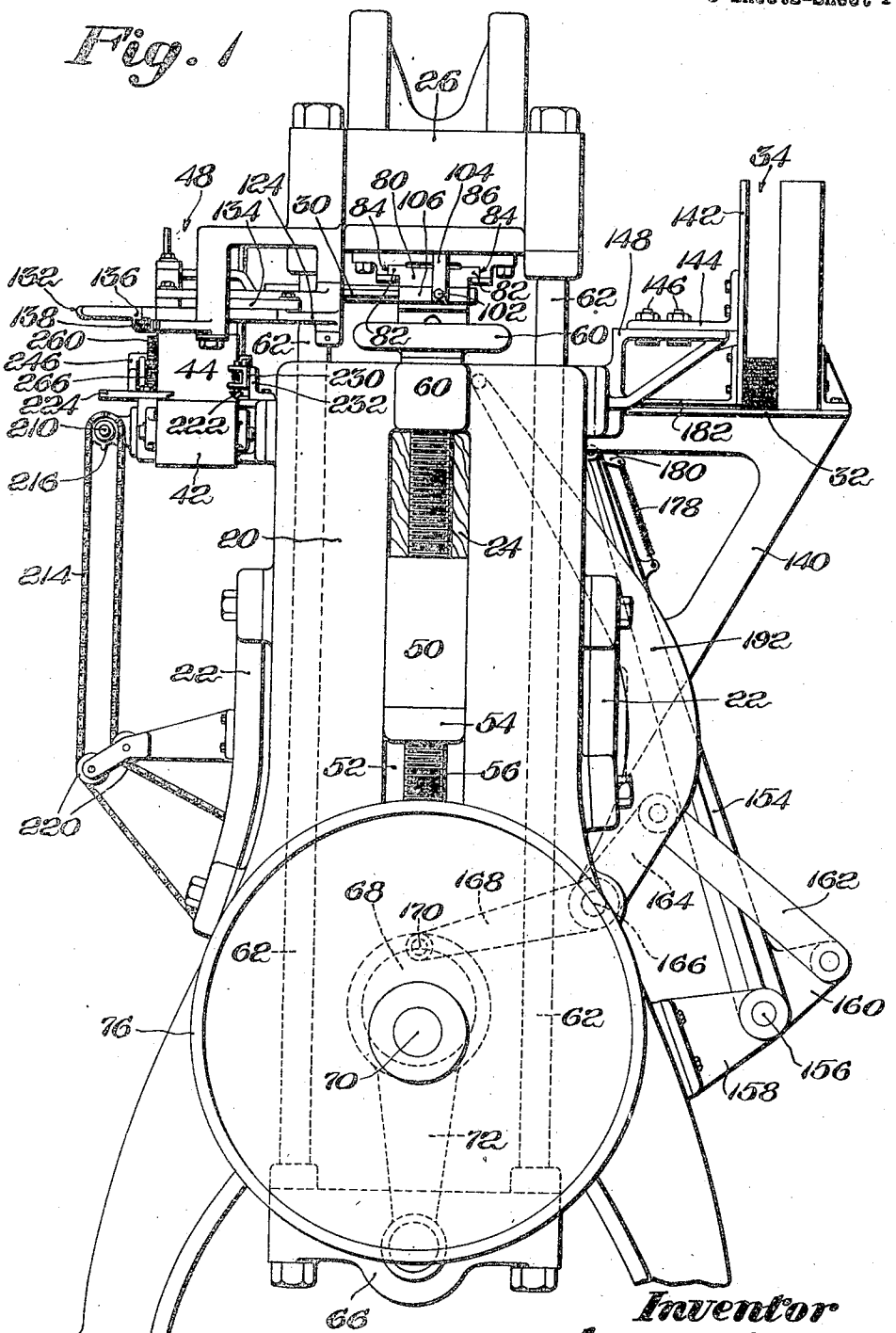
Oct. 23, 1923. 1,471,372

E. E. WINKLEY

STOCK CUTTING MACHINE

Filed Nov. 20, 1919 5 Sheets-Sheet 1

Fig. 1



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Oct. 23, 1923. **1,471,372**

