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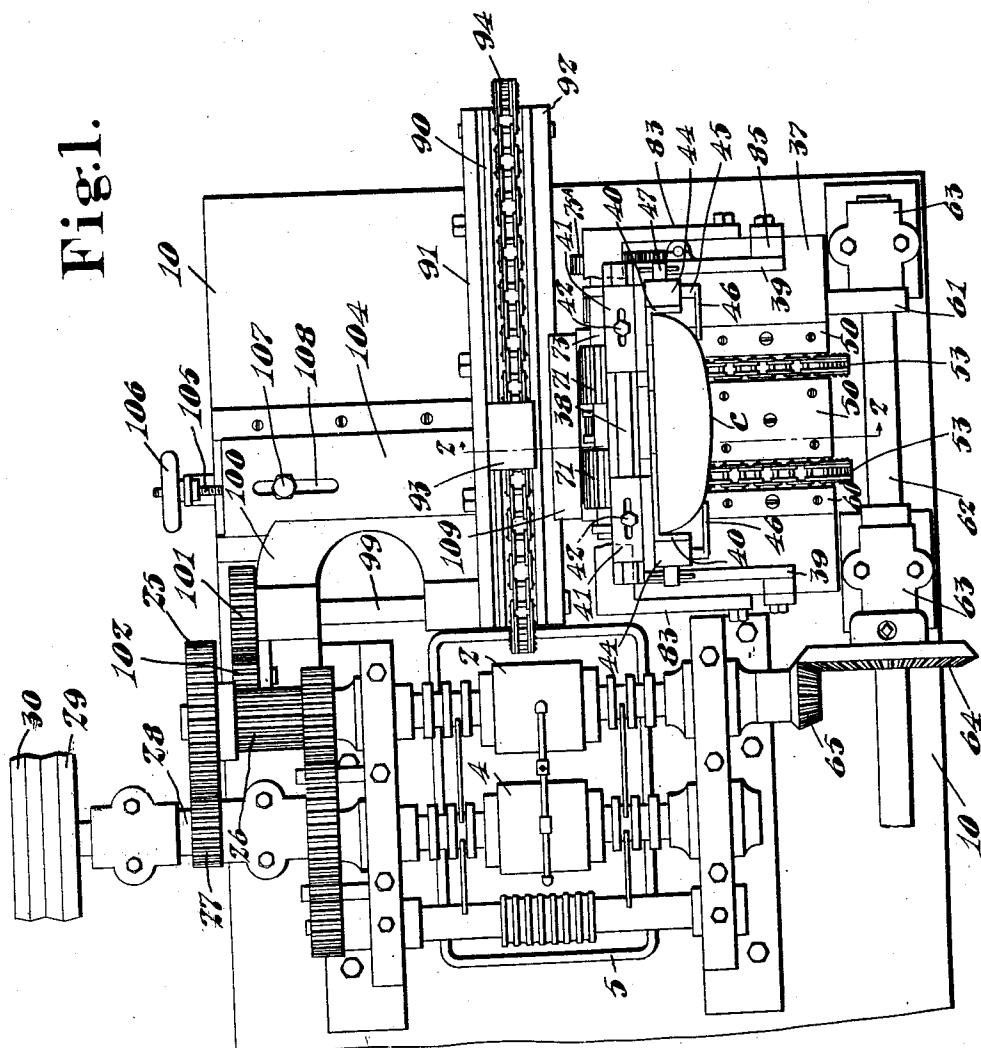
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MACHINE FOR OPERATING ON SHOE COUNTERS

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Fig. 1.



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MACHINE FOR OPERATING ON SHOE COUNTERS.

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This invention relates to machines for use in the manufacture of shoe counters and the like, and will be herein disclosed as embodied in a machine designed especially for tempering fibre counter blanks preparatory to molding such blanks. The present application is a division of application Serial No. 486,452, filed July 21, 1921.

