

Sept. 4, 1928.

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MACHINE FOR OPERATING ON BLANKS

Filed March 13, 1922

4 Sheets-Sheet 1

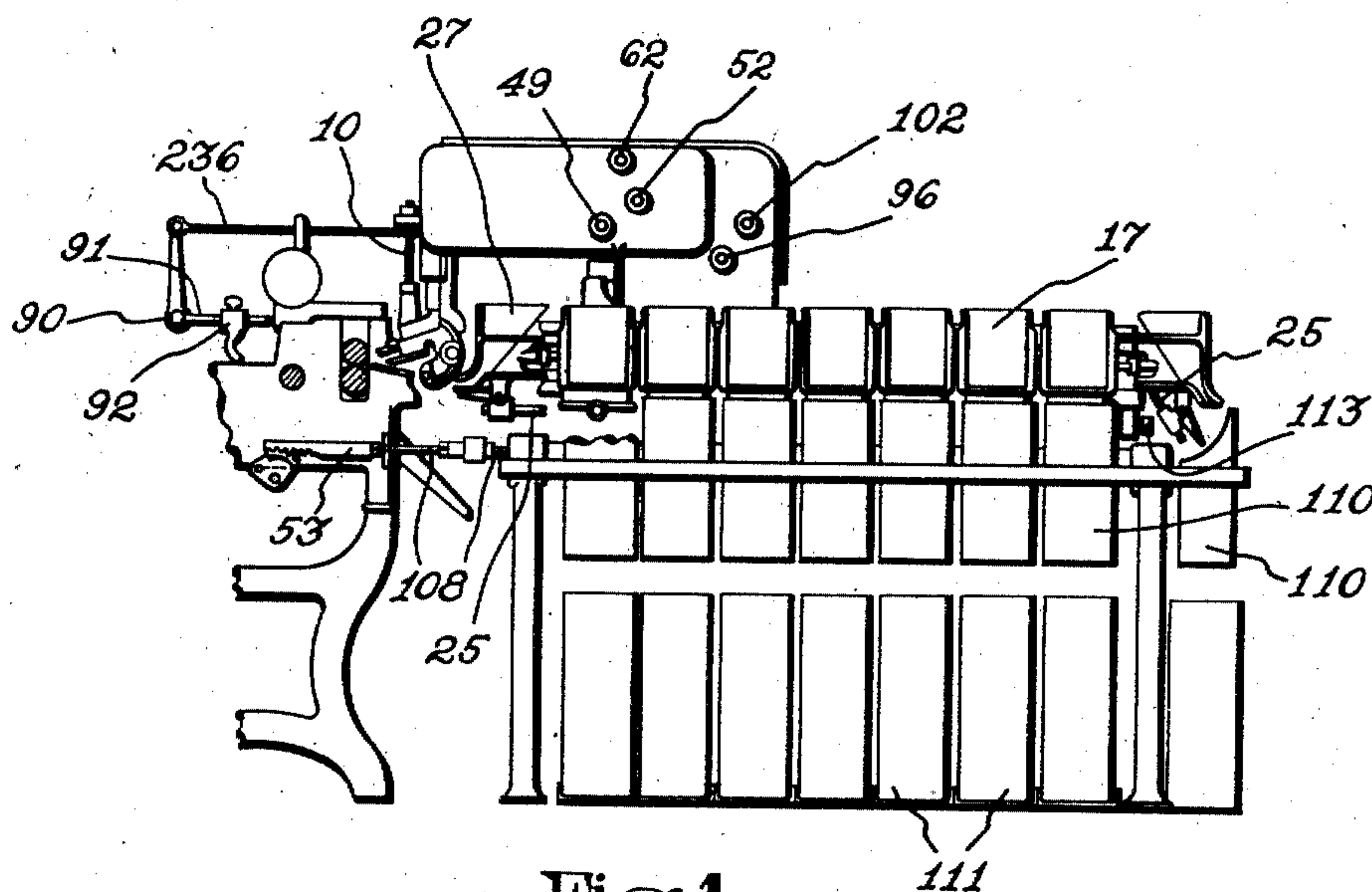


Fig. 1.