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STOCK CUTTING MACHINE

Filed Nov. 20, 1919 5 Sheets-Sheet 2

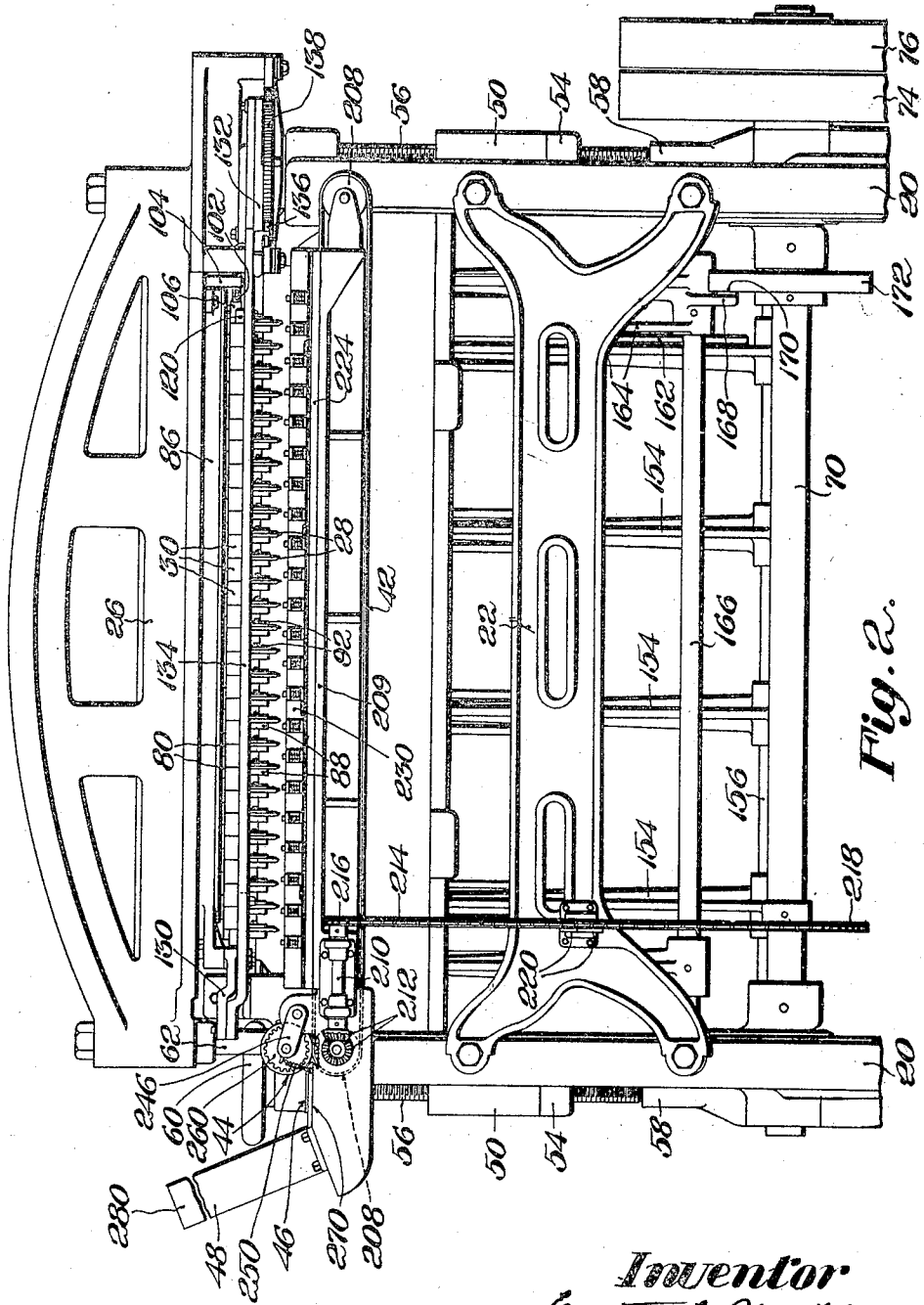


Fig. 2.

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STOCK CUTTING MACHINE

Filed Nov. 20, 1919 5 Sheets-Sheet 3

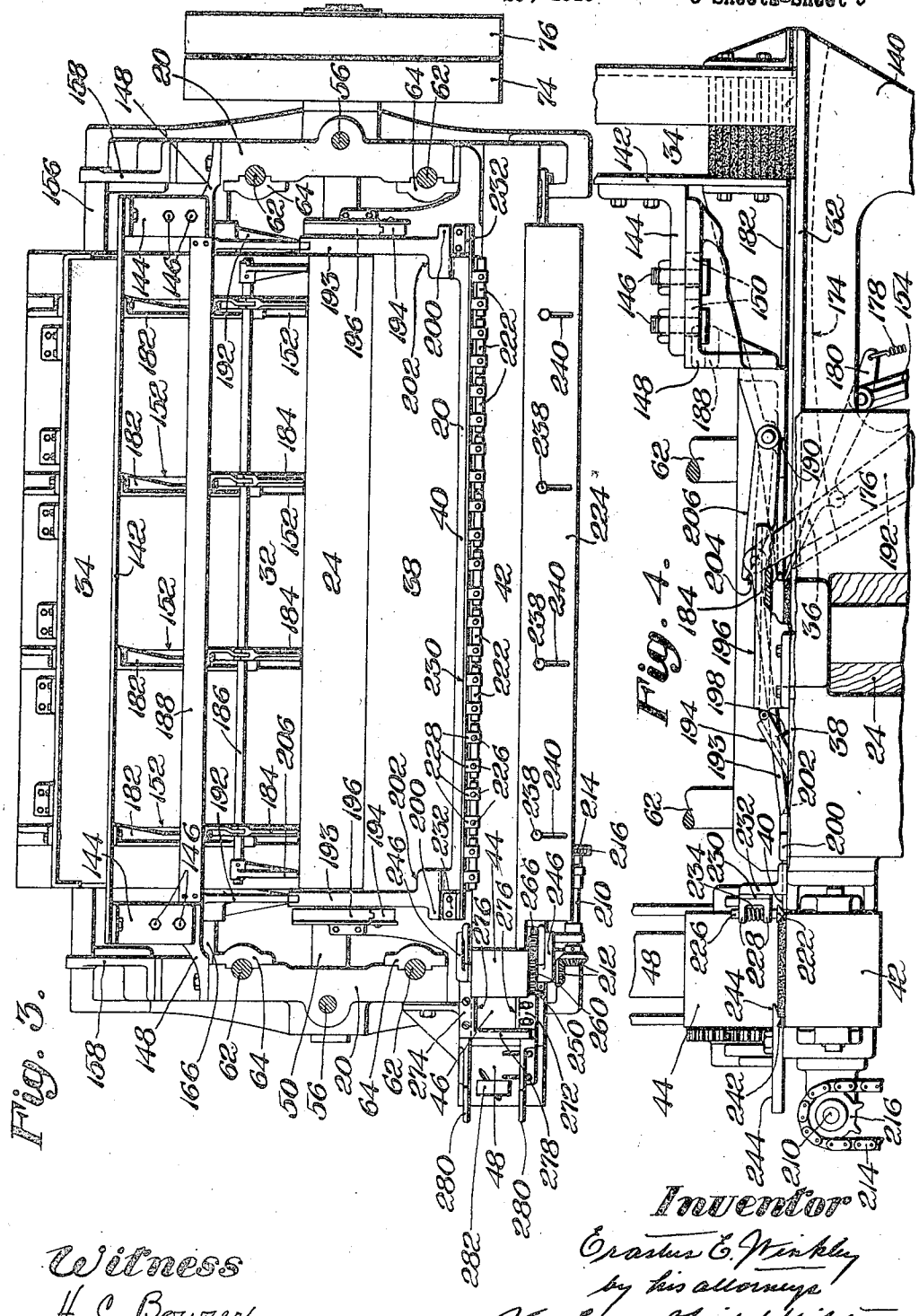


Fig. 5.

Fig. 4.

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STOCK CUTTING MACHINE

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Fig. 5.

