R. C. SIMMONS.

MACHINE FOR ARRANGING HEEL BLANKS.

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1,398,345. Patented Nov. 29, 1921.

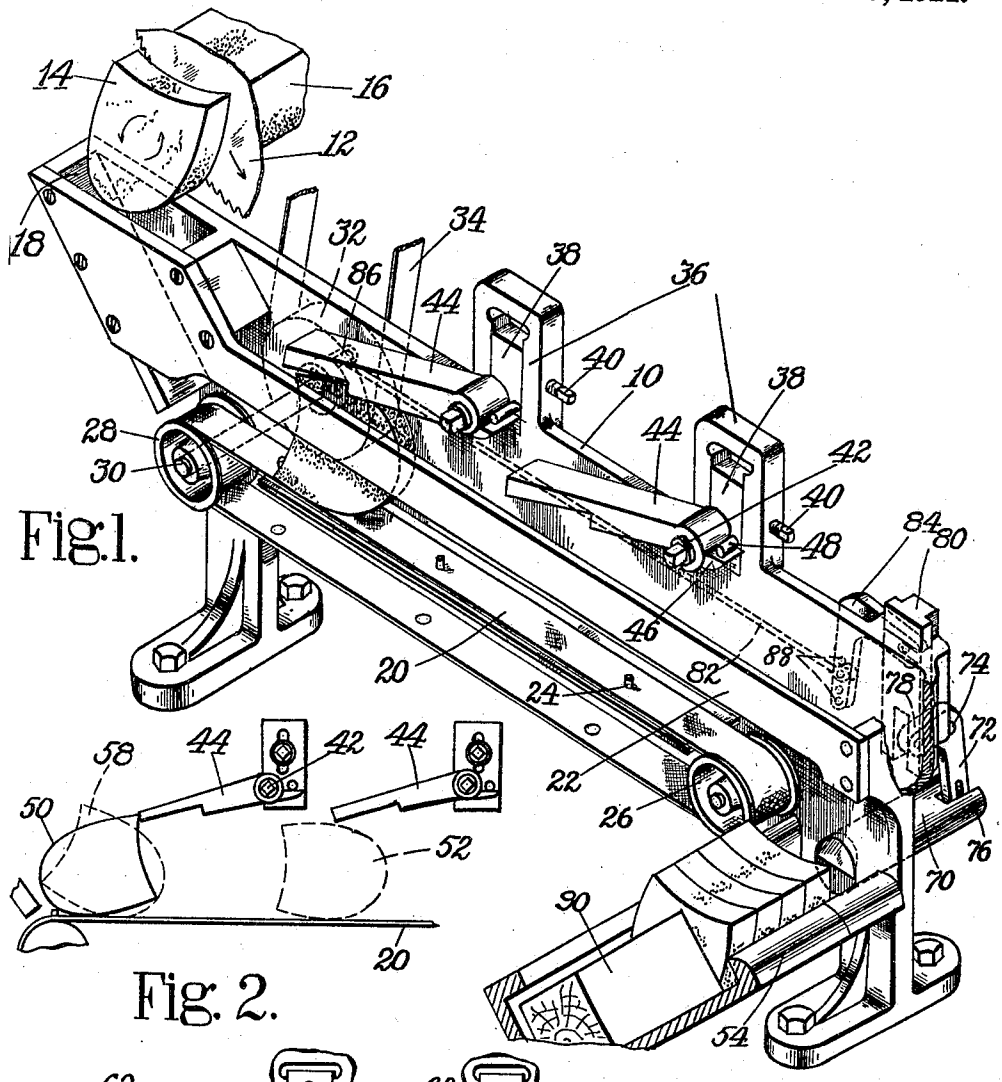


Fig. 1.

Fig. 2.