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4 Sheets-Sheet 2

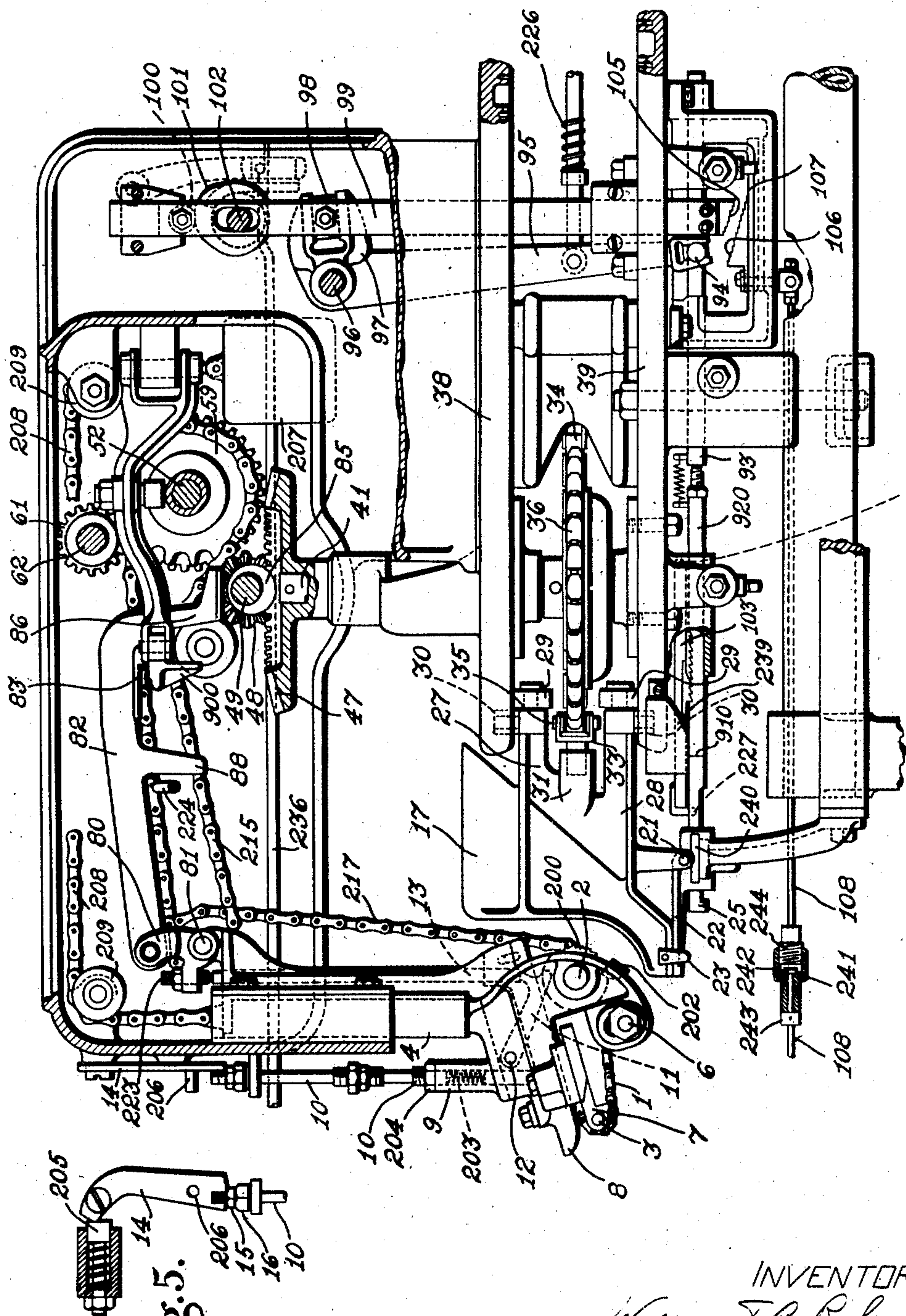


Fig. 2.

Fig. 5.

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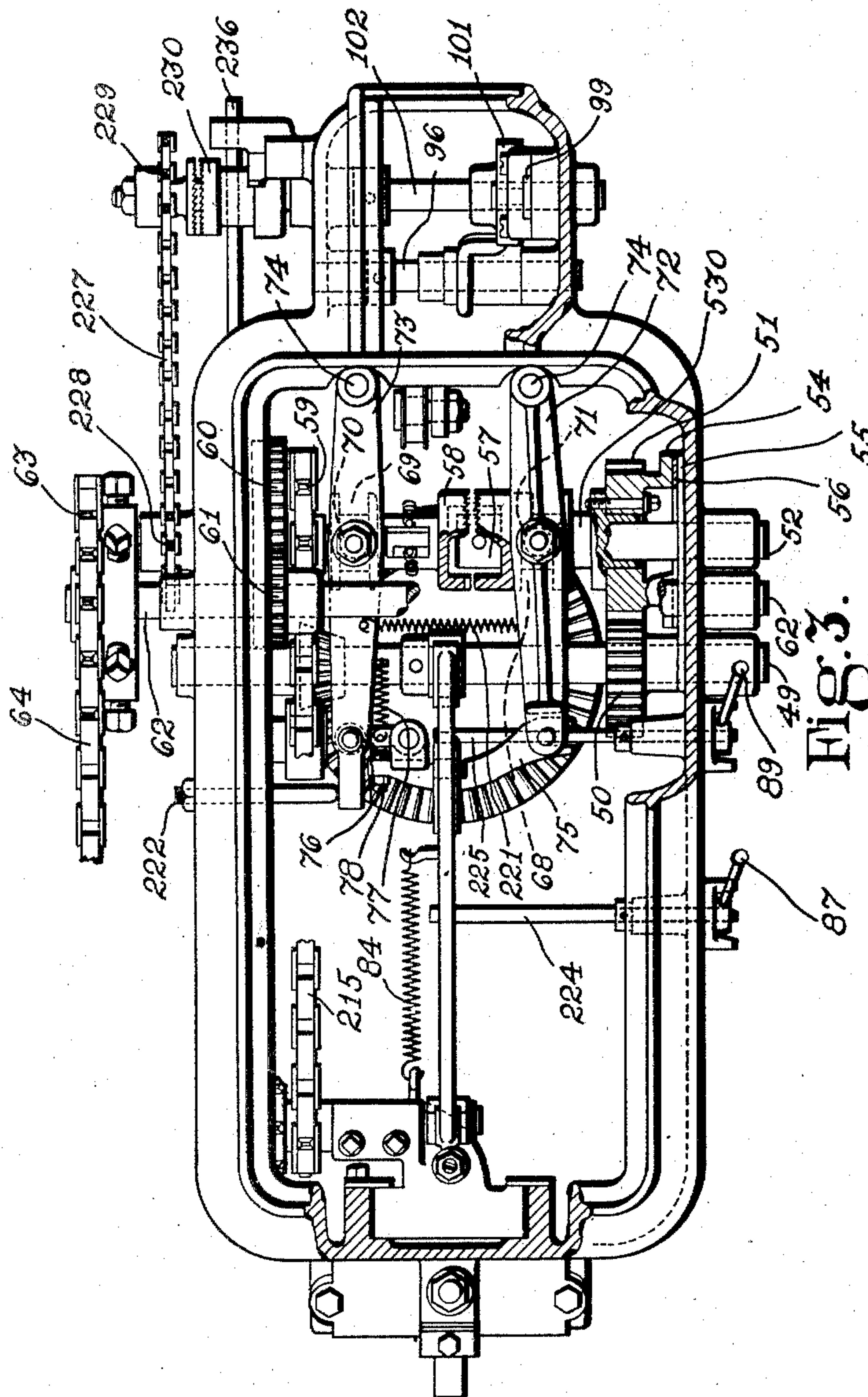
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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