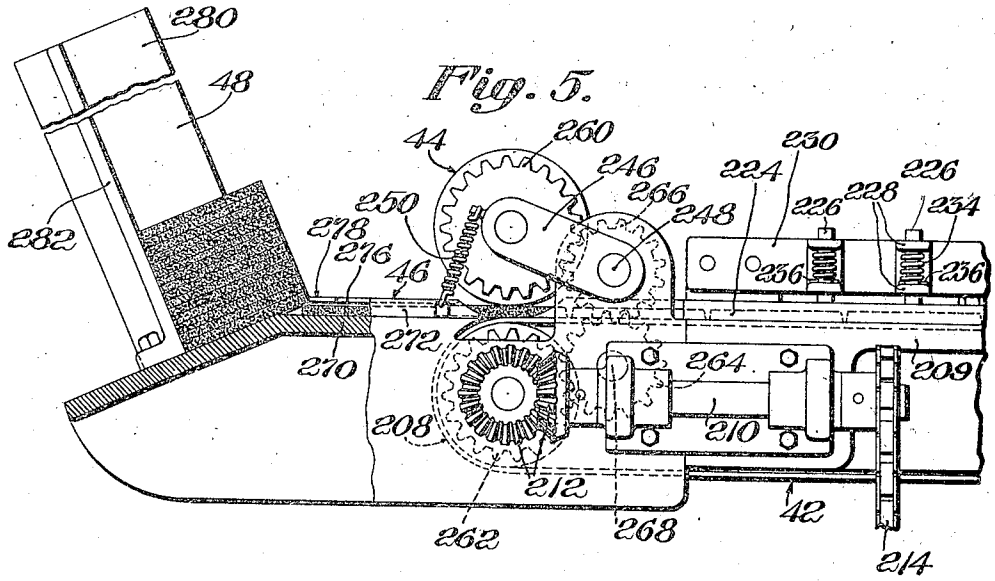
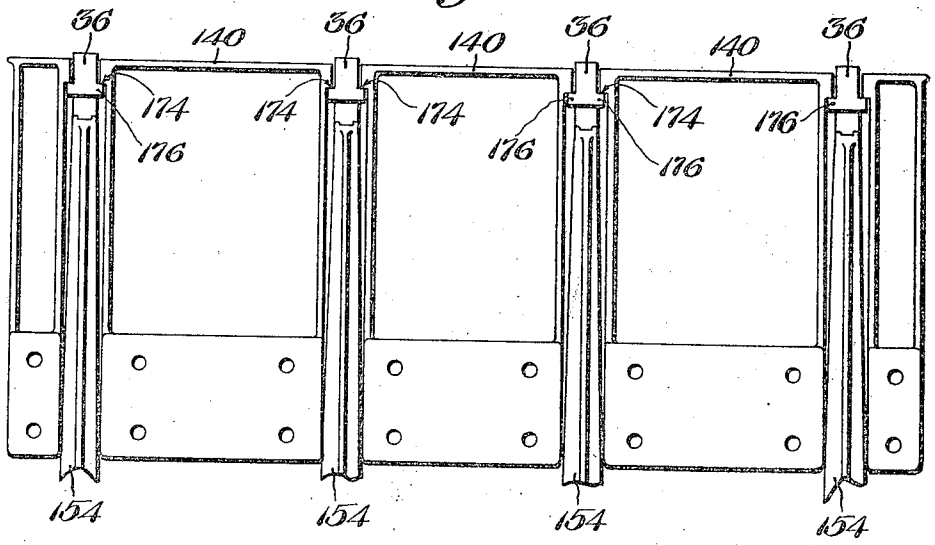


Fig. 6.



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STOCK CUTTING MACHINE

Filed Nov. 20, 1919 5 Sheets-Sheet 5

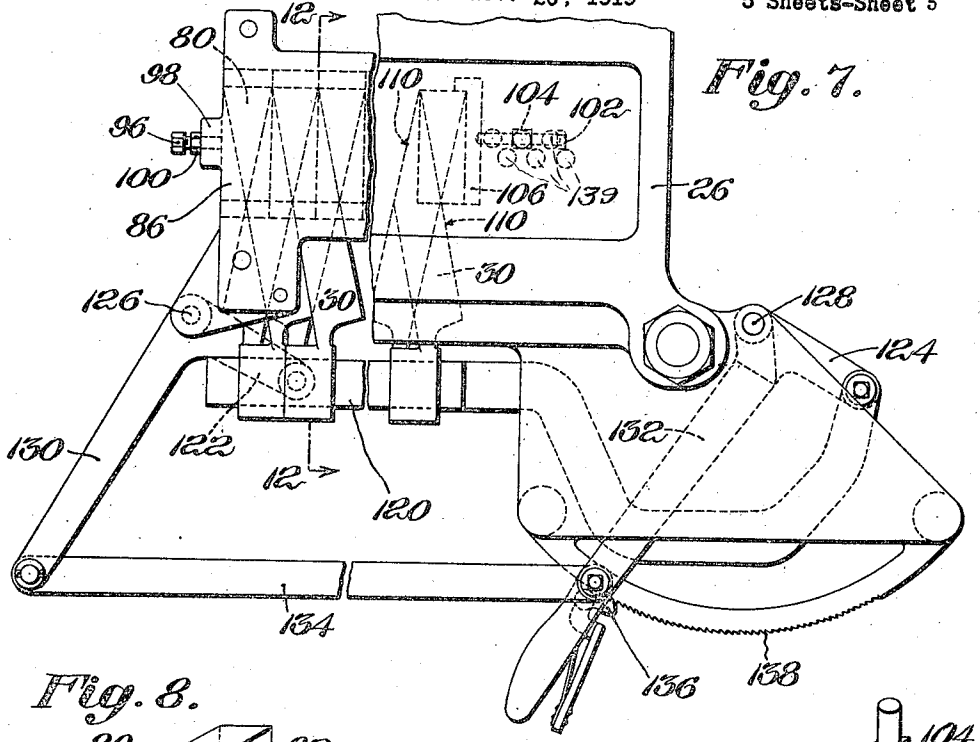


Fig. 7.

Fig. 8.

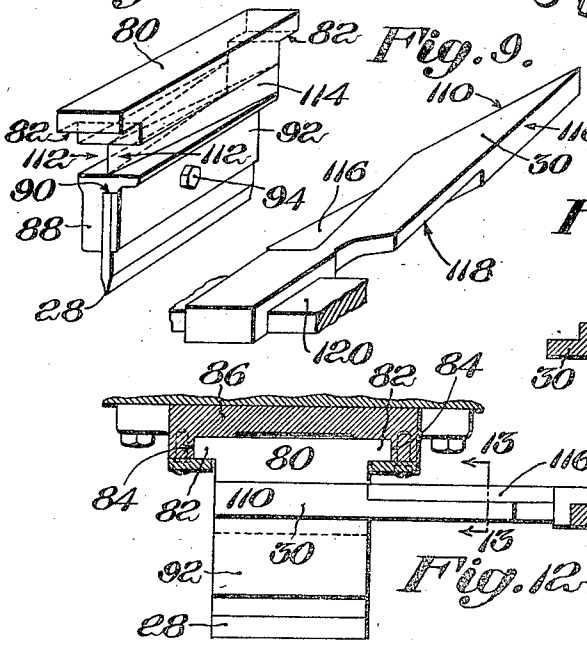


Fig. 9.

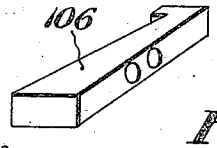


Fig. 10.

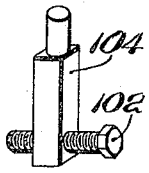


Fig. 11.