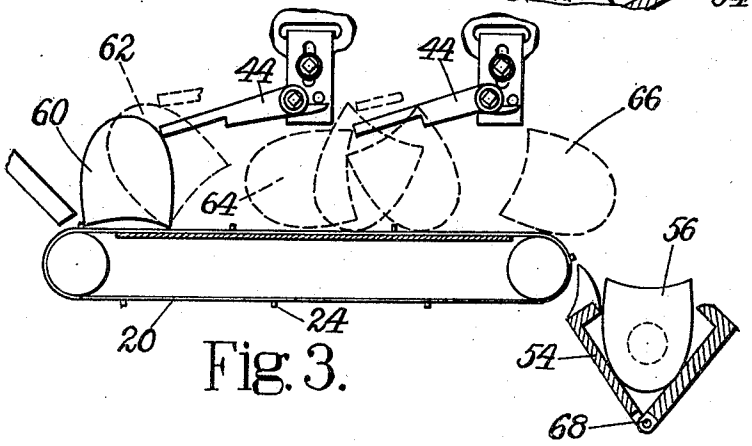


Fig. 3.

INVENTOR.
Ralph C. Simmons.

UNITED STATES PATENT OFFICE.

RALPH C. SIMMONS, OF BEVERLY, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR ARRANGING HEEL-BLANKS.

1,398,345. Specification of Letters Patent. Patented Nov. 29, 1921.

Application filed October 24, 1918. Serial No. 259,579.

To all whom it may concern:

Be it known that I, RALPH C. SIMMONS, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in Machines for Arranging Heel-Blanks, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for arranging heel blanks, and, particularly, to a machine or mechanism capable of receiving such blanks in miscellaneous or indiscriminate arrangement with relation to one of their elements and disposing and presenting them in uniform, orderly arrangement.

The object of the invention is to provide automatic mechanism to which heel blanks may be supplied in arrangement, at least, partially indiscriminate, and which shall operate to arrange the heels in uniform and orderly array, and, if desired, present them automatically to a machine which is to operate upon them, or, alternatively, to deliver them in a stack ready to be placed in a magazine in which they may be stored or which may be placed upon an operating machine in coöperative relation to the feeding mechanism thereof.

With this object in view, an important feature of the invention resides in the provision of mechanism for receiving heels in non-uniform disposition, rearranging them and delivering them all turned in the same direction, for example, with their breast edges in alinement. In this connection a particular feature of the invention resides in the provision of means for rearranging all the blanks received, in preference to passing along only those reaching the said means in a predetermined arrangement and rejecting the remainder to be acted upon again. By the utilization of this principle, any blank passes through the machine but once, and the capacity of the machine is much greater than that of a machine in which a substantial proportion of the blanks must be handled repeatedly before being delivered.

As a feature of the mechanism for arranging the blanks, means is provided for advancing all the blanks serially as received, past detents arranged to permit properly positioned blanks to proceed without interference and to engage improperly positioned blanks and turn them into correct position while they are being advanced.

Blank arranging mechanism, such as that above indicated, has especial utility in connection with heel blank producing machines which deliver successive blanks similarly disposed with respect to one of their elements but otherwise arranged indiscriminately. An example of such a machine is found in those machines which sever heel blanks or lifts successively from the end of a heel log. These machines operate by sawing or slicing, and the blanks come from the machine all in the same plane but in indiscriminate arrangement as to the direction in which they point. A further feature of the present invention, accordingly, consists in the combination with a machine for severing successive blanks from a heel log, of mechanism for stacking the blanks in uniform arrangement and preferably in column formation.

These and other features of the invention will best be understood and appreciated by reading the following description of one simple embodiment of the invention in connection with the accompanying drawings, in which—

Figure 1 is a perspective view of the entire machine.

Fig. 2 is a diagrammatic view showing the action of the detents upon blanks received in two different positions; and

Fig. 3 is a diagrammatic view showing the action of the detents upon blanks received in a third position.

