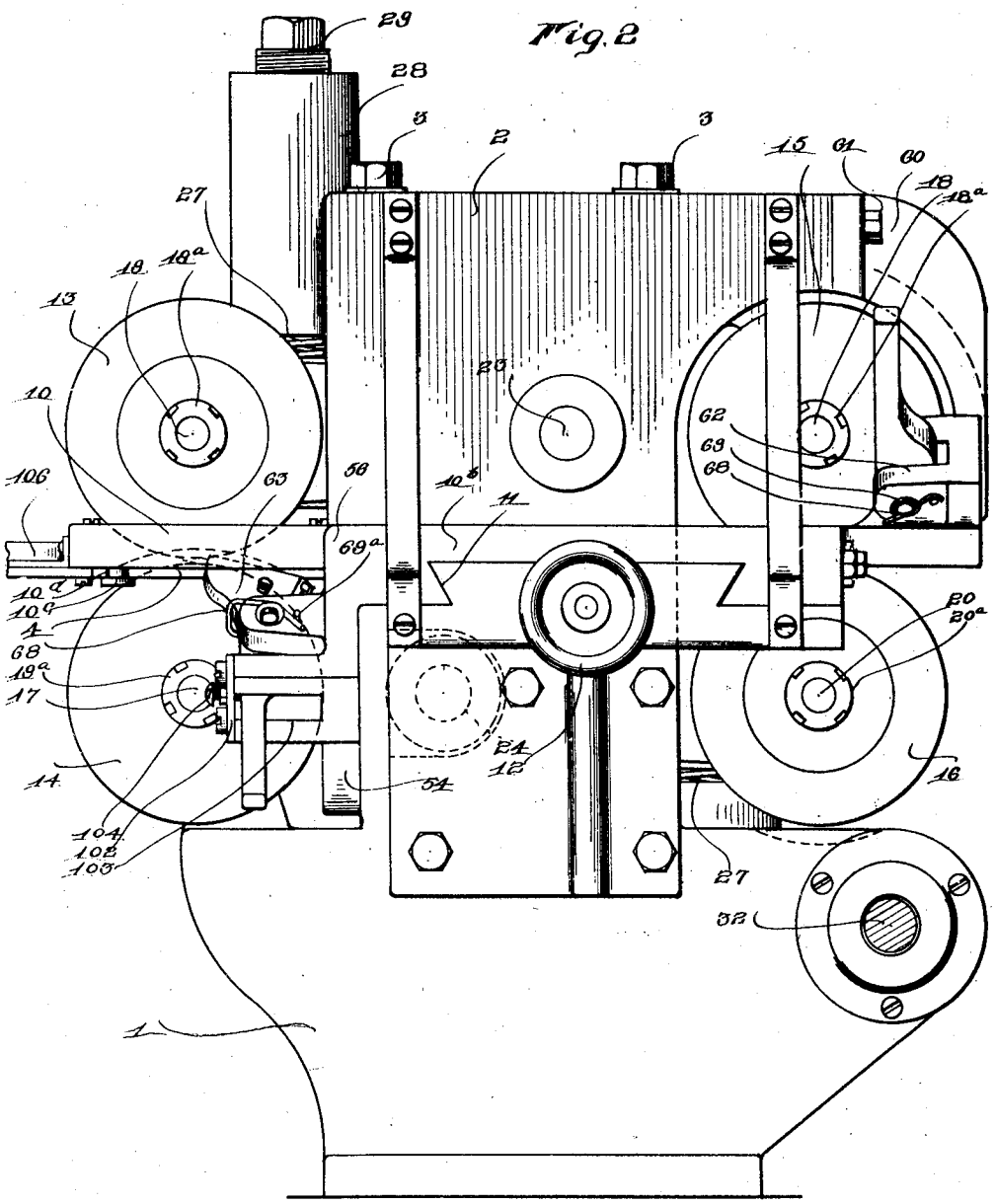
Nov. 20, 1928. 1,692,755

E. S. MIX ET AL

BEVELING MACHINE FOR STRIP MATERIAL

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Fig. 2