The present invention is especially concerned with the problem of automatically feeding counter blanks from a stack to present them to some mechanism which is to operate on them. It is the chief object of the invention to devise a mechanism of this character which will be reliable in operation, will be adapted to handle a great variety of styles and sizes of counters without complicated adjustments, will be economical to manufacture, and in which wear and depreciation shall be reduced to a minimum.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

Referring now to the drawings,

Figure 1 is a plan view of a machine constructed in accordance with this invention;

Fig. 2 is a cross sectional view on the line 2—2, Fig. 1;

Fig. 3 is a side elevation of one of the links of the conveyor chain of the feeding mechanism;

Fig. 4 is a rear elevation of a portion of the magazine for the counter blanks and the mechanism for feeding the blanks, certain of the parts being shown in cross section;

Fig. 5 is a vertical, cross sectional view on the line 5—5, Fig. 4; and

Fig. 6 is a side view of a part of one of the conveyor chains.

Preliminary to a detailed description of the machine shown, it may be stated that the usual process of manufacturing a molded fibre counter consists in cutting a rough blank out of a sheet of fibre board, bevelling

the front and rear edges of the blank, "releasing" or skiving the end portions of the blank, then tempering or moistening the blank, and finally molding it. The automatic feeding of the blanks is required or is desirable in performing several of these operations. The machine shown is designed especially for performing the moistening or tempering operation, although the feeding mechanism shown is equally useful in other machines for operating on counter blanks.

The illustrated machine comprises four tempering rolls arranged in pairs with the members of each pair mounted one above the other. The upper rolls of the two pairs are indicated in Fig. 1 at 2 and 4. The lower rolls against which the rolls 2 and 4 bear are mounted to rotate in a pan 5 to which water is supplied. The upper and lower rolls of each pair are driven in opposite directions so that they operate to feed a counter blank between them, and the driving mechanism for these rolls includes gearing which is operated from the main driving shaft 28 carrying fast and loose pulleys 29 and 30, respectively.

This machine also includes a magazine for holding a stack of counter blanks C, Fig. 1, a feeding mechanism for feeding blanks one at a time from the bottom of this stack, and a chain 94, Fig. 1, to which the blanks are delivered and which operates to carry them to the tempering rolls.

The magazine for the blanks and the blank feeding mechanism are mounted on a frame comprising side pieces 36—36, Fig. 4, which are bolted to a bed 10, and the frame also includes a horizontal top 37, Fig. 2, secured to these side pieces. The magazine comprises two vertical, grooved members 40—40, respectively, which may conveniently be made of angle iron and which are spaced apart to receive the stack of counters C between them. Each of these members 40 has a bracket 41 secured fast thereto that is slotted to receive a bolt 42 threaded into a horizontal bar 38. This bar extends across the front of the magazine and has arms

39—39 at its opposite ends, which are pivoted at 39'—39' to legs secured fast to the opposite edges of the top or table 37, as best shown in Figs. 4 and 5. An ear 43 projects laterally from one of these arms 39, and a screw 244, Fig. 4, secured in the top 37, projects loosely through a hole formed in this ear, and is encircled by a spring 245 which supports the ear. A nut 246 threaded on the screw bears against the upper surface of the ear 43 and cooperates with the spring 245 in holding the bar 38 in an adjusted position with its lower edge at a fixed distance from the top 37. It will be seen from an inspection of Fig. 5 that the lower side of each bracket 41 is grooved to receive the upper edge of the bar 38 and this construction thus permits the two side members 40—40 to be adjusted toward and from each other to accommodate different lengths of counter blanks. Secured fast to each side piece 40 is a boss or holder 44, Fig. 1, to receive an arm 45 having a vertical plate 46 secured fast thereto. A thumb screw 47 threaded through the wall of the boss 44 secures the arm 45 in its adjusted position. The edges of these two plates 46—46 support the rear edges of the blanks C. It will be evident from an understanding of the construction just described that when the side pieces 40—40 are adjusted toward or from each other, their companion parts 46—46 are moved with them. At the same time each part 46 can be adjusted relatively to its co-operating part 40. This construction thus enables the magazine to accommodate a great variety of sizes of counter blanks.