Referring now to the drawings, 10 indicates a frame or support for the moving parts of the blank arranging mechanism. 12 indicates a saw or other cutting or slicing device forming part of a machine for severing successive blanks 14, in the form of heel sections or lifts, from a heel log 16 of indeterminate length. When the blank 14 falls away from the log, it may turn about the axis of the log into any angular position, but will always drop from the cutting tool with its general plane vertical.

Immediately beneath the blank, as it is being separated from the log, is a chute 18 adapted to receive the blank and guide it to

an endless belt 20. The chute 18 is sufficiently narrow to keep the blank in a vertical plane, that is, prevent it from falling over sidewise without retarding its motion edgewise. A continuation 22 of the front wall of the chute extends the entire length of the machine above the belt 20 and, cooperating with the supporting member 10, forms a guideway for the heel blanks, serving to keep them in a vertical plane during their entire passage through the machine.

The belt 20 is provided at intervals with projections 24, the function of which is to engage the blanks and assist in feeding them through the machine. At one end of the machine the belt passes about an idle pulley 26, and at the other end is passes around a driving pulley 28 secured to a driving shaft 30, upon the opposite end of which is a pulley 32 continuously driven by a belt 34 from any suitable source of power. The direction of rotation of the driving pulley 28 is such as to move the upper section of the belt 20 continuously from left to right, as viewed in Fig. 1.

Mounted in brackets 36 projecting upwardly from the member 10 are vertically adjustable blocks 38 and set screws 40 for securing the blocks in adjusted position. In each of the blocks 38 is secured a bolt 42, which serves as a pivot for a loosely supported detent 44. Each detent 44 is provided with an opposite projection 46 arranged to engage a pin 48 secured in the block 38 and acting as a stop to prevent the detent from descending below a predetermined position which may, however, be varied by vertical adjustment of the block 38.

Referring now to Figs. 2 and 3, it will be seen that a blank may be deposited upon the belt 20 and reach the first detent 44 in any one of three approximate positions. The first of these positions is indicated by full lines at 50. In this position the breast edge of the blank will encounter the nose of the detent which will retard the forward movement of that part of the blank, but will yield upwardly about its pivot 42, permitting the belt to advance the blank and at the same time to turn it until it passes out from under the detent in approximately the position indicated at 52, that is, curved end foremost. The adjustment of the height of the detents is such, with relation to the size of the blanks being handled, that a blank in this position will pass under them without being turned. The blank, therefore, having reached position 52, passes beneath the second detent 44 and is delivered curved end foremost into a stationary trough or receiver 54, as indicated at 56 in Fig. 3.

If the lift should arrive at the first detent 44 in the position, shown in dotted lines at 58, or in any position between that and a vertical position with the breast edge uppermost, the detent will merely engage the advance edge of the blank and rock it about its curved end until it passes beneath the detent and proceeds as before in position 52.

If the blank reaches the first detent 44 in the approximate position, shown at 60, Fig. 3, it will engage the nose of the detent, and in the movement of the belt 20 the blank will be turned about one breast corner, as shown at 62, and will pass beneath the first detent in the position shown at 64. The blank will thus reach the second detent in approximately the same position as the blank 50 with relation to the first detent in Fig. 2. In this case the second detent will yield and turn the blank until it is delivered curved end foremost, as shown at 66 and is finally deposited in the trough 54 in position 56. It has been found by experiment that when the two detents are properly positioned in height, all the blanks which are not received upon the belt in position to advance curved end foremost will be turned to that position and that they will all be similarly delivered to the trough 54.