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Nov. 20, 1928. 1,692,755

E. S. MIX ET AL

BEVELING MACHINE FOR STRIP MATERIAL

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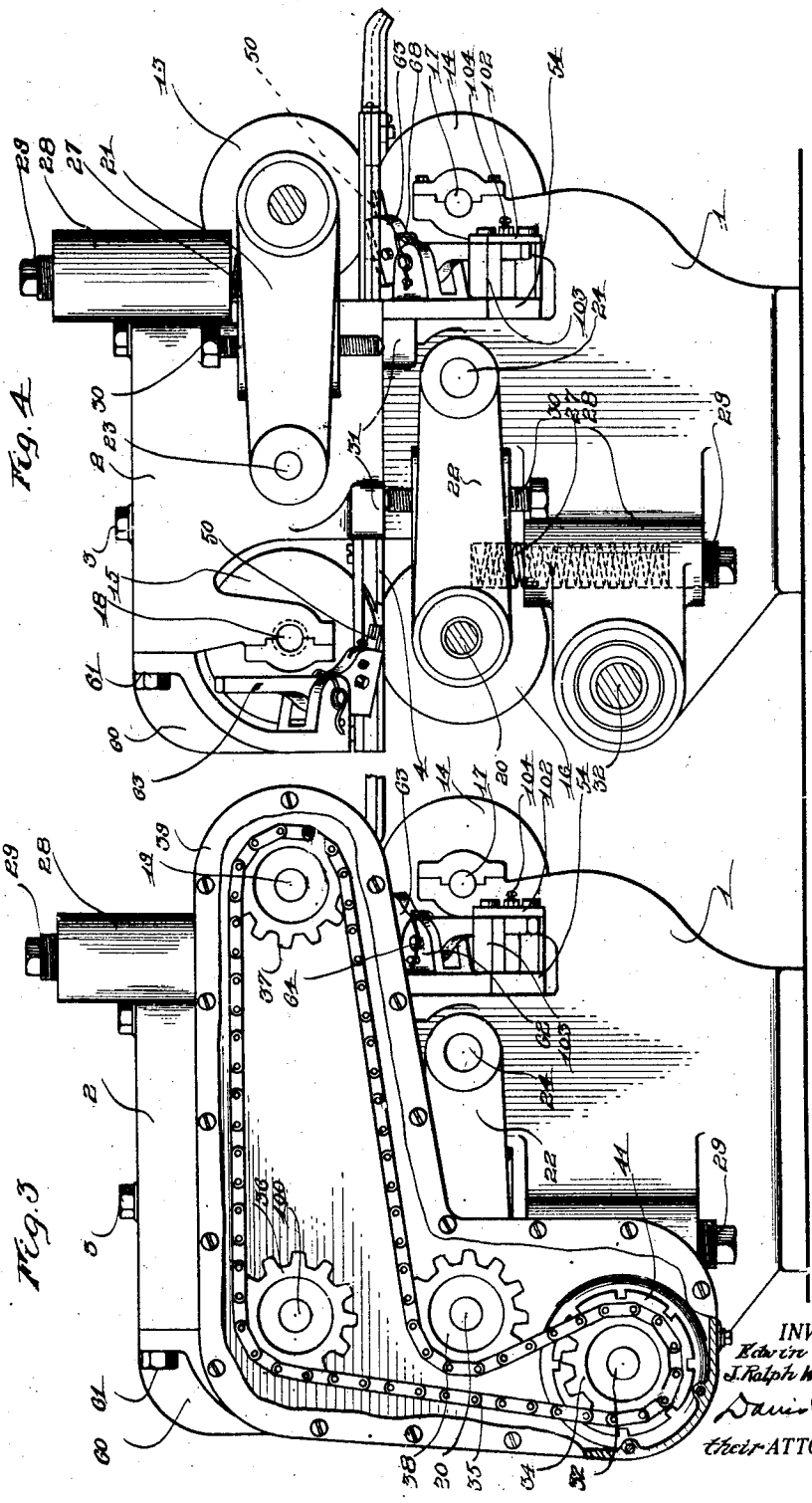