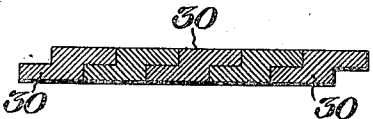


Fig. 13.

Fig. 12.

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UNITED STATES PATENT OFFICE.

ERASTUS E. WINKLEY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

STOCK-CUTTING MACHINE.

Application filed November 20, 1919. Serial No. 339,298.

To all whom it may concern:

Be it known that I, ERASTUS E. WINKLEY, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Stock-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to stock-cutting machines and more particularly to a machine which is adapted for cutting a strip of leather, leatherboard or similar material into like pieces suitable for use as polygonal heel lifts.

One of the objects of the invention is to provide a machine for cutting a strip of material by means of concurrent operations, into the full number of pieces or sections of a predetermined size which the strip is capable of supplying and which will remove the pieces as fast as they are produced and stack them in single column formation in a magazine or container.

With this object in view one feature of the present invention consists in the combination of a series of cutters adapted to operate simultaneously upon strips successively fed thereto to cut the strips into a plurality of pieces and transferring devices for simultaneously removing the cut pieces from the field of operation of the cutters and delivering them one by one to a magazine.

Another feature of the invention consists in a stacking device by means of which the pieces are introduced into the bottom of the magazine through improved guiding means so that a stack of pieces is progressively built up from beneath.

Another object of the invention is to render the machine capable of cutting a strip into a plurality of longer or shorter sections of equal sizes.

With this object in view another feature of the invention consists in the provision of improved means for varying equally the spacing of the cutters throughout the series. It is preferred to accomplish this result by adjusting the cutters simultaneously through distances which increase progressively from one end of the series to the other. To this end the cutters are severally secured upon a series of carriers which are mounted with provision for lateral movement toward and from each other, and a series of compactly arranged spreaders are provided consisting of wedged-shaped members the pointed ends of which are interposed between adjacent cutter carriers. The spreaders are also laterally movable toward and from each other in a direction parallel to the direction of relative movement of the cutter-carriers and they are actuated simultaneously in a direction to advance the wedge faces thereof between the cutter-carriers so as to spread the latter apart by a series of concurrent, cumulative movements, progressing from one end of the series of cutters to the other. After the spreaders have been actuated to adjust the cutters the former are locked in their operative positions and serve to maintain the equal spaced relationship of the cutters throughout the operation of the machine.

Provision is also made for certain other adjustments for the purpose of accommodating strips of varying widths and blanks of varying sizes into which the strips are cut. These adjustable features are not essential but are of importance in increasing the capacity and commercial value of the machine.

The invention further consists in certain other features of construction, combination and arrangement of parts which will be hereinafter described and specifically pointed out in the claims, the advantages of which will be obvious to those skilled in the art.

The various features of the invention will be readily understood from an inspection of the accompanying drawings and from the following detailed description of the specific construction shown therein.

In the drawings Figure 1 is a view in side elevation of a machine embodying the features of the invention in their preferred forms; Fig. 2 is a view in front elevation of the machine; Fig. 3 is a top plan view thereof with the crosshead and cutting knives removed; Fig. 4 is a fragmentary view, in side elevation and on an enlarged scale, illustrating particularly the feeding mechanism, a portion of the frame of the mechanism being broken away to disclose parts otherwise concealed; Fig. 5 is a fragmentary view, partly in front elevation and partly in section, and on an enlarged scale of the mechanism for effecting the stacking of the lifts;

Fig. 6 is a detail view in front elevation showing certain parts of the mechanism for feeding the strips; Fig. 7 is a fragmentary plan view illustrating the means for adjusting the cutting knives; Fig. 8 is a detail perspective view of one of the cutting knives and knife carriers; Figs. 9, 10 and 11 are detail perspective views of parts of the mechanism for adjusting the cutting knives; Fig. 12 is a sectional elevation taken substantially on the line 12—12 of Fig. 7; and Fig. 13 is a detail sectional view taken on the line 13—13 of Fig. 12.

In the illustrated embodiment of the invention the machine comprises, in general, a frame consisting of two lateral supports or standards 20 which are connected with each other by cross braces 22; an elongated stationary bed or cutting block 24 adjustably supported at its opposite ends in the standards 20; a cutter-carrying crosshead or beam 26 which is adapted to reciprocate vertically above the cutting block; a series of cutters 28 on the crosshead arranged to cooperate with the cutting block to sever strips of stock transversely into equal parts; mechanism including a series of wedge-shaped spreaders 30 (Figs. 7 and 9) for varying equally the spacing of the cutters 28; a feed table 32 across which the strips to be cut are advanced to the cutting block; a magazine 34 for supporting a stack of strips at the rear of the feed table 32; feeding mechanism including a plurality of pusher fingers 36 for removing the bottom strip widthwise from the stack in the magazine 34 and pushing it across the feed table 32 to the top face of the cutting block; a second feed table 38 in front of the cutting block; auxiliary feeding mechanism including a pusher bar 40, operating concurrently with the pusher fingers 36 for removing simultaneously from the cutting block the row of pieces or lifts produced by the cutting operation and advancing the row over the feed table 38; a continuously driven endless belt conveyer 42, travelling at right angles to the direction of movement of the pusher bar 40, to which the row of lifts are transferred by said pusher bar; a stacking device comprising a driven feed roll 44 which cooperates with the conveyer 42 to project the lifts successively through a short horizontal chute or guideway 46 and cause them to be stacked one below another in a magazine 48.

The stationary bed or cutting block 24 is similar to those ordinarily used in well-known types of die presses or "dinking" machines. As shown, the cutting block rests upon the upper flat surface of a beam or bed 50 extending across the machine. Each end of the bed 50 projects into a vertical slot 52 in the corresponding standard 20 and is supported upon a nut 54 which is confined in the slot 52 in the corresponding standard 20 and is threaded upon a vertical adjusting screw 56. The lower ends of the screws 56 rest upon steps 58 on the standards 20 while the upper ends are severally provided with hand wheels 60 by which the screws may be turned to adjust the height of the block.