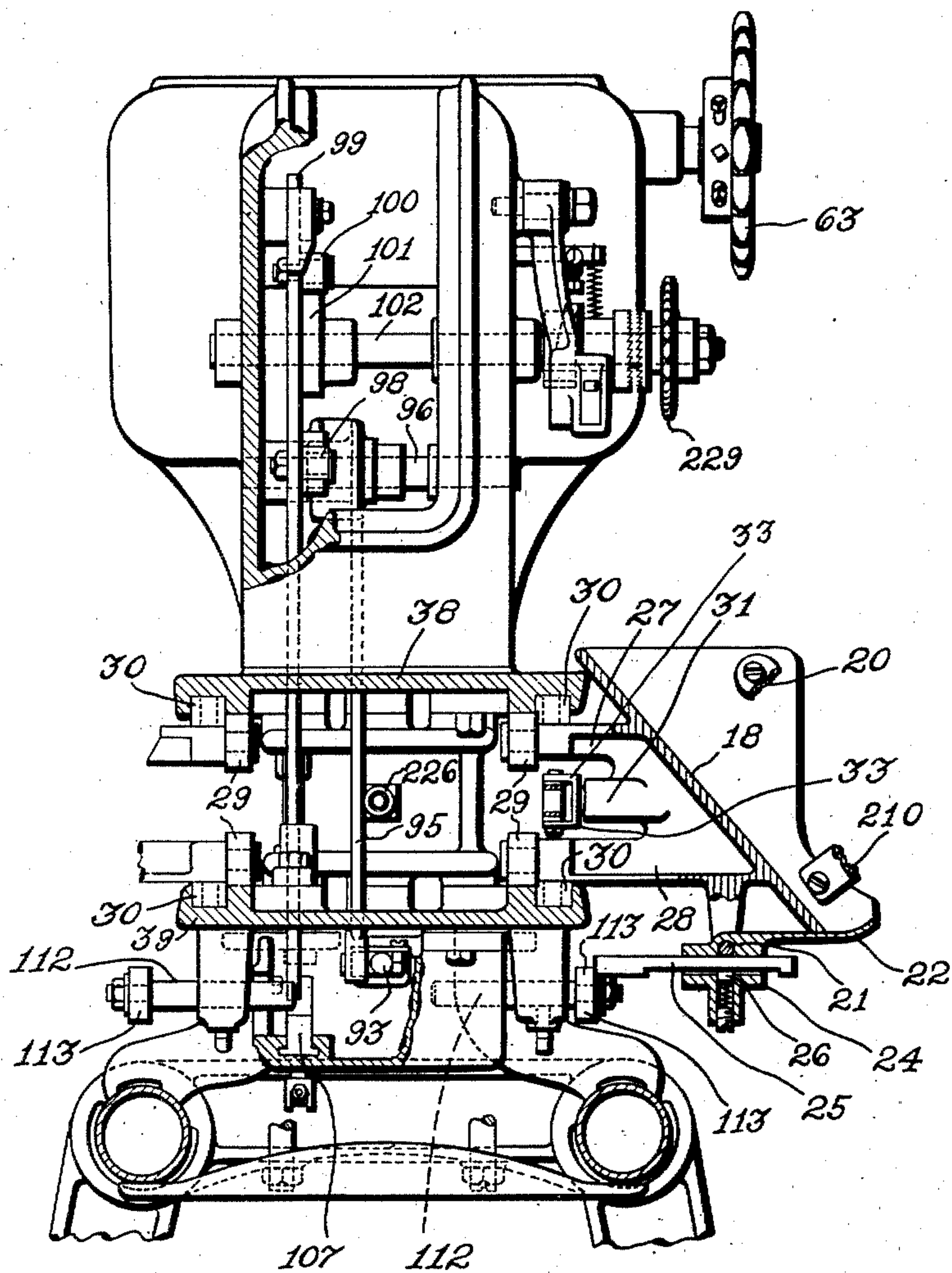


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR OPERATING ON BLANKS.

Application filed March 13, 1922, Serial No. 543,438, and in Great Britain March 22, 1921.

This invention relates to machines for oper-
ating upon and distributing blanks in accord-
ance with the extent of a selected dimension
thereof and is herein illustrated as embodied
5 in a machine for splitting and sorting soles
each in accordance with the thickness of its
thinnest spot.

A machine known as the Nichols evening
and grading machine which marks and evens
10 soles and similar blanks each in accordance
with its thickness is used extensively in the
trade; and one object of the present invention
is to provide in combination with a machine
of this general type an improved distributing
5 mechanism adapted to receive the blanks after
they have been evened or otherwise operated
upon and distribute them into groups the
members of each of which shall have the same
thickness. To this end the illustrative ma-
chine is provided with mechanism for evening
0 blanks in accordance with the thickness of
the thinnest spots thereof, a feeder which re-
ceives the blanks one by one from the even-
ing mechanism, an intermittently operated
conveyor having receptacles to which the
5 blanks are delivered one by one by the feeder,
a series of bins each designed to receive blanks
of a given thickness, and means for causing
the conveyor and its receptacles to distribute
the evened blanks into the proper bins.

This and other features of the invention
together with certain details of construction
and combinations of parts will be described
as embodied in an illustrative machine and
pointed out in the appended claims.

Referring now to the accompanying draw-
ings:—

Figure 1 is a more or less conventional side
elevation illustrating the general arrange-
ment of the machine;

Fig. 2 is a side elevation, partly in section,
of a part of the mechanism on a larger scale;

Fig. 3 is a plan view, partly broken away, of
the parts shown in Fig. 2;

Fig. 4 is an end elevation, partly in section,
of the parts shown in Fig. 2; and

Fig. 5 is a detail of a locking device.