Fig. 4

Fig. 3

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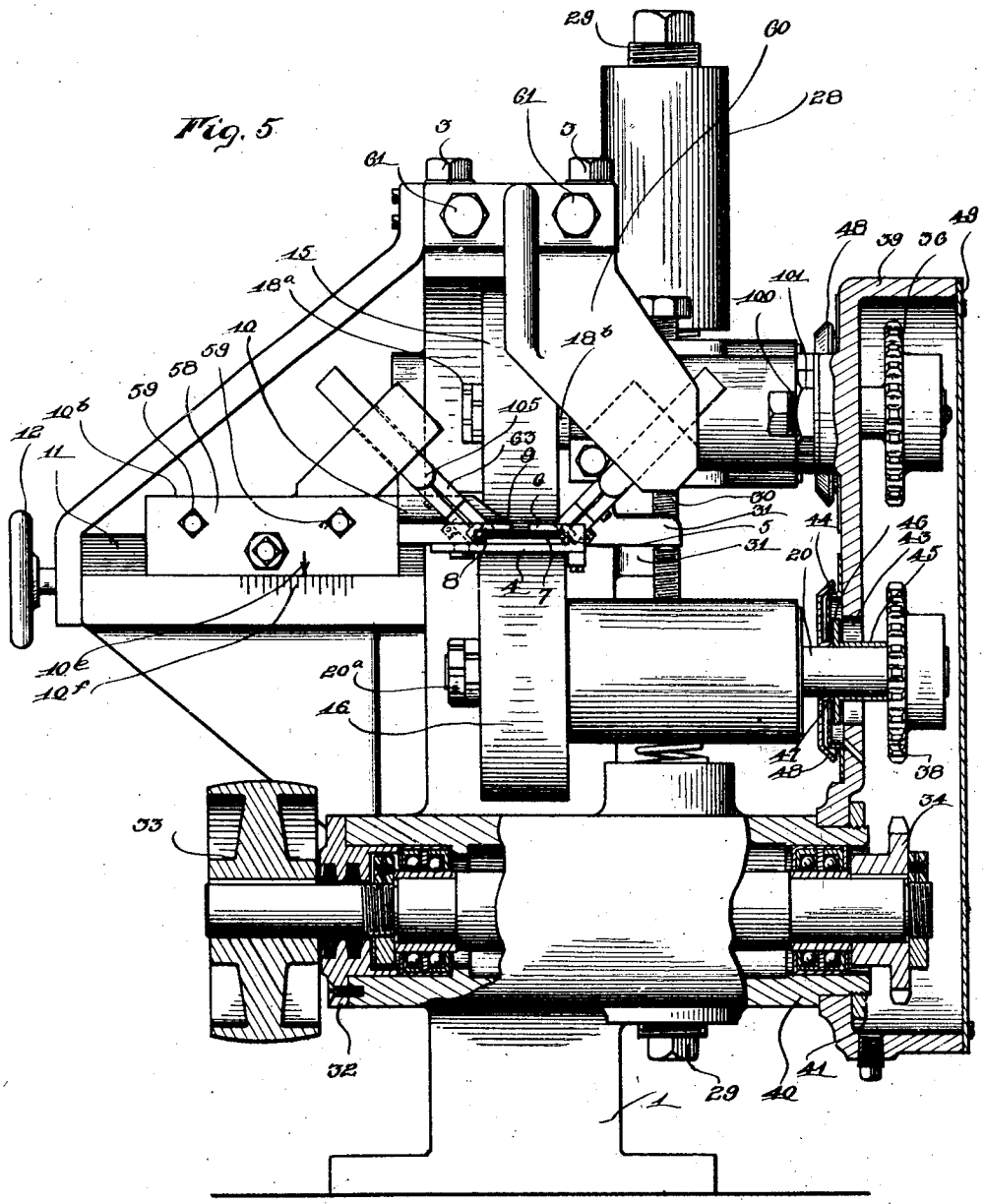
Nov. 20, 1928. 1,692,755

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BEVELING MACHINE FOR STRIP MATERIAL