Two dove-tail guideways or grooves are formed in the rear face of the bar 38 to receive gates, each consisting of plates 48 and 49, Fig. 5, which are secured together by screws and which are shaped at their lower ends to receive a piece 52 of friction material such as rubber, leather, or the like. These gates are free to move up and down relatively to the bar 38, the limits of this movement, however, being controlled by a pin 58 that projects from the plate 48 into a short slot formed by the bar 38.

The entire stack of blanks rests on plates 50 which all lie in the same horizontal plane and form the bottom of the magazine, these plates being supported by adjusting screws 51, Fig. 2, which are threaded into the plate 37 and serve as a convenient means for adjusting the level of the plates 50.

As shown in Fig. 1, the bottom of the magazine is divided into three parts, the central part being spaced from the members at opposite sides thereof by slots in which two conveyor belts or chains 53—53 are located. These chains are supported on front and rear pairs of sprocket wheels designated at 54 and 55, Fig. 2, mounted, respectively, on shafts 56 and 57 supported in

the opposite side pieces 36—36. A gear indicated diagrammatically at 58, Fig. 2, is mounted fast on the shaft 56 and is driven through additional gears 59, 60 and 61, the last of these gears being mounted fast on a shaft 62, Figs. 1 and 2, which is supported in bearings 63—63 secured to the base 10. This shaft is driven through bevel gears 64 and 65, Fig. 1, the latter gear being mounted fast on the end of the shaft which supports the roll 2.

This mechanism imparts a continuous motion to the chains 53—53 and it will be seen that each of these chains carries, at intervals a feeding link 66, the construction of which is best shown in Fig. 3. The upper surface of each of these links includes a straight horizontal portion 67, an upwardly inclined portion 68, and an abrupt shoulder or hook 69 located at the upper end of the inclined portion 68. The rearward edges of the counter C are bevelled and as the upper reach of each chain 53 moves forward and one of the links 66 comes in contact with the bevelled edge of the bottommost counter blank in the stack, the edge of this blank will ride up on the incline 68 and be caught by the hook or tooth 69. This construction ensures the accurate engagement of each blank by the hook 69, notwithstanding slight bends or irregularities in the shape of the blanks. These feeding teeth 66 are so spaced on the two chains 53—53 that the corresponding hook of each chain will simultaneously engage the rearward edge of a counter, and as the chains continue to move forward these hooks will carry the lowermost counter blank out from under the other blanks in the stack, the next adjacent blank being prevented from moving with the lowermost blank by its contact with the friction members 52—52 of the gates 49—49. That is, the bar 38 is adjusted so that the lower edges of the parts 52 are normally just above the surface of the plates 50, leaving a slot only wide enough to permit the entrance of the bevelled edge of the lowermost blank. As this blank is carried forward by the hooks 69—69, the contact of the inclined edge of this blank with the parts 52—52 lifts the gates 49—49 slightly, this movement permitting the lowermost blank to be carried forward out of the magazine. As soon as the blank has passed out from under the gates they can drop by gravity into their original positions. This mechanism thus operates with great certainty to prevent the feeding of more than one blank at a time.

When the lowermost blank in the magazine has been fed forward, as above described, it is delivered by the conveyor chains 53—53 to upper and lower feed rolls 71 and 72, respectively. The upper roll is in two sections, both fast on a shaft 73, while

the lower roll is secured fast to a shaft 74, Fig. 2, having a gear wheel 74 fixed thereto which is driven through a train of gears indicated at 76, 77 and 78. The last of these
 5 gears is fast on a shaft 79 having a gear 80 fixed thereto which meshes with another gear 81 mounted fast on the sprocket wheel shaft 56. In order to allow the upper feed roll 71 to move up and down relatively to
 10 its cooperating lower roll 72, the shaft 73 is mounted in the upper ends of two inclined links, one of which is shown at 83, Fig. 2, this link being pivoted on a bolt 85. The other link is similarly arranged. A pinion
 15 75* is secured fast to the shaft 73 and is driven by a gear fixed to the shaft 56.