The machine comprises stock treating
mechanism and distributing mechanism. Re-
ferring first to Figure 1, the stock treating
mechanism comprises a machine which may
be like that shown in United States patent to
Nichols No. 1,058,623, the reference characters
applied to it being the same as those used in

the patent. In this machine, the sole or 55
other blank passes between feeler rolls (not
shown) which operate to adjust a rack-bar
53 in accordance with the thickness of the
thinnest spot in the blank; and this rack-bar
in turn adjusts marking and splitting mecha- 60
nism (the splitting mechanism only being
shown in the figure) which marks and splits
the blank in accordance with its thinnest spot.
As the blank is fed through this machine it
passes beneath a shoe or foot 92 whereby the 65
shoe is first raised and then permitted to fall.
The shoe is fastened to an arm 91 the hub of
which is fast to a rock-shaft 90. No further
description of this machine will be given,
reference being made to the patent. It will 70
be understood, however, that during the pas-
sage of a blank through the machine the rack-
bar, which controls the setting of the split-
ting and marking mechanism, is adjusted to
and held for a time in a position correspond- 75
ing to the thinnest spot in the blank, and that
the shaft 90 is rocked first in one direction
and then in the other. Connected with the
rack-bar or controller 53 of the splitting
mechanism is a rod 108 which adjusts a con- 80
troller for the distributing mechanism; and
pivoted to the upper end of an arm which is
fast to the rock-shaft 90 is a rod 236 which
trips a one-revolution clutch, said clutch act-
ing to set a trip rod of the distributing mech- 85
anism in accordance with the position of the
rod 108 so that the blank will be delivered to
the proper bin designed to receive it.

The distributing mechanism is situated at
the rear of the evening machine and is organ- 90
ized to receive the evened blanks as they
emerge from the machine and to deliver them
into appropriate bins 111 according to the
thickness to which they have been evened.

The mechanism comprises a feeder which 95
receives the blanks, one at a time from the ma-
chine, and drops them into separate recepta-
cles 17. The receptacles are mounted on an
endless horizontal conveyer-chain which is
advanced step-by-step to carry the receptacles 100
over a series of bins. Each receptacle has
at its bottom a trap-door which, when the
receptacle arrives over a particular bin, is
opened to allow the blank to drop into the
bin. Each receptacle carries mechanism 105
which, when the receptacle is in sole-receiving
position, is set according to the thickness of
the blank, which is passing through the ma-

chine and which the receptacle is to receive, so that when that receptacle reaches a particular bin into which it is desired that that particular blank, according to its thickness, shall fall, the mechanism on the receptacle encounters one of a series of rolls each associated with one of the bins, and the trap-door is opened to allow the blank to fall into that one of the bins.

The distributing mechanism is driven from the driving shaft of the machine. The feeder is driven continually so long as the machine is being driven, while the conveyor-chain is driven intermittently through a one-revolution clutch which is tripped automatically by the passing of the blank from the feeder. The mechanism on the receptacles by which the trap-door is opened is set, as has been explained, by mechanism actuated by a one-revolution clutch which is tripped by the falling of the shoe or presser foot 92 of the evening machine, and the setting is determined by mechanism operated from the rack-bar 53.

The blank, after it passes from the evening and grading machine, is engaged by an endless chain 1 provided with claws to engage the under face of the blank. The chain is supported on sprocket wheels fixed on parallel horizontal shafts 2 and 3 rotatably mounted in bearings formed in the lower end of a member 4 slidably mounted in a vertical guideway formed in the frame of the mechanism.

On the shaft 2 are fixed toothed wheels 200 which assist the chain 1 in the delivery of the blank from the feeder and ensure its proper delivery into its receptacle. Positioned between the wheels 200 are strippers extending from a bar 202 fixed to the member 4 which prevent the blank clinging to the teeth of the wheels and being carried round by them.

The upper run of the chain is upwardly inclined away from the evening machine in the direction of travel of the blank as it leaves the machine. An idler pulley rotatably mounted on a stud 6 adjustably fixed in a portion of the member 4 engages the lower run of the chain and may be adjusted to keep the chain taut. At each side of the chain the member has a face 7 inclined in the same direction as the upper run of the chain to support the blank.

The blank is held against the chain by a presser 8 the lower face of which is parallel to the upper run of the chain. The presser is guided in a suitable guideway formed in the member 4 and is arranged to yield upwardly against the pressure of a spring 203 housed in a vertical boss 9 formed on the member 4. A screw threaded rod 10 by which the tension of the spring may be adjusted is threaded into the upper end of the boss and bears on the upper end of the spring, the rod being locked by a lock-nut

204. A finger 11 pivoted on a horizontal pin 12 fixed in the member 4 passes through a vertical slot in the presser 8 and rests on the blank at a point over the rear sprocket wheel. The finger 11 has resting on it a vertical rod 13 slidably mounted in bearings in the member 4. The rod 13 at its upper end is connected to clutch mechanism which is tripped when the finger 11 drops as the blank passes from beneath it. The clutch controls mechanism which moves the conveyor one step as will presently be described.

The vertically slidable member 4 is locked in its downward operative position by a latch 14 pivoted on the frame, the lower cammed face of which engages the upper face of a nut 15 adjustably mounted on the upper threaded portion of the presser spring adjusting rod 10 which is elongated to receive the nut and also a lock-nut 16. The latch 14 is held in its locking position and in its inoperative position by a spring plunger 205 carried in a boss on the frame and has projecting from it a pin 206 by which it may be moved. The weight of the member 4 and its parts is balanced by a suitable balance weight 207 connected to the member 4 by a chain 208 passing over suitable pulleys 209. The weight is slightly heavier than the member so that it is sufficient to hold the member in its inoperative position. The raising of the member leaves a clear space between the rear rolls of the evening machine and the sorting mechanism to permit of ready access to the splitting knife for removal thereof. The mechanism which has been described above constitutes a feeder which receives the blanks from the evening machine and delivers them, as will presently be described, to the receptacles of the conveyor.

When the blank has passed through the feeder it falls into one of a series of receptacles 17, there being in the mechanism under consideration sixteen such receptacles. Each receptacle, which is preferably made of some light weight material such as aluminum, comprises a rear wall and two side walls. The inner face of the rear wall 18 is inclined at an angle of substantially 45°. The side walls are vertical and are spaced apart a distance of some six inches when soles are to be distributed. The front edges of the receptacle are vertical at their upper part and curve towards the feeder at their lower part and are situated, when in sole receiving position, close to the rear sprocket wheel which is fixed on the shaft 2. The lower part of the edges and bottom of the receptacle project under the sprocket wheel. The side walls are joined near their front vertical and top horizontal edges by a thin bar 20 about one and a half inches wide, arranged to deflect the incoming sole towards the rear wall of the receptacle. A second bar 210 extends across the front of each receptacle to prevent the sole

from sliding out over the front edge of the bottom of the receptacle. If the blank is so long or is delivered so fast that its forward end meets the inclined back of the receptacle while it (the end in question) is moving upwardly this movement will continue until the rear end of the blank leaves the feeder or the blank has lost upward impetus when the blank promptly slides back down the inclined wall to rest on the bottom of the receptacle. The bar 20 under which the blank must pass and the bar 210 behind which it must pass sufficiently control various classes of blanks to ensure this action occurring properly with an open-sided receptacle such as is shown.