The cutter-carrying crosshead or beam 26 extends lengthwise of the machine above and parallel with the cutting block and is supported by four posts 62 which extend through and are adapted to slide vertically in guideways 64 formed in the standards 20. The posts 62 are arranged in pairs at opposite ends of the crosshead 26 and each pair is connected, below the guideways 64 by a cross-bar 66 (Fig. 1). The crosshead 26 is reciprocated by means of two eccentrics 68 which are secured to a main shaft 70 and are connected with the opposite cross-bars 66 by means of links 72 each of which encircles one of the eccentrics at one end and has its other end pivoted to one of the cross-bars. The main shaft 70 which carries the eccentrics and also the devices for operating the other moving parts of the machine extends lengthwise of the machine, having its bearings in the standards 20, and is adapted to be continuously driven by a belt pulley 74 that is secured to the shaft. A loose pulley 76 is provided on the shaft 70 to receive the driving belt when it is desired to stop the machine, and this belt may be shifted to the tight pulley 74 by any suitable belt shifting device.

The cutters 28 comprise a series of straight knives which are arranged side by side above the cutting block 24 with their cutting edges extending transversely thereto, and which are movable toward and from each other to vary the size of the pieces to be cut from the strips of stock. To this end each cutter or knife 28 is fastened to a carrier-block 80 which is mounted with provision for sliding movement longitudinally of the crosshead 26. As best shown in Figs. 8 and 12, the upper portion of the carrier-block 80 is provided at its opposite ends with outwardly projecting flanges 82 which are received in longitudinal ways 84 in a supporting plate 86 that is secured to the under side of the crosshead 26. The carrier-block 80 is further provided with a downwardly projecting flange 88 to which the knife is secured, the knife being seated against a shoulder 90 on the carrier-block and held securely in place between the flange 88 and a clamping plate 92 by means of a screw 94. In order to prevent the carrier-blocks from moving beyond the left end of the supporting plate 86, a screw 96 is threaded through a lug 98 depending from the plate 86 and arranged to engage the endmost carrier-block, as shown in Fig. 7. The screw 96 may be adjusted to position the first or endmost cutter at the left side of

the machine at the required distance from the end of the strip which is to be cut, and a lock nut 100 is provided for securing the screw in adjusted position. At the opposite end of the supporting plate 86 the endmost carrier-block is held against movement away from the other blocks by means of a screw 102 which is threaded into a post 104 (Figs. 7 and 11) projecting downwardly from the crosshead 26, and the screw engages at its inner end a retaining block 106 (Fig. 10) which is shaped to fit the side of the carrier-block.

In order that the carrier-blocks may be spread apart so that the distance between adjacent cutters shall be equal throughout the series, the wedge-shaped spreaders 30 are provided, the pointed ends of which are severally interposed between adjacent carrier-blocks, as shown in Fig. 7, and provision is made for advancing the spreaders simultaneously and uniformly between the carrier-blocks and permitting the spreaders to move laterally away from each other as the carrier-blocks are forced apart by the action of the spreaders.

As best shown in Figs. 7, 9, 12 and 13, the spreaders 30 consist of similar wedge plates having two parallel flat faces at the top and bottom thereof and two oppositely inclined edge faces 110 of equal pitch. Each carrier-block 80 is provided on opposite sides with recesses 112 having inclined faces 114 formed at the bases thereof which are of a pitch corresponding to the pitch of the inclined edge faces 110 of the spreaders, and the spreaders are arranged to project into the opposed recesses of adjacent carrier-blocks so that the inclined faces of the spreaders engage the inclined faces on the adjacent blocks. This construction permits the spreaders to be interposed between the carrier-blocks when the latter are butted side to side. In order that the inclined faces 114 on the carrier-blocks 80 shall be engaged throughout their entire length by the correspondingly inclined edge faces 110 of the spreaders, whatever the operative positions of the latter, the spreaders are made longer than the carrier-blocks. The spreaders are also wider, near their rear ends, than the carrier-blocks and are arranged with adjacent spreaders overlapping, as shown in Fig. 7, so that adjacent carrier-blocks may be moved into contact with each other. To permit the spreaders to be arranged in a row in the same horizontal plane, they are severally constructed, as shown in Fig. 13, with a portion thereof adapted to project above the adjacent spreader on one side and a portion adapted to project below the adjacent spreader on the other side. To this end the upper and lower flat faces of each spreader is recessed at 116 and 118, respectively, adjacent the inclined edges thereof, as shown in Fig. 9, to receive the projecting portions produced by similar recesses formed in the adjacent spreaders.

In order that the spreaders may be advanced simultaneously between the carrier-blocks to force the cutters apart, and that the spreaders may be permitted to move laterally away from each other as they are advanced, the spreaders are loosely mounted on a bar 120 (Figs. 7 and 9) which is mounted for parallel movement toward and from the row of carrier-blocks. To this end the bar 120 is pivotally connected at its opposite ends upon arms 122 and 124 of two bell crank levers which are fulcrumed on studs 126 and 128 respectively, the former projecting from a portion of the supporting plate 86 and the latter projecting from the crosshead 26, each being located the same distance in front of the carrier-blocks. The arms 122 and 124 are of equal length and the other arms 130 and 132 of said bell crank levers are pivotally connected at points equidistant from their fulcrums by means of a link 134. The arm 132 extends beyond the point at which it is connected with the link 134 to form a handle by means of which the bar 120 and the spreaders may be actuated. The arm 132 may be locked in adjusted position by means of a spring pressed detent 136, which is adapted to engage teeth in a segment 138 that is secured to the crosshead 26.

The number of cutters and carrier-blocks employed corresponds to the number of cuts required to divide the strips of stock into the desired number of pieces or lifts, and is accordingly one less than the number of pieces produced. When the cutters are set to cut pieces of the smallest size which the machine is capable of producing, the carrier-blocks are butted together side to side, as shown in Fig. 7. When it is desired to provide for the cutting of larger pieces from strips of stock of the same length, the screw 102 is loosened and after one or more of the carrier-blocks have been removed from the supporting plate, the others are spread apart to increase the distances between the cutters. After the proper spacing of the cutters has been secured, the screw 102 is tightened to prevent further spreading apart of the carrier-blocks. As a convenient means of providing for a greater range of adjustment of the screw 102 than may be attained by turning the screw in the post 104, a series of holes 139 are provided in the crosshead at different distances from the end thereof in which the post 104 may be removably secured, and adjustment may be facilitated by moving the post 104 from one to another of these holes and then turning the screw 102 until the retaining block 106 is brought into contact with the endmost carrier-block. It will be seen that when the arm 132 is held by means

of the detent 136 and the segment 138, and the screw 102 is tightened to force the retaining block 106 against the endmost carrier-block 80, the cutters 28 will be locked in their adjusted positions.