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Fig. 5



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Nov. 20, 1928. 1,692,755

E. S. MIX ET AL

BEVELING MACHINE FOR STRIP MATERIAL

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Fig. 6

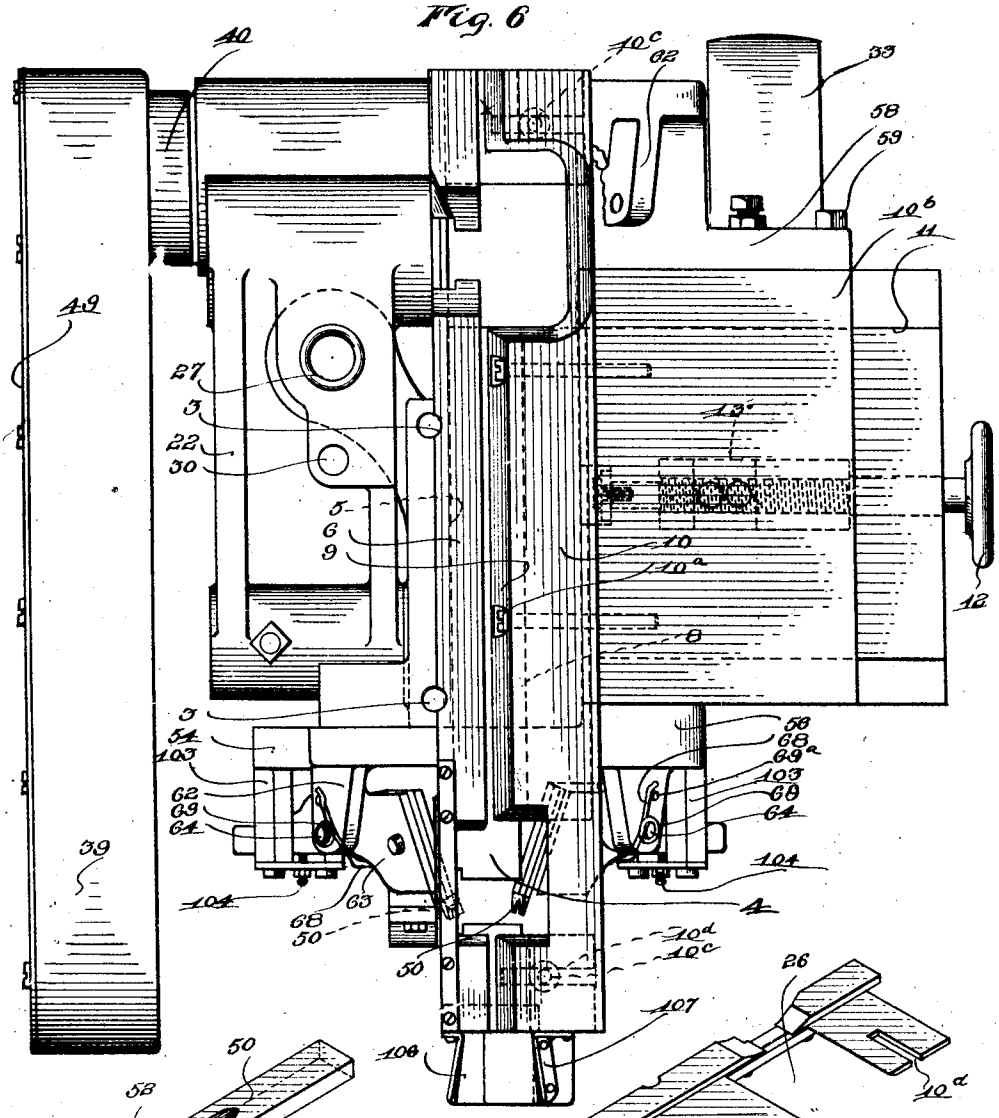


Fig. 7

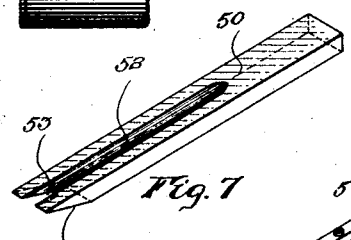
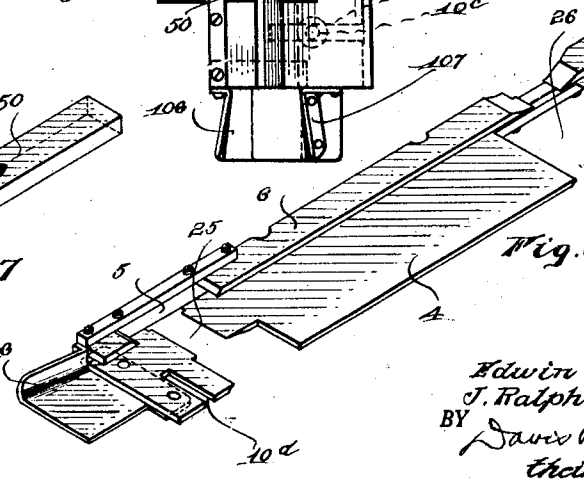


Fig. 8



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E. S. MIX ET AL.