At the bottom of each receptacle is pivoted on a horizontal pivot 21 parallel to and to the rear of the lower edge of the inner rear face, a trap-door 22. The upper face of the trap-door is substantially horizontal at its rear portion and curves upwardly toward its front edge. The trap-door is held closed by a blade spring 23 attached to one side of the receptacle and having its bent lower end latching over a projection on the side of the door. The trap-door has on its under side a bearing 24 for a horizontal trip-rod 25. The slide bearing for the rod is below the pivot 21 of the trap-door and extends substantially equal distances on each side of and at right angles to the axis of the pivot. The rod is slidingly mounted in the bearing and held frictionally against accidental movement by a spring plunger 26, the end of which engages a flat face formed on the rod. The position of these rods in relation to the receptacles with which they are associated determines into which bin the blank, which is to be carried by the receptacle, will fall; and each rod is positioned in its bearing after its receptacle reaches blank receiving position, according to the grading of the blank which it is to receive, by mechanism connected with the evening machine as will hereinafter be described.

Each receptacle has upper and lower rearwardly extending parallel arms 27, 28 each of which carries four rolls, two (29) on rearwardly extending horizontal axes, and two (30) on vertical axes. The four vertical axes are in the same vertical plane and the two upper rolls are directly above the two lower rolls. The upper vertical rolls are positioned above the upper arm and the lower rolls below the lower arm. The axes of the two upper horizontal rolls 29 are in a horizontal plane a little below the upper vertical rolls, and the axes of the lower horizontal rolls are in a horizontal plane a little above the lower vertical rolls and directly below the upper horizontal rolls. Between the upper and lower arms the receptacle has a third rearwardly extending arm 31. This arm is bored to receive, so as to slide freely in it, the horizontally extending cylindrical portion of a forked member 33. The fork straddles a

horizontal endless conveyor chain 34 and is pivotally connected to the chain by a vertical pin 35. The chain passes around horizontal sprocket wheels, one of which is shown at 36 (Figure 2) the other being fixed on a vertical shaft (not shown) at the rear of the mechanism and is moved step-by-step as will be hereinafter described. The four vertically disposed rolls on the receptacle travel in grooves formed in under and upper faces of upper and lower plates 38, 39 fixed in the frame, between which faces the conveyor chain 34 is situated. The grooves have long straight parallel portions extending lengthwise of the mechanism which are connected at each end by semi-circular portions, the axes of which coincide with the axes of the sprocket wheel 36 and the sprocket wheel fixed on the rear vertical shaft (not shown) about which the conveyor chain passes. The horizontal rolls 29 track on plane faces on the under side of the upper plate and the upper side of the lower plate. The sprocket wheel 36 at that end of the mechanism which is nearest the blank-receiving position is fixed to a vertical shaft 41.

The vertical shaft 41 is rotatably mounted in bearings formed in the plates 38, 39 in which are the receptacle roll guides, and the shaft has fixed at its upper end a bevel gear 47 which meshes with a bevel pinion 48 fast on a horizontal shaft 49 rotatably mounted in bearings in the frame. This shaft 49 has fixed on it a pinion 50 (Fig. 3) which meshes with a gear 51 on a second and parallel clutch shaft 52 rotatably mounted in bearings in the frame. This latter gear 51 is fast to a clutch member 530 rotatably mounted on the shaft 52 and having formed on it a brake surface 54 which is arranged to co-operate with a surface 55 on the frame to stop the rotation of the conveyor chain. A leather or like disc 56 is interposed between the braking surfaces. The clutch member 530 is allowed a slight amount of movement along the shaft between the brake surface on the frame and a collar 57, fixed on the shaft 52, which engages the opposite end of the clutch member 530. This clutch member co-operates with a second clutch member 58 keyed to the shaft but slidable along it. The second shaft 52 has fast on it a sprocket wheel 59 which is connected by chains 215, 217 and suitable sprockets and guide pulleys with the chain 1 of the feeder. The second or clutch shaft 52 has also fixed upon it a gear 60 which meshes with a gear 61 fast upon a third parallel shaft 62 rotatably mounted in bearings in the frame. This shaft 62 has at its outer end a sprocket wheel 63 which is connected by a chain 64 to a sprocket wheel (not shown) on the main driving shaft of the evening machine. With this construction the shafts 62 and 52 together with the feeder chain 1 are driven con-

tinually, and the shaft 49 is driven only when the clutch members 58, 530 are in engagement.

The clutch members have on their adjacent end faces clutch teeth, and each member has on its periphery a groove, the groove 68 on the first-mentioned member 530 being a cammed groove while the groove 69 on the other member 58 is not cammed. The grooves receive respectively a roll 70 and a roll 71 depending respectively from the middle of each of a pair of horizontally disposed levers 72, 73 pivoted at the rear of the clutch shaft 52 on vertical pivots 74 fixed in the frame. The levers 72, 73 are substantially parallel to each other, pass over the shaft 52 and are connected at their outer ends by a toggle 75, 76. When the toggle is broken the clutch member 58 is moved along the shaft 52 by a spring 221 connected at one end to that lever 73 controlling the clutch member 58 and at the other end to the frame, to throw in the clutch teeth. The movement of the clutch member 58 along the shaft is limited by its engagement with the collar 57 aforementioned as being fixed on the shaft 52. As the shaft begins to rotate the lever 72 controlled by the cam groove 68 in the first clutch member 530 is swung in the direction of relief of pressure on the braking surface. The lever 72 is then swung in the opposite direction, by the cam, to allow the toggle to straighten under the influence of a spring 77 attached at one end to one link 76 of the toggle and at the other end to the lever 73. The straightened position of the toggle is determined by a screw 78 which passes through an extension on the link 75 and bears against the other link 76. The cam controlled lever is then swung in the opposite direction by the cam and, through the straightened toggle, moves the other lever 73 about its fulcrum to separate the clutch members. This movement is limited by an adjustable screw 222 threaded through the frame and bearing against the latter lever. After the latter lever has been stopped the cam acts to move the braking surfaces into engagement to stop the rotation of the member 530 and movement of the conveyor chain after one revolution of the member, this movement of the conveyor chain being just sufficient to carry a given receptacle 17 from one bin 111 to the next one.