The strips of stock to be operated upon are stacked one on top of another within the magazine 34 (Figs. 1, 3 and 4) with the bottom piece of the stack resting upon the feed table 32. The feed table 32 is supported by a plurality of brackets 140 which are secured to the rear cross brace 22. The rear and end walls of the magazine 34 are constructed of a single piece of sheet material that is rigidly secured to the feed table 32. The front wall 142 of the magazine is adjustable toward and from the rear wall to accommodate strips of stock of varying widths. For this purpose the front wall 142 is provided at its opposite ends with angle pieces 144 which are rigidly but adjustably secured by screws 146 to brackets 148, which are in turn secured to the standards 20, the screws 146 extending through slots 150 (Fig. 4) in the brackets 148. The lower edge of the front wall 142 is located at a distance above the feed table 32 substantially equal to the thickness of the strips of stock to permit the removal of a single strip only at a time from the bottom of the magazine.

The strips of stock are fed one at a time from the magazine 34 through the opening beneath the front wall 142 and across the feed table 32 to the cutting block 24 by means of a plurality of pusher fingers 36 which project upwardly through slots 152 (Fig. 3) in the feed table to engage the rear edge of the bottom strip. Each pusher finger 36 is pivotally mounted near its lower end on an arm 154 that is secured to a rock shaft 156 which is journaled in bearing brackets 158 on the standards 20 and is actuated to oscillate the arms 154 and reciprocate the pusher fingers between the magazine and the cutting block. To this end one of the arms 154 is provided with a lateral extension 160 (Fig. 1) which is connected by a link 162 to an arm 164 fastened to a rock shaft 166 that is suitably journaled in the standards 20, and a second arm 168 integral with the arm 164 carries a cam roll 170 which is received in a groove in a cam 172 (Fig. 2) that is secured to the shaft 70. The forward ends of the pusher fingers 32 are constrained by means of limiting cam faces 174 (Figs. 4 and 6) to move in a horizontal path just above the top surface of the feed table 32 and in the plane of the lowermost strip in the magazine 34, as the arms 154 are oscillated. The cam faces 174 are formed on the brackets 140 at either side af the pusher fingers and which are adapted to cooperate with lugs 176 projecting from opposite sides of the pusher fingers. Normally each of the pusher fingers 36 is yieldingly held with its lug 176 in engagement with the adjacent cam faces 174 by means of a coiled spring 178, one end of which is secured to an extension 180 of the pusher finger 36, while the opposite end is secured to an ear on the arm 154. When the reciprocating pusher fingers are at the limit of their rearward strokes their forward ends are located just behind the lower strip in the magazine 34 and when at the limit of their forward strokes, the pusher fingers occupy the position shown in Fig. 4 and the strip has been fed into position on the cutting block and is ready to be operated upon by the cutters.

In order to insure that the strips will lie flat upon the feed table as they are being fed to the cutting block, the strips are confined beneath a plurality of guiding devices each consisting of a guide finger 182 which projects forwardly from the front wall 142 of the magazine 34 to which it is rigidly secured and an auxiliary guiding finger 184 that is secured to a rock shaft 186 which is journaled in bearing brackets on a cross bar 188 which extends above the feed table 32 and is secured at its opposite ends to the brackets 148. As shown in Figs. 3 and 4, these guiding devices are arranged directly above the slots 154 in the feed table through which the pusher fingers project. The lower faces of the guide fingers are sufficiently elevated above the feed table 32 to permit the free passage beneath them of the strips. The guide fingers 184 are normally held by gravity as shown in Fig. 4, with their lower faces in the same plane as the lower faces of the guide fingers 182, a shoulder 190 on each of the fingers 184 limiting their downward movement by contact with the corresponding forward end of the guide fingers 182. These fingers 184, however, are adapted by means hereinafter described to be tilted upwardly to permit the pusher bar 40 to be moved into position on the feed table 32 at the rear of the strip on the cutting table for the purpose of removing the pieces produced by the cutting operation. After feeding a strip to the cutting block, the pusher fingers 36 are retracted rearwardly and as they pass beneath the magazine 34 the forward ends of the fingers are depressed by the bottom strip therein. After the pusher fingers 36 have been retracted beyond the strip they are raised by the springs 178 sufficiently to enable them to engage the rear edge of the strip upon their next forward stroke so as to feed the strip toward the cutting block.

As the pusher fingers 36 move rearwardly the pusher bar 40, which operates concurrently therewith, also moves rearwardly to a position behind the strip which has just been deposited on the cutting block. As shown in Fig. 3 the pusher bar 40, in its forward po-

sition, rests upon the feed table 38 which is supported by the standards 20. The pusher bar 40 is actuated by means of a pair of arms 192 (Figs. 1 and 4) on the rock shaft 166, each of which is pivotally connected, at its upper extremity, to one of the pair of arms 193 (Fig. 3) which extend rearwardly from the opposite ends of the pusher bar 40. In order to permit the pusher bar to pass over the strip on its rearward movement, elevating devices are provided adjacent the outer sides of the arms 193. Each of these devices consists of an inclined lifting cam 194 the upper end of which is pivoted to an elevated horizontal platform 196, while the lower end thereof is normally held in contact with the feed table 38 by means of a spring 198. The lifting cams 194 are so arranged that on the rearward movement of the pusher bar 40 they will engage with a pair of lugs 200 which project outwardly from the opposite ends of the pusher bar, thus raising the pusher bar 40 onto the elevated platform 196. As the pusher bar 40 continues to move rearwardly a pair of shoulders 202 on the bar are brought into engagement with cam surfaces 204 (Fig. 4) on the under side of a pair of arms 206 which are carried at opposite ends of the rock shaft 186, raising the arms and rocking the shaft so as to lift the guide fingers 184 out of the path of the pusher bar 40 and permit the bar to drop into position behind the strip on the cutting block. With the pusher bar in this position the cutting operation occurs and thereafter the pusher bar is moved forwardly over the feed table 38 to remove the row of cut pieces from the cutting block to the conveyer 42, the lugs 200 on the pusher bar passing beneath the elevated platform 196 and raising the inclined lifting cams 194 out of their path. When the pusher bar 40 is at the limit of its forward stroke, it occupies the position shown in Fig. 4 and the lifts have been fed simultaneously onto the conveyer 42.

The conveyer 42 is continuously driven during the operation of the machine and delivers the lifts serially into the chute or guideway 46. As shown in Figs. 1, 2 and 5, the conveyer 42 comprises an endless belt which extends across the front of the machine adjacent the front edge of the feed table 38. The conveyer belt passes over a pair of rollers 208, the trunnions of which are journaled in suitable bearings at opposite ends of a shelf 209 which is secured to the frame of the machine and serves to support the upper stretch of the belt between the rollers. The roller 208 at the left side of the machine is driven through an intermediate shaft 210 (Fig. 5) by means of intermeshing gears 212 one of which is secured to the shaft 210, and the other one to the trunnions of the roller 208. The intermediate shaft 210 is driven by means of a sprocket chain 214 (Figs. 1 and 2) which passes over a sprocket wheel 216 on the intermediate shaft 210 and over a sprocket wheel 218 on the main shaft 70 and is guided by a pair of idle guide rolls 220.