BEVELING MACHINE FOR STRIP MATERIAL

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Fig. 9

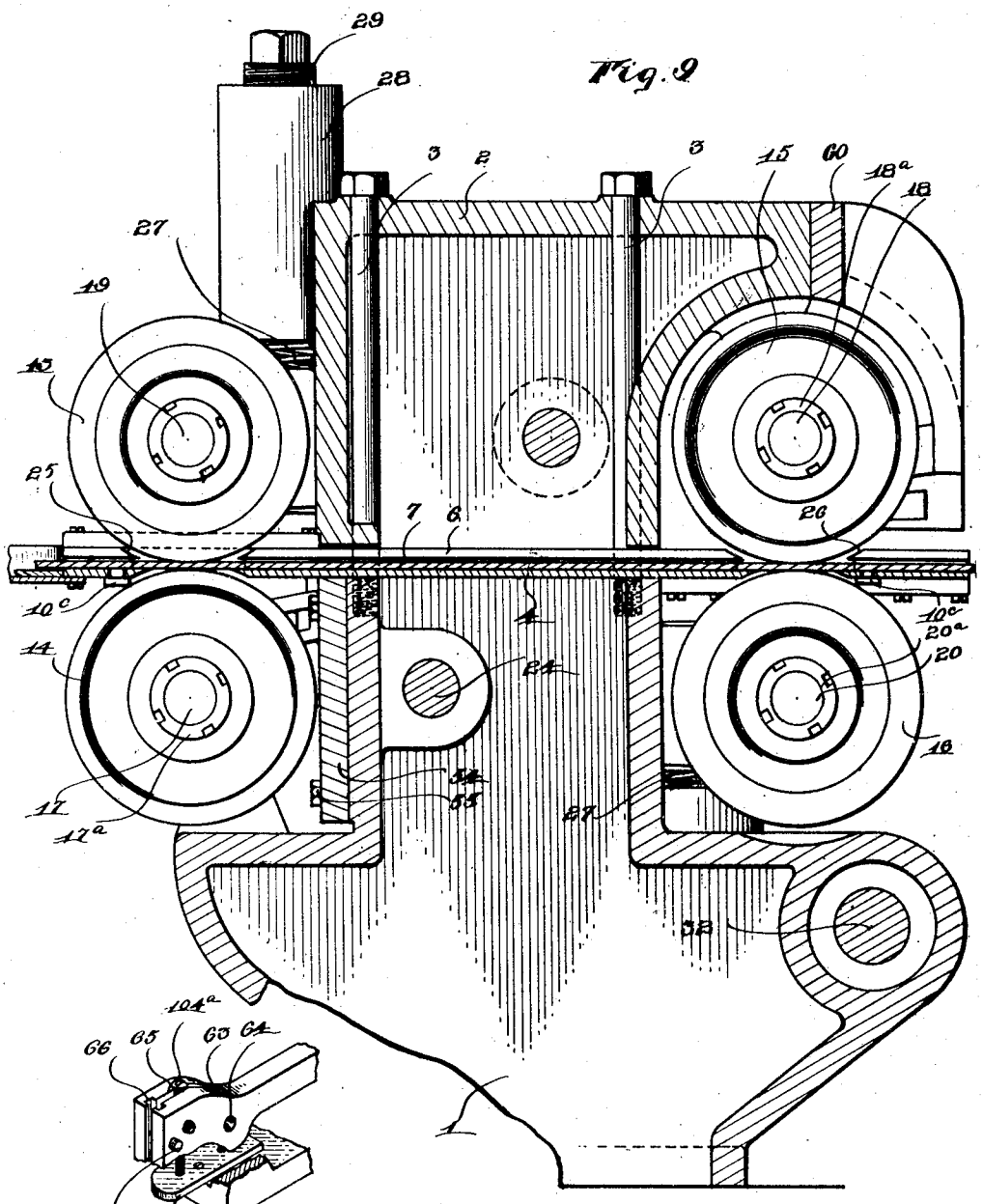


Fig. 10

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Patented Nov. 20, 1928. 1,692,755

UNITED STATES PATENT OFFICE.

EDWIN S. MIX AND JOHN RALPH WHITEHOUSE, OF ROCHESTER, NEW YORK, ASSIGNORS TO HICKOK MANUFACTURING COMPANY, INC., OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

BEVELING MACHINE FOR STRIP MATERIAL.

Application filed December 12, 1925. Serial No. 74,984.

The present invention relates to beveling machines for strip material and an object thereof is to provide a construction in which a uniform strip is taken from the strip material to provide a bevel notwithstanding inequalities in the thickness of the strip material. Another object of the invention is to provide a construction which may be readily adjusted to accommodate strips of material of different widths. Still another object of the invention is to provide in a beveling machine of the type in which the strip moves past a cutter, an improved cutter which will adapt itself to varying thicknesses, to provide a uniform beveled edge on the strip.