The feed rolls 71 and 72 revolve at a greater peripheral speed than the chains 53 and they take the counter blank out of the
 20 hooks 69 and shoot it forward on to a supporting surface 90, Fig. 2, formed partly on an upright plate 91 and partly on a bracket 92 bolted to said plate. The fact that the feed rolls revolve at a higher speed
 25 than the chains, enables the rolls to draw the blanks forward out of the hooks and thus prevents the hooks from notching the rearward edges of the blanks. In Fig. 2, C' designates a counter resting on this support.
 30 A shield 93 secured fast to the plate 91 overlies the portion of the surface 90 on which the counter is delivered and prevents the counters from being thrown over the upper edge of the plate 91. A conveyor
 35 carries these counters forward and delivers them to the wetting or tempering rolls previously described. This conveyor consists of a sprocket chain 94 provided with feeding teeth 95, this chain being supported on
 40 sprocket wheels 96 and 97 mounted near the opposite ends of the upright plate 91, and the upper reach of the chain runs in a groove 98, Fig. 2, formed in the bracket 92. The sprocket wheel 97 is mounted fast on
 45 the end of a shaft 99 supported in bearings formed in a bracket 100, and this shaft also has fixed to its opposite end a gear 101, Fig. 1, which meshes with an idler gear 102 that is driven by the barrel pinion 26. The pinion
 50 26 is fast on the shaft of one of the wetting rolls and carries a gear 25 which is driven by a pinion 27 mounted on the driving shaft 28. This mechanism thus imparts a continuous movement to the chain
 55 94, and the driving mechanism for this chain is positively connected with the driving mechanism for the feeding chains 53—53. The movements of these two chains are so timed that the conveyor 94 carries
 60 the counter blanks forward and delivers them to the wetting rolls as rapidly as the chains 53—53 feed the blanks out of the magazine.

The upright plate 91 which supports the
 65 conveyor chain 94 is secured fast to the for-

ward end of a slide 104, Fig. 1, which is mounted in a dove-tail groove formed in the bed plate 10. The bracket 100 also is secured fast to, or formed integral with,
 70 this slide 104. A threaded stem 105 is secured to the rearward edge of the slide and is engaged by a hand wheel 106 which is mounted in a suitable bracket secured to the bed 10 and is thereby held against move-
 75 ment longitudinally of the stem or screw 105. This arrangement enables the operative to adjust the slide 104 and all the parts carried thereby, including the conveyor chain 94 and the driving mechanism there-
 80 for, toward and from the magazine. A bolt 107 which projects through a slot 108 formed in the slide 104 and is threaded into the bed 10, serves to secure the plate in its adjusted position.

A short bracket 109, Fig. 2, is secured to 85 the front of the magazine frame and overlies a portion of the bracket 92 where it closes the space between the magazine frame and the second conveyor mechanism, and prevents counter blanks from accidentally
 90 dropping down between these parts.

It will now be understood that during the normal operation of the machine the feeding chains 53—53 remove counter blanks
 95 one at a time from the bottom of the magazine, advancing these counters, in this particular instance with their straight edge foremost, on to the surface of the support
 100 90. One of the hooks 95 of the conveyor chain 94 engages each blank as it is delivered to the support 90 and carries the blank endwise to the tempering rolls. The blank here is dampened and is ejected by the rolls. The fact that the counter blanks
 105 are fed out of the magazine with their straight edges foremost is of advantage in this machine because these edges engage the wall of the part 91 and are held in contact with said wall by the hooks 95, while the conveyor chain 94 delivers the counters to
 110 the wetting rolls.

It will now be evident that the invention provides a very simple but reliable mechanism for feeding counter blanks which effectively separates the blanks from each
 115 other and prevents the feeding of more than one blank at a time. Furthermore, this mechanism can be manufactured economically, and it is so organized that it is not likely to get out of order.
 120

While I have herein shown and described the best embodiment of my invention that I have so far devised, it will be appreciated that this invention may be embodied in other forms without departing from the spirit or
 125 scope hereof.