The toggle is broken as the blank passes out of the feeder into one of the receptacles 17. The rod 13 hereinbefore referred to as resting on a finger 11 which itself bears on the blank as it passes through the feeder engages at its upper end a screw 223 carried in one arm of a bell-crank lever 80 mounted on a horizontal pivot 81. The other arm of the bell-crank lever is pivotally connected to one end of a horizontally disposed arm 82 which passes over the toggle and has formed

on it towards its opposite end a vertical face 83 arranged to engage a face on one of the toggle links so that a pull exerted on the member will break the toggle. This pull is exerted by a spring 84 attached to the member and to the frame and acts when the blank passes from beneath the pivoted finger 11. Fast on the shaft 49 is a cam 85 on which rests at times a tail-piece 86 formed on the end of the member 82. During rotation of this shaft 49, the cam raises this end of the arm 82 about its pivoted connection to the arm of the bell-crank lever 80 and lifts the vertical face 83 on the member above the toggle link so as to allow the toggle to straighten as hereinbefore described. When the toggle straightens a portion of it moves beneath that portion of the arm 82 on which the face 83 is formed, said arm being then held above the toggle by the action of the cam 85; and, when the cam comes to rest in the position shown, that portion of the arm 82 upon which the face 83 is formed is resting upon the upper face of the toggle, the arm 82 being no longer supported by the cam. As the next blank is fed beneath the finger 11, the arm 82 is moved to the right (Fig. 2) against the force of the spring 84. This causes that portion of the arm 82 upon which the face 83 is formed to be pushed to the right over the upper surface of the toggle and finally, when it rides off from the edge of the toggle, the member 82 swings downwardly about its pivot so that the face 38 is in position to break the toggle as soon as the blank passes from beneath the finger 11 and the spring 84 is free to act. There is arranged a hand lever 87 fixed on a cranked rod 224 which may, if desired, be caused to act upon a lug 88 depending from the member 82 to hold the face 83 of the member away from the toggle link and also to hold the screw 223 away from the rod 13 so that if blanks are passed through the feeder the clutch will not be tripped. The clutch may be kept continuously in action if desired by a second hand lever 89 fixed on a similar cranked rod 225 which acts on a depending lug 900 on the toggle link 75 to maintain the toggle broken and, for example, allow (at the end of a run of work) of the receptacles being all emptied.

The horizontal trip-rod 25 aforementioned as being mounted in a bearing on the underside of the trap-door of each receptacle 17, by the position of which is determined the particular bin into which is delivered the blank to be carried by that receptacle, is set by a cam face 910 formed on the end of a bar 920 mounted in a horizontal guideway formed on the underside of the lower plate 39. The bar is urged forwardly of the machine, to set the rod, by a second bar 93 also slidably mounted in bearings formed on the underside of said plate which second bar

has projecting laterally from one side of it a stud 94 which has rotatably mounted on it a block entering a fork formed at the end of a vertically disposed arm 95 of a bell-crank lever pivoted on a horizontal stud 96 fixed in the frame. The other and substantially horizontal arm 97 of the bell-crank lever also has its end forked to engage a block 98 pivotally mounted on a vertical rod 99 slidably mounted in bearings in the frame. This rod has on it towards its upper end a cam roll 100 which rests on a cam 101 fixed on a horizontal shaft 102. When the mechanism is stationary the cam roll 100 rests on the high part of the cam 101 and as the cam rotates the vertical rod 99 is lowered and through the bell crank lever the second horizontal bar 93 is moved forwardly of the mechanism to set, through the first bar 920, the trip-rod 25 on the receptacle trap-door. A suitable spring 226 urges the vertical rod downward. The first horizontal bar 920 is held in its forward position by the engagement of teeth formed on the under side of a latch member 103 with teeth formed on the upper face of the bar. The latch member is pivotally mounted on a horizontal pivot 104 in the lower plate 39 and rests by its own weight on the bar, or may be pressed downward by a light spring. The latch has at its outer end a cam surface 227 which is acted upon by the upper surface of the rod 25 in the trap-door, as the receptacle moves from sole receiving position, to raise the latch and release the first bar 920 which is withdrawn by a spring connecting it to the second bar 93. The cam face 910 at the end of the first bar 920 which engages the end of the rod 25 on the trap-door to position the rod is so formed that when the bar is advanced, as above described, to position the trip-rod 25, the rod is not fully advanced to its correct position according to the thickness of the blank which the receptacle is to receive, and as the receptacle moves from receiving position the rod is moved by its engagement with the cam into correct position according to the thickness of the blank. The amount of the first movement of the trip-rod 25 by the lengthwise movement of the bar 920 varies according to the thickness of the blank and, with the mechanism above described, is more or less in the nature of the result of a blow on the end of the rod. With mechanism of this nature it is sometimes found that, due to impact, the rod is moved beyond its correct position, or overthrown, with the result that the blank is not delivered into the correct bin. By the final positioning of the rod 25 in the manner above described very accurate positioning of the rod is obtained, the consequent amount of movement to be imparted to the rod by the cam being greater than any likely overthrow due to impact. The amount of movement imparted to the rod by the bar is determined by the amount of downward movement of the above mentioned vertical cam-controlled bar 99. This bar has on its lower end an inclined face 105 which, when the bar is lowered, meets an inclined controller 106 fast to or integral with a horizontal slide 107 mounted in a guideway in the frame. This slide has connected to it one end of the rod 108, the other end of which as has been explained is connected to the horizontal rack-bar or controller 53 of the evening machine. The inclined faces on the controller and the rod have on them steps which correspond to sizes in thickness of sole. These steps ensure that the rods 25 on the trap doors are set correctly to size and not somewhere in between two sizes as might be the case if the inclined faces were plain. The steps are of fair width so that by relatively adjusting the inclined faces parallel to the steps the mechanism may be so set that each rod is set thereby to the same position for (a) either a sole of a determined thickness or one of up to half an iron greater thickness or (b) either a sole of the said determined thickness or one of up to half an iron less thickness. A ready means of effecting such relative adjustment of the inclined faces comprises an internally threaded sleeve 241 rotatably mounted in one portion of the rod 108 and confined against endwise movement between a head 242 on the rod and a collar 243 fixed to the rod. The sleeve engages an externally threaded collar 244 fixed on a second portion of the rod. The shaft 102 on which is the cam 101 which controls the vertical bar 99 is driven from the shaft 52 by a chain 227 and sprocket wheels 228, 229 through a one-revolution clutch which is actuated by connections including the rod 236 to the shoe or presser foot 92 of the evening machine when the forward end of the shoe drops as the trailing end of the sole passes from beneath it, at which time the rack bar 53 has been set according to the thickness of the sole passing through the machine. The details of construction of this one-revolution clutch will not be described since they form, per se, no part of the present invention, and any suitable one-revolution clutch may be employed. It will be understood, however, that as the blank passes from beneath the shoe 92 of the evening machine and the shoe falls, the rod 236 is moved to the right, as viewed in Figures 2 and 3, and throws in the clutch to cause the shaft 102 to make one revolution. The receptacles 17 when they leave the blank-receiving position pass over a series of fifteen chutes 110 and under each of them is placed a bin 111. Above and behind each of the chutes is one of a series of fifteen horizontal rods 112. The rods have at their outer ends rolls 113 and are adjustably mounted axially in depending lugs on the under side of the lower plate 39. The rod 112 below