To these and other ends, the invention consists of certain parts and combinations of parts, all of which will be hereinafter described, the novel features being pointed out in the appended claims.

In the drawings:

Fig. 1 is a front view of a machine constructed in accordance with this invention;

Fig. 2 is a side view of the machine showing the adjustable slide;

Fig. 3 is a view of the opposite side showing the gear casing cover broken away to illustrate the driving means;

Fig. 4 is a similar view showing the driving chain and its housing removed;

Fig. 5 is a view of the rear or delivery end of the machine with parts in section;

Fig. 6 is a plan view showing the upper frame of the machine removed;

Fig. 7 is a detail view of one of the cutter knives;

Fig. 8 is a perspective view of one member of the guiding means;

Fig. 9 is a longitudinal central vertical section through the machine; and

Fig. 10 is a detailed perspective view, with parts broken away, of one of the rear cutters.

In the illustrated embodiment of the invention, 1 indicates the lower frame and 2 the upper frame secured to the lower frame by bolts 3. Between the two frames is arranged a guiding means for the strip of material to be beveled. In this instance, this guiding means is adjustable to accommodate strips of different widths. In the illustrated construction, the guiding means embodies a member consisting of a bottom plate 4 secured to the base frame 1 and having at one side a vertical guide 5 and overhanging portions 6 for cooperating with one edge of a strip of material 7. The other member of the guiding means consists of a member 10 formed with a vertical guide 8 and overhanging portions 9 for cooperating with the opposite side of the strip of material 7. The member 10 is adjustable and to this end is secured by bolts 10^a to a block 10^b which is through a guideway 11 mounted to move horizontally on the base frame 1, the movement in this instance being effected by a hand-screw 12 which operates in a nut 13′ on the block 10^a. The member 10 has its under side arranged so that it may lie flat against the upper surface of the bottom plate 4 of the other member of the guiding means. Headed pins 10^c on the member 10 operate in slots 10^d in the bottom 4 of the guiding means so that the two guide members do not provide a gap between them. It is apparent that by turning the screw 12, the member 10 will be shifted and as a consequence the distance between the vertical guides 5 and 8 will be changed. The amount of this adjustment may be determined by pointer 10^e moving with the block 10^b and cooperating with a scale 10^f.

The feeding of the strip through the machine may be effected in any suitable manner as by two pairs of rollers, the members of one pair being indicated at 13 and 14 and being arranged at the intake end of the machine, and the other pair indicated at 15 and 16 being arranged at the delivery end of the machine. The rollers 14 and 15 are mounted on shafts 17 and 18 respectively, the shaft 17 being mounted to turn on the frame 1 above the guiding means and the shaft 18 being mounted to turn on the frame 2 below the guiding means. The shafts 19 and 20 of the two rollers 13 and 16 are respectively mounted on swinging arms 21 and 22, pivoted, respectively, at 23 to the frame 2 and at 24 to the frame 1, the rams extending inwardly in opposite directions. The bottom of the guiding means is formed with openings 25 and 26 through which the rollers 14 and 16 operate in order to engage the under side of the strip, while the upper side of the strip is engaged by the rollers 13 and 15, the roller 13 cooperating with the roller 14 and the roller 15 cooperating with the roller 16.

The rollers 13 and 16 are urged toward the strip by springs 27 mounted in housings 28 which are closed at one end by adjustable plugs 29 whereby variable tension on the springs 27 may be obtained, the other ends of the springs seating in pockets in the arms 21 and 22. To limit the movement of the arms 21 and 22 toward the strip, adjustable screws 30 are provided, the ends of these screws forming abutments for cooperating with fixed abutments 31 on the frame of the machine. Rotation of the feed rollers is effected preferably from a drive shaft 32 which is journalled on the base frame 1 to extend from opposite sides thereof. Near one end this shaft has a pulley 33 and near the other end a sprocket wheel 34. The sprocket wheel 34 drives the chain 35 which passes around sprocket wheels 36, 37 and 38 arranged respectively on the shafts 100, 19 and 20. The shaft 100 is fixed and is secured by a nut 101 to a housing 39.