As the lifts are advanced from the feed table 38 to the conveyer 42 they are forced beneath a series of horizontal guide bars 222 (Fig. 4) which are arranged end to end in a row extending across the machine above the front edge of the feed table 38. These guide bars 222 yield upwardly to permit the passage of the lifts beneath them and after the lifts have been advanced onto the conveyer the guide bars engage the rear edges of the lifts and cooperate with a guide plate 224 which engages the front edges thereof, for the purpose of guiding the lifts laterally as they are carried along on the conveyer. To this end, the guide bars 222 are triangular in cross-section having one of their longitudinal edges directed toward the feed table 38 and each bar is supported by means of a pair of vertical posts 226 severally extending upwardly from the top face of the bar through pairs of guiding lugs 228 on a supporting strip 230 which extends above the feed table 38 and is secured thereto at each of its opposite ends by means of brackets 232. The bars 222 are pressed downwardly by springs 234 surrounding the posts 226 between the upper lug 228 and a pin 236 (Fig. 5) which extends through each post 226 above the lower lug 228. This pin 236 serves also as a stop which, by engagement with the lower lug 228 limits the downward movement of the bar 222 so that the lower edge thereof is located just above the top surface of the feed table 38. As the lifts are advanced by the pusher bar 40 against the rear sides of the bars 222, which are inclined toward the feed table, the bars are lifted to permit the lifts to pass beneath them. After the rear edges of the lifts have passed beyond the lower edge of the bars 222, the inclined front side faces of the bars serve to crowd the lifts forwardly on the conveyer belt until the front edges of the lifts are brought into contact with the guide plate 224.

The guide plate 224 is adjustably secured to the shelf 209 by means of bolts 238 which extend through transverse slots 240 in the guide plate in order to permit the latter to be adjusted toward and from the guide bars 222 to accommodate lifts of different widths. The rear of the guide plate 224 is undercut as shown in Fig. 4, to provide a guiding shoulder 242 for the front edges of the lifts, and a lip 244 which is adapted to overlie the top faces of the lifts and prevent them from rising from the conveyer belt.

The lifts are carried by the conveyer 42 toward the magazine 48 in which they are

to be fed one below another to build up a stack progressively from beneath. In order that the lifts may force their way beneath those previously stacked in the magazine 48 they are forcefully projected through the guideway or chute 46 (Fig. 5) by means of the cooperation of the feed roll 44 with the delivery end of the conveyer 42, and the magazine 48 is so arranged relatively to the chute 46 that the bottom of the stack in the magazine will overlap the delivery end of the chute and incline downwardly therefrom. With the bottom of the stack thus disposed with relation to the chute, the leading end of each lift successively issuing from the chute will strike against the inclined underside thereof raising the stack and forcing its way beneath it.

The feed roll 44 is provided with trunnions which are journaled at the outer ends of a pair of arms 246, (Fig. 5) the opposite ends of which are rotatably mounted on studs 248 projecting outwardly from brackets on the shelf 209 and one of the arms 246 is acted upon by a spring 250 tending to swing the arms downwardly toward the conveyer so as to hold the feed roll 44 in yielding contact with the stock. The feed roll 44 is driven in a direction opposite to the direction of rotation of the roller 208 by a train of gearing comprising a spur gear 260 that is secured to one of the trunnions of the roll 44, a driving gear 262 which is secured to one of the trunnions of the roller 208 and two intermeshing idler gears 264 and 266 which are rotatably mounted upon a stud 268 and upon one of the studs 248, respectively.

The horizontal chute 46 (Figs. 3 and 5) through which the lifts are forced after leaving the conveyer 42 prevents the lifts from tilting out of a horizontal plane as they engage the inclined under side of the bottom lift in the magazine 48. The bottom of the chute 46 is formed by the horizontal portion of a shelf 270 which is secured to the frame of the machine and two parallel side pieces 272 and 274 which are secured to the front and rear edges respectively of the shelf 270. These side pieces 272 and 274 are undercut on their inner longitudinal faces to provide inwardly projecting lips 276 (Fig. 3) which are adapted to overlie somewhat the upper surfaces of the lifts as they pass through the chute to insure that the lifts will be under control and will maintain their butting end-to-end relationship with each other while they are being advanced by the action of the feed roll 44 against the resistance of the lifts in the magazine 48. The side piece 274 is also provided with an arm 278 (Figs. 3 and 5) which extends transversely across the delivery end of the chute and further facilitates the orderly passage of the lifts into the magazine 48. The side piece 272 is secured to the shelf 270 by means permitting its adjustment toward and from the opposite side piece 274 in order that the chute 46 may accommodate pieces of stock of different sizes.

Opposite the delivery end of the chute 46, the shelf 270 is inclined downwardly and forms the bottom of the magazine 48. The magazine 48 is provided with three side walls which extend upwardly at right angles to the inclined portion of the shelf 270. These side walls comprise a pair of oppositely disposed parallel plates 280 and the third wall consists of the plate 282 which is disposed transversely between the plates 280. The outer plate 280 is adjustably secured to the shelf 270 to permit its adjustment toward and from the opposite side of the magazine and the plate 282 is secured to the shelf 270 with provision for its adjustment toward and from the chute 46 in order to adapt the magazine 48 to accommodate pieces of stock of different sizes.

Before starting the machine the operator stacks a few lifts in the bottom of the magazine 48 or places therein a block or weight corresponding in size and shape to a plurality of lifts. It will be seen that as each lift emerges from the chute 46 and its leading end is forced across the inclined lower side of the bottom lift in the magazine 48, the emerging lift will be constrained by the lips 276 on the sides of the chute, as well as by the arm 278, to move in a horizontal plane and maintain its angular relation to the bottom lift of the stack. Consequently the stack of lifts in the magazine will be elevated by the incoming lift until the latter has completely emerged from the chute, whereupon the weight of the stack of lifts above it causes it to tilt downwardly against the inclined bottom of the magazine where it resumes a position with its edges in alinement with the edges of the lifts above it.

It will be seen that after leaving the conveyer 42 the lifts are kept under control by means of the chute 46 until they have been advanced far enough into the magazine 48 to assume their proper stacked relation with the other lifts therein. After being stacked in the magazine 48 the lifts may be conveniently removed for use or for storage.