the receptacle, which is next to the receiving position, is adjusted to engage the trip-rod 25 on the trap-door when the latter rod has been set, as above described, for a three iron sole and the next rod is adjusted for a four iron sole and so on, the last rod being set for a seventeen iron sole. The rods 112, as will therefore be understood, project progressively further into the path of the trip rods 25 of the trap doors as the distance travelled from the receiving station increases. A receptacle carrying a blank and with a trip-rod 25 in the trap door set to correspond with the thickness of the sole travels along the track until the rod 25 is engaged by the roll 113 on that rod 112 which has been adjusted for that thickness of sole, when, as the receptacle passes over the chute 110, the trap door is opened by the engagement of the rod 25 and roll 113 and the sole drops down the chute into the proper bin. The receptacle travels on with its trap door open until, after it has passed the last chute in the series, the upper side of the rear end of the rod 25 in the trap door encounters a stationary cam 239 fixed on the plate 39 and the door is closed. The forward end of the rod encounters a second stationary cam 240, and the rod 25 is thereby pushed back in its bearing ready to be again set, as described, after it reaches the receiving position.

As a sole or other blank passes through the evening machine, the rack-bar 53 or controller of the evening mechanism of that machine is adjusted into a position corresponding to the thinnest spot detected by the feeling mechanism, and the controller 106 of the sorting mechanism is similarly adjusted through the rod 108 which connects the rack-bar with the slide 107 by which the controller 106 is carried. As the rear end of the blank passes from beneath the shoe or presser 92, the rod 236 is moved to impart one revolution to the shaft 102, thereby, through the cam 101, bell crank 95, push bar 93 and bar 920, setting the trip-bar 25 in proper position. The leather piece then passes through the evening machine and its forward end is caught by the feeder chain 1 and forced beneath the finger 11. The arm 82 at that time rests upon the top of one of the links of the toggle. As the finger 11 is lifted, the arm 82 is moved to the right until the face 83 descends on the right-hand side of the toggle link. The forward end of the blank is pushed into the receptacle. As its rear end passes from beneath the finger 11, the arm 82 is pulled to the left by the spring 84 thus breaking the toggle and causing the shaft 49 to make one revolution to advance the conveyor chain, and with it the receptacle one step. Succeeding blanks produce similar results, each blank, as it emerges from the evening machine, being caught by the feeder and fed into a receptacle the trip-bar 25 of which has been adjusted in accord-

ance with the thinnest spot of said blank, after which the conveyor chain moves one step. The blank in any given receptacle remains therein until the receptacle reaches a position in which its trip-rod 25 is actuated by a trip roller 113 to open the trap door 22 and permit the leather piece to fall into the bin 111.

Although the invention has been set forth as embodied in a particular machine it should be understood that the invention is not limited in the scope of its application to the particular machine which has been shown and described. With regard to the patented evening machine, which has been shown conventionally, it should be understood that the machine is merely typical of any mechanism in which a member such as the rack-bar 53 is adjusted in accordance with the thickness of a blank, and a second member, such as the shoe 92, is moved at a given point in the passage of the blank through the mechanism. One or more of the tools, for example the knife and marking tool, may be removed, in which case the blanks would merely be distributed into the proper bins without being otherwise operated upon.

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

1. The combination with mechanism for operating upon blanks in accordance with their thicknesses to change a characteristic thereof, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism comprising an endless conveyor and receptacles mounted thereon, and a feeder adapted to receive the blanks one by one from the operating mechanism and deliver them to successive receptacles of the distributing mechanism.

2. The combination with mechanism adapted to operate upon blanks in accordance with the thicknesses of their thinnest spots including an adjustable controller for said operating mechanism the final position of which corresponds to said thickness, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism including an endless conveyor and an adjustable controller for the distributing mechanism, and connections between the two controllers such that when one is adjusted the other is also adjusted.

3. The combination with mechanism adapted to operate upon blanks in accordance with the thicknesses of their thinnest spots including an adjustable member the final position of which corresponds to said thickness and a movable member which moves to and fro once for each blank which passes through the mechanism, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism.

nism comprising a conveyor, a plurality of receptacles carried thereby, a trip member associated with each receptacle, and means controlled by the movements of the adjustable member and the movable member for setting the trip members.