The housing 39 encloses the sprocket chain and wheels and is secured at its lower end to the cylindrical bearing 40 in which the shaft 32 turns, being held on said cylindrical bearing by a nut 41. The shafts 19 and 20 extend each through a slot 43 in the rear wall of the casing, and secured to the rear face of the rear wall adjacent each slot is a cupped or flanged member 44. On the shaft 19 or 20 one side of this flanged member is a sleeve 45 having a flange 46, while on the same shaft on the other side of the flanged member is a sleeve 47 having a flange 48, which has its edge deflected laterally over the cupped member 44. This arrangement permits the shafts 19 and 20 to partake of slight movements in order that the rollers 13 and 16 may accommodate themselves to material of different thicknesses. At the same time dust is excluded from the casing and lubricant is prevented from passing from the casing. The casing 39 has a removable cover plate 49 through which the interior of the casing may be reached.

The rollers 13 and 16 have greater width than the rollers 14 and 15 and preferably should be at least equal in width to the width of the strip being operated upon, so that the strip will be supported throughout its width while being engaged by these rollers. The rollers 14 and 15 being narrow expose the opposite edge of the strip on the sides opposite the rollers 13 and 16 for operation upon by the beveling cutters as will be hereinafter set forth. In order that the different rollers may be readily removed for the refitting of other rollers of different widths to operate on strips of different widths, each of the shafts 17, 18, 19 and 20 is supported at one end only and the rollers are held on the shafts 17 to 20 inclusive by nuts 17^a, 18^a, 19^a, and 20^a respectively, suitable washers such as shown at 17^b and 18^b being employed for maintaining the rollers in centered position with reference to the guiding means.

The beveling means comprises, in this instance, four cutters 50 each of which is a strip or bar of rectangular cross-section with one side at one end beveled at 51 and the opposite side grooved at 52 to intersect the bevel so as to provide a cutting edge 53 which is formed by the walls of the notch in the bevel due to the provision of the groove intersecting said bevel, as shown in Fig. 7. Each of the knives or cutters is supported so that the bevel portion is parallel with the line of travel of the strip while at the same time the beveled portion lies at an angle to the plane of the strip so that one corner of the strip is acted upon by the cutting edge 53, the beveling portion riding upon the strip and adapting itself to the thickness of the strip owing to the fact that the cutter is yieldingly supported, as will be hereinafter set forth. This arrangement not only provides a knife or cutter which may be readily sharpened by grinding the bevel edge 51 but it also provides a knife or cutter which cuts from the strip a uniform shaving or cutting so that if the strip to be beveled is of different thicknesses throughout its length, as is common occurrence, it will have a uniform bevel.

In the present instance, the four cutters 50 are arranged two at the entrance of the machine on the underside of the guiding means opposite the roller 13 for beveling the two lower corners of the strip, and two later on in the travel of the strip mounted above the strip opposite the roller 16 to operate upon the upper corner of the strip, so that the strip is beveled along all four corners while it is traveling through the machine. In this instance, one of the lower cutters 50 is mounted on a plate 54 which by bolt 55 is secured to the front of the machine below the guideway. The other cutter 50 at the front of the machine is mounted on a plate 56 which is bolted at 57 to the adjustable block 10^b. This adjustable block 10^b also supports a plate or bracket 58 bolted thereto at 59 and supporting one of the upper rear cutters. A bracket 60 bolted at 61 to the upper frame 2 supports the other upper rear cutter. The four plates or brackets 54, 56, 58 and 60 which support the four cutters are each provided with two ears 62 between which the knife holder 63 for each cutter or beveler is pivoted at 64. Each knife holder is provided with a slit 65 on one side of its pivot which is enlarged at 66 to provide a groove or adjustable way in which the knife of rectangular cross-section 50 is received. An adjustable screw 67 connects the opposite walls of the slit 65 in order to draw said walls in firm engagement with the cutters or bevelers 50 in order to hold the latter in its adjusted position.

With the object in view of holding the knives or bevelers 50 toward the strip with yielding pressure, each of the cutting holders 63 is acted upon by yielding means such as the U shaped spring 68 which bears against the knife holder to one side of its pivot and has its arms coiled at 69 about the pivot 64 and having their ends bearing against projections 69ª. These cutter holders 63 are extended on the opposite sides of their pivots in order that they may be pressed by hand against the action of the springs 68 for the purpose of moving the cutters away from cutting position to permit the introduction of the strip of material. The two plates 54 and 56 that support the two undercutters at the entrance of the machine are provided with plates 102 which are supported on two lugs 103 arranged on opposite sides of the extension of the cutter holders 63 and these plates carry adjustable screws 104, the inner ends of which cooperate with the cutter holders 63 to limit the movement of the cutters 50 toward the strip being acted upon, the screw 104 being adjusted to correspond to the thickness of the strip. The two upper and rear cutter holders 63, each have a screw 104ª mounted in the slide 65 of the cutter holder 63 and adapted to cooperate with the stop plate 105 arranged on the frame of the machine to limit the movement of the cutters toward the strip being acted upon, the screw 104ª being adjusted by loosening the screw 67.