The sides of the trough 54 are hinged together, as shown at 68, to provide for adjustment of the trough to blanks of all sizes. In order to provide for advancing the blanks lengthwise of the trough 54 and to insure that there shall always be space for the reception of the next blank delivered by the belt, a reciprocating plunger 70 is mounted to slide in a horizontal bore in the member 10. The downwardly extending arm 72 of a bell crank lever pivoted at 74 engages a pin 76 in the rear end of the plunger 70. The forwardly projecting arm 78 of the bell crank lever is connected to a slide 80, to which vertical reciprocation is imparted by a connecting rod 82 through a lever 84. The connecting rod 82 in continually moved back and forth by a crank 86 upon the pulley 32. By means of an adjustable connection 88 between the connecting rod 82 and the lever 84, the throw of the slide 80, and consequently the extent of movement of the plunger 70, may be adjusted to suit the thickness of the blanks being handled. At the beginning of the operation of the machine a block or follower 90 may be placed in the trough 54 to maintain the first blanks upright as they are advanced in the trough and other blanks added to the column. The continual reciprocation of the plunger 70 occurs at a sufficiently rapid rate to insure that a space shall always be provided for the reception of a blank delivered to the trough by the conveying belt.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. The combination with a heel blank receiving trough, of means for delivering blanks in succession to the trough, a recip-

rocating plunger having a limited stroke arranged to engage and advance the column of blanks in the trough, and means for varying the stroke of the plunger to accommodate blanks of different thicknesses.

2. In a heel blank arranging machine, the combination of means for receiving blanks all in the same plane but otherwise indiscriminately arranged, and means for disposing them with their breast edges all in the same direction.

3. In a heel blank arranging machine, the combination of means for receiving blanks all in the same plane but otherwise indiscriminately arranged, and means for arranging the blanks and delivering them face to face in column formation.

4. In a heel blank arranging machine, the combination of means for receiving heel blanks all in the same plane, but otherwise indiscriminately arranged, and means for arranging and delivering the blanks successively with their curved ends foremost.

5. In a heel blank arranging machine, the combination of means for receiving heels pointing in various directions and means for advancing them and turning them in their own planes until they all point in the same direction.

6. In a heel blank arranging machine, the combination of means for receiving heels pointing in various directions, a conveyer constructed and arranged to advance the heels in their own planes, and means coöperating with the conveyer for turning the heels in their own planes until they all point in the same direction.

7. In a heel blank arranging machine, the combination of a conveyer, means for moving the conveyer to advance the blanks and detent means coöperating with the conveyer to turn all blanks not facing in a predetermined general direction until they are all uniformly disposed.

8. In a heel blank arranging machine, the combination of a continuously running, heel advancing, endless belt conveyer, and detent means coöperating with the conveyer to turn upon the conveyer all blanks not arranged in a predetermined way and to permit the passage undisturbed of blanks which are arranged in said predetermined way.

9. In a heel blank arranging machine, the combination of means for receiving heel blanks indiscriminately arranged in a single plane and arranging them uniformly, and mechanism for separating blanks successively from a heel log and presenting them to said means.

10. In a heel blank arranging machine, the combination of means for separating blanks successively from a heel log and delivering them in a vertical plane, and means for receiving said blanks, advancing those received curved end foremost without disturbing them, and turning the remaining blanks and delivering them curved end foremost.

11. The combination with means for separating blanks successively from the end of a heel log, of means for stacking said blanks in column formation.

12. The combination with means for separating blanks successively from the end of a heel log, of means for turning said blanks until they all point in the same direction, and means for stacking the blanks with their breast edges in alinement.

13. The combination with a heel blank receiving trough, of means for delivering blanks in succession to the trough, and continuously acting means operating faster than the blanks are delivered for advancing the column of blanks in the trough to provide space for the reception of incoming blanks.

14. The combination with a horizontal trough constructed and arranged to receive heel blanks on edge, of means for delivering blanks successively to the trough, and a continuously acting reciprocating plunger operating faster than the blanks are delivered having a limited stroke arranged to engage and advance the column of blanks in the trough.

15. The combination with a continuously running belt conveyer constructed and arranged to receive and advance heel blanks on edge, of a pivoted detent above the conveyer constructed and arranged to engage and turn only those blanks not arranged in a predetermined position.

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

RALPH C. SIMMONS.