4. The combination with mechanism adapted to operate upon blanks in accordance with the thicknesses of their thinnest spots including an adjustable member the final position of which corresponds to said thickness and a movable member which moves to and fro once for every blank which passes through the mechanism, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism, comprising a conveyor, a plurality of receptacles carried thereby, a trip member associated with each receptacle, means controlled by the movements of the adjustable member and the movable member for setting the trip members, a feeder for delivering blanks from the operating mechanism to the distributing mechanism, and means operated by the passage of a blank through the feeder for moving the conveyor one step.

5. The combination with mechanism adapted to operate upon blanks in accordance with the thicknesses of their thinnest spots, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism comprising a conveyor, receptacles mounted on the conveyor, means for moving the conveyor a predetermined distance, a feeder for delivering a blank from the mechanism adapted to operate upon it to a receptacle, and means responsive to the passage of the blank through the feeder for causing the conveyor moving means to be thrown into operation.

6. The combination with mechanism adapted to operate upon blanks in accordance with the thicknesses of their thinnest spots thereof, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism comprising a conveyor, receptacles mounted on the conveyor, means for moving the conveyor a predetermined distance, a feeder for delivering a blank from the mechanism adapted to operate upon it to a receptacle, and means responsive to the passage of the blank through the feeder for causing the conveyor moving means to be thrown into operation.

7. A machine of the class described having, in combination, mechanism for evening blanks in accordance with their thicknesses, and mechanism for distributing the evened blanks in accordance with their thicknesses as determined by the evening mechanism, said distributing mechanism comprising a conveyor, receptacles mounted thereon, a feeder for transferring the blanks from the evening mechanism to the receptacles, means including a clutch for moving the conveyor

intermittently in such manner that during the pauses a receptacle is adjacent the feeder, a finger associated with the feeder and adapted to be moved by a blank as it is transferred from the evening mechanism to the receptacle, and connections between the finger and the clutch such that movement of the finger by a blank causes the clutch to become operative.

8. The combination with mechanism for operating upon blanks in accordance with their thicknesses of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism including a feeder for receiving the blanks directly from the operating mechanism and delivering them to the distributing mechanism, and means whereby the feeder may be moved out of the way to permit ready access to the operating mechanism.

9. Mechanism for distributing blanks in accordance with the extent of a selected dimension thereof, comprising a conveyor, means for moving the conveyor intermittently a predetermined distance, a feeder for delivering a blank to the conveyor and means responsive to the passage of a blank through the feeder for causing the conveyor-moving means to operate.

10 Mechanism for distributing blanks in accordance with their thicknesses comprising a conveyor, receptacles mounted on the conveyor, means for moving the conveyor intermittently a predetermined distance, a feeder for delivering blanks one at a time to the receptacles, and means responsive to the passage of a blank through the feeder for causing the conveyor-moving means to be thrown into operation.

11. Mechanism for distributing blanks in accordance with their thicknesses comprising a conveyor, receptacles mounted on the conveyor, means for moving the conveyor intermittently a predetermined distance, a feeder for delivering blanks one at a time to the receptacles, and a member arranged to be encountered and moved by the blank during its passage through the feeder for causing the conveyor-moving means to operate.

12. Mechanism for distributing blanks in accordance with their thicknesses comprising a conveyor, receptacles mounted on the conveyor, a feeder for delivering blanks one at a time, means for moving the conveyor intermittently in such manner that during its pauses a receptacle is in operative relation to the feeder, and means operated by the passage of a blank through the feeder for setting into operation the conveyor-moving means.

13. A machine for distributing blanks in accordance with the extent of a selected dimension thereof comprising an endless conveyor, receptacles mounted thereon, a clutch, automatic means for throwing the clutch into and out of operation for moving the conveyor intermittently to cause the receptacles to

move from one station to the next succeeding one, and operator-controlled means for rendering the automatic means inoperative and thereby permitting the clutch to be operative for any desired interval whereby any selected receptacle may be moved uninterruptedly past any desired number of stations.

14. The combination with mechanism for operating upon blanks one at a time in accordance with their thicknesses, of mechanism for distributing the blanks in accordance with their thicknesses as determined by the operating mechanism comprising an endless conveyor, receptacles carried thereby and equally spaced from one another, means for moving the conveyor intermittently through distances equal to the distance between two receptacles to bring the receptacles successively into blank receiving position, and a feeder adapted to receive the blanks one by one from the operating mechanism and deliver a blank to each receptacle after said receptacle reaches receiving position.

15. The combination with mechanism for operating upon blanks in accordance with the thicknesses thereof including an adjustable controller for said operating mechanism the adjusted position of which corresponds in each case to the thickness of the blank to be operated upon, of mechanism for distributing the blanks according to their thicknesses including an endless conveyor, receptacles carried thereby, means for moving the conveyor step by step whereby the receptacles occupy successively different stations, means for feeding the blanks successively from the operating mechanism one at a time into a receptacle, means for causing each receptacle

to discharge its blank when the proper station has been reached, an adjustable controller for said last-named means, and connections between the two controllers such that when one is adjusted, the other is also adjusted.

16. Mechanism for distributing blanks in accordance with the extent of a selected dimension thereof comprising a conveyor, receptacles mounted on the conveyor, means for moving the conveyor step by step whereby the receptacles occupy successively different stations, means for causing each receptacle to discharge its blank when the proper station has been reached, a feeder for delivering blanks successively to the receptacles, and means responsive to the passage of each blank through the feeder for moving the conveyor one step.

17. A machine for distributing blanks in accordance with the extent of a selected dimension thereof comprising an endless conveyor, receptacles for blanks mounted thereon, a clutch, automatic means for throwing the clutch into and out of operation for moving the conveyor step by step whereby the receptacles are moved from one station to the next succeeding one, means for causing each receptacle to deliver its blank when the proper station is reached, and operator-controlled means for rendering the automatic means inoperative and thereby permitting the clutch to be operative for any desired interval whereby any selected receptacle may be moved uninterruptedly past any desired number of stations.

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

WILLIAM THOMAS BUCKINGHAM ROBERTS