Having thus described my invention, what I desire to claim as new is:

1. A magazine for counter blanks comprising two grooved members spaced apart 130

to receive a stack of counter blanks between them with the corners of the blanks positioned in the grooves of said members, means supporting said members for adjustment toward and from each other, and a bar adjustably connected with each of said members and extending substantially parallel thereto to engage and support the curved edges of the blanks in said stack.

2. In a machine for operating on counter blanks and the like, the combination of a magazine for holding a stack of said blanks, means for feeding the blanks successively from the bottom of said stack, a conveyor to which the blanks are delivered by said feeding means, and supporting means for said conveyor and feeding means enabling the conveyor and feeding means to be adjusted toward and from each other.

3. In a machine for operating on counter blanks and the like, the combination of a magazine for holding a stack of said blanks, a pair of endless conveyor chains supported beneath said magazine, hooks on said chains for engaging the lowermost counter blank in the magazine and feeding it out of the magazine, and means for engaging each blank while it is being advanced by said hooks and moving it forward out of engagement with said hooks.

4. In a machine for operating on counter blanks and the like, the combination of a magazine for holding a stack of said blanks, a pair of endless conveyor chains supported beneath said magazine, hooks on said chains for engaging the lowermost counter blank in the magazine and feeding it out of the magazine, feed rolls in front of said magazine between which the blank is delivered by said hooks, and mechanism for rotating said rolls at a greater peripheral speed than said chains whereby they operate to feed the blank forward out of engagement with said hooks.

5. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, an endless conveyor chain supported beneath said magazine, a hook on said chain for engaging the lowermost blank in the magazine and feeding it out of the magazine, and means whereby said chain and the bottom of said magazine may be relatively adjusted to vary the distance that said hook projects above said bottom.

6. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, an endless conveyor chain supported beneath said magazine, a hook on said chain for engaging the lowermost blank in the magazine and feeding it

out of the magazine, and means for adjusting said bottom vertically with reference to said chain.

7. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, a pair of endless conveyor chains supported side by side beneath said magazine, hooks on said chains for engaging the lowermost counter blank in the magazine and feeding it out of the magazine, the bottom of said magazine being grooved to receive said chains, and means whereby said bottom and said chains may be relatively adjusted to vary the distance that said hooks project above the upper surface of the bottom.

8. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, a gate mounted in the front of said magazine for rising and falling movement and having its lower edge normally spaced slightly from the bottom of the magazine, and means for feeding the bottommost blank in said stack out of the magazine and under said gate, said gate consisting of a slide comprising two plates secured together and a friction member gripped between said plates and extending below the lower edges of the plates.

9. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, a pair of endless conveyor chains supported side by side beneath said magazine, hooks on said chains for engaging the lowermost counter blank in the magazine and feeding it out of the magazine, and two gates mounted in the front of said magazine closely adjacent to the respective chains and having their lower edges normally spaced from the bottom of the magazine by a distance too narrow to admit a blank, said gates being mounted for lifting movement by the engagement therewith of said blank to permit the blank to pass out of the magazine but being operative to prevent the feeding therewith of the next adjacent blank.

10. In a machine for operating on counter blanks and the like, the combination of a magazine adapted to hold a stack of said blanks, said magazine having a bottom on which said stack rests, a pair of endless conveyor chains supported side by side beneath said magazine, hooks on said chains for simultaneously engaging the edge of the lowermost counter blank in the magazine at spaced points and feeding said blank out of the magazine, two gates mounted in the front of said magazine closely adjacent to

the respective chains and having their lower edges normally spaced from the bottom of the magazine by a distance too narrow to permit the feeding of a blank, each of said gates including a friction member to engage the blank as it is fed out of the magazine, and means supporting said gates for vertical movement due to the engagement therewith of said blank to permit the movement of said lowermost blank under the gate while preventing the feeding of the next blank above it. 10

In testimony whereof I have signed my name to this specification.

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