With the end in view of guiding the work to the guiding means, there is provided an entrance guide, one member 106 of which is secured to the one side of the guiding means and the other member 107 is secured to the adjustable side or member 10. The sides of this entrance guide flare outwardly as shown in Fig. 6 and the bottom is deflected downwardly at its receiving end. This facilitates the entrance of the strip into the main guide.

In the operation of the invention a strip of leather is fed through the entrance guide until it engages the feed rollers 13 and 14. The feed rollers 13 and 14 hold the strip under compression while it is being acted upon by the first pair of belt knives or cutters which remove from each lower corner of the strip small strips of uniform thicknesses due to the fact that the cutters are mounted resiliently and adapt themselves to the surface of the belt. After passing the first pair of beveling cutters the strip continues its passage along the guiding means until the second pair of rollers 16 and 18 act thereon with the second pair of beveling cutters which remove from the upper two corners of the strip small strips of uniform thicknesses so that when the strip is discharged from the machine both its upper and lower edges will be beveled.

A machine constructed in accordance with this invention makes it possible to bevel the edges of a strip so that the bevel is uniform throughout the length of the strip, notwithstanding any quality in the thickness of the strip. This result is secured by yieldingly mounting the cutters which travel along the edge of the strip adapting themselves to the surface thereof. The cutters have faces engaging the strip adjacent the cutting edge which is in the form of a recess or notch in the face which engages the strip.

What we claim as our invention and desire to secure by Letters Patent is:

1. A beveling machine comprising a guide for a strip of material, means for feeding a strip along the guide, a cutter having a cutting edge and a portion which engages the material in immediate proximity to the cutting edge and means for yieldingly supporting said cutter for movement in a line at an angle other than a right angle to the plane of travel of a strip under the action of the cutter portion engaging the material in proximity to the cutting edge so that a uniform bevel is provided notwithstanding any variation in the thickness of the strip.

2. A beveling machine comprising two members forming between them guiding means for a strip to be beveled, one of said members being adjustable with reference to the other to accommodate strips of different width, two cutters each mounted in operative relation to one of the members on the guiding means, the one associated with the adjustable member of the guiding means being adjustable therewith.

3. A beveling machine comprising a guiding means for a strip of material to be beveled, two rollers cooperating with opposite sides of the strip opposite each other for feeding a strip of material along said guiding means, one of said rollers having at least the width of the strip to support the strip throughout its width, and the other of said rollers being less than the width of the strip and arranged with reference to the guiding means so that the opposite corners of the strip are exposed, and cutters acting on such exposed corners of the strip in immediate proximity to the points engaged by the two rollers.

4. A strip beveling machine comprising a guiding means embodying two members forming between them a surface over which the strip is guided, each member having surfaces for engaging the opposite edges of the strip and also portions overhanging the strip, means for feeding the strip along the guiding means, beveling means for two corners of the strip on one side thereof, a common support for one of the guide members and said beveling means, and means for adjusting said support to simultaneously adjust the beveling means and the guide member.

5. A strip beveling machine comprising, guiding means, means permitting the adjustment of the guiding means to accommodate strips of different widths, two rollers co-operating with opposite sides of the strips opposite each other, one of said rollers having a width at least the width of the strip to support the strip throughout its width and the other of said rollers being less than the width of the strip and arranged with reference to the guiding means so that opposite corners of the strip are exposed, shafts supporting said rollers, means for supporting the shafts so that one end of each shaft is free to permit the rollers to be removed without disturbing the shafts so that rollers of different sizes adapted to the width of the strip may be fitted to the shafts, and cutters acting on such exposed corners of a strip in immediate proximity to the points engaged by the two rollers.

6. A beveling machine for strip material comprising means for guiding a strip, two rollers opposed to each other and arranged to bear against the opposite sides of the strip, one of the rollers having a width substantially the width of the strip and the other roller being of a width less than the width of the strip to expose the strip at an edge thereof, and a yieldably mounted cutter arranged to cut the strip at the exposed edge thereof.

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