While it is preferred to employ the specific construction and arrangement of parts herein shown, it will be understood that this construction and arrangement is not essential except so far as specified in the claims and may be changed or modified without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is:—

1. A stock-cutting machine having, in combination, a cutting bed to receive a strip of stock, a reciprocating head movable to-

ward and from the bed, a series of knives spaced apart upon the head and arranged to cooperate with the bed to divide a strip of stock transversely into a series of separate sections and means for removing the sections and stacking them in a single column.

2. A stock-cutting machine having, in combination, a cutting bed, means for feeding a strip of stock into position upon the bed, a reciprocating head movable toward and from the bed, a series of knives spaced apart upon the head and arranged to cooperate with the bed to divide the strip transversely into a series of separate sections, and means for removing the sections all in one direction at a right angle to the feeding-in direction of the strip so that the sections may be directed to a single discharge station.

3. A stock-cutting machine having, in combination, a magazine for holding a plurality of strips of stock to be operated upon, a stationary cutting bed, means for feeding the strips from the magazine to the bed, a reciprocating head movable toward and from the bed, a series of knives spaced apart upon the head and arranged to cooperate with the bed to sever each strip into a series of separate sections, and means for removing the sections from the bed and depositing them in a single column.

4. A stock-cutting machine having, in combination, cutting mechanism for dividing a strip of stock transversely into a plurality of separate pieces arranged in a row in end to end relationship, and means for removing said pieces from the cutting mechanism while maintaining them in ordered relation in the row and finally stacking them in regular succession one beneath another.

5. A stock-cutting machine having, in combination, means for cutting strips into sections, means for feeding strips widthwise to the cutting means, and means for removing the sections from the field of operations of the cutting means and inserting them in succession one beneath another to build a stack from the bottom up.

6. A stock-cutting machine having, in combination, cutting mechanism for dividing successive strips of stock transversely into sections arranged in end to end relationship, means for removing from the cutting mechanism the sections produced from said strips and means, comprising a chute for maintaining the sections in end to end relationship, for stacking said sections in a single column.

7. A stock-cutting machine having, in combination, a magazine for holding sections of stock, cutting mechanism for dividing strips of stock transversely into sections arranged in end to end relationship, means for feeding the sections from the cutting mechanism, a chute arranged at an angle to the floor of the magazine, and means for moving the sections along the chute and into the bottom of the magazine to build up a stack therein from below.

8. A device for stacking pieces of sheet material having, in combination, a feed table, a feed roll adjacent one end of the table for feeding the pieces across the table, means serving in conjunction with the table to maintain the pieces in butting end-to-end relation with their lower faces in the plane of the table as they are advanced by the feed roll, and a magazine adjacent the opposite end of the table in which the pieces are stacked in succession one beneath another, said magazine being constructed and arranged to position the stack with the bottom piece thereof in the path of the pieces on the feed table.

9. A device for stacking pieces of sheet material having, in combination, a horizontal feed table, a feed roll adjacent one end of the table for feeding pieces across the table, means serving in conjunction with the table for maintaining the pieces in butting end-to-end relation with their lower faces in the plane of the table as they are advanced by the feed roll, and a magazine adjacent the opposite end of the table in which the pieces are stacked in succession from beneath, the table comprising a bottom wall inclined downwardly with respect to the feed table and side walls rising perpendicularly from the bottom wall and constructed and arranged to position the stack with the bottom piece thereof in the path of the pieces on the feed table.

10. A stock-cutting machine having, in combination, a stationary cutting block, a plurality of knives for cooperating with the cutting block to cut the strip transversely into sections, means for feeding the strips to the cutting block, and means operating concurrently with the first feed means for removing the sections from the cutting block.

11. A stock-cutting machine having, in combination, a stationary cutting block, a plurality of knives for cooperating with the cutting block to cut the strip transversely into sections, feed tables arranged at opposite sides of the cutting block, a reciprocating feed finger for feeding the strips across one of the feed tables to the cutting block, and a reciprocating pusher operating concurrently with the feed finger for removing the sections from the cutting block.

12. A stock-cutting machine having, in combination, a support, a series of cutter-carriers mounted on said support and adapted to be adjusted thereon toward and from each other, a plurality of laterally movable wedge members severally interposed between adjacent carriers for spreading the carriers

apart, said members being wider than the carriers and adapted to overlap each other to permit the carriers to be moved into contact with each other.

13. A machine for operating upon strips of sheet material having, in combination, means for cutting a strip into a plurality of pieces by a series of transverse cuts, means for removing the row of pieces thus formed in a width-wise direction, and means for simultaneously changing the direction of movement of said pieces and delivering them successively at a discharge station.

14. A stock-cutting machine having, in combination, a stationary bed, a reciprocating head movable toward and from the bed, a plurality of spaced cutters carried by the head for cooperating with the bed to cut strips of stock into sections, and means for removing the sections from the bed concurrently in a direction normal to the direction of movement of the cutters.

15. A stock-cutting machine having, in combination, a stationary bed, a reciprocating head movable toward and from the bed, a plurality of spaced cutters carried by the head for cooperating with the bed to cut a strip of stock into sections, and means for removing the sections concurrently and stacking them serially.

16. A machine for operating upon pieces of sheet material having, in combination, a support for a row of pieces, a conveyer adjacent said support for advancing said pieces, upwardly yielding means between the support and the conveyer for guiding the pieces as they are advanced by the conveyer, and means for feeding the row of pieces beneath said guiding means onto the conveyer.

17. A machine for operating upon pieces of sheet material having, in combination, a support for a row of pieces, a conveyer adjacent said support for advancing said pieces, means between the support and the conveyer comprising a plurality of upwardly yielding guide bars arranged end to end and extending longitudinally of the conveyer for guiding the pieces as they are advanced thereby, and means for feeding the row of pieces beneath said guiding means onto the conveyer.

18. A machine for operating upon pieces of sheet material having, in combination, a support for a row of pieces, a conveyer adjacent said support for advancing the pieces, means for transferring the row of pieces from the support to the conveyer, means on opposite sides of the conveyer for guiding the pieces as they are advanced thereby, and preventing the pieces from rising so as to overlap one another as they are fed, the guiding means on one side of the conveyer being constructed and arranged to yield upwardly to permit the pieces to pass beneath it onto the conveyer and thereafter to crowd the pieces edgewise toward the guiding means on the opposite side of the conveyer.

19. A machine for operating upon pieces of sheet material having, in combination, a magazine for supporting a stack of pieces, a feed table, means for feeding the bottom piece from the stack edgewise across the feed table into position to be operated upon, a movable guide for maintaining the piece flatwise on the feed table during a portion of said feed movement, a reciprocating pusher for removing the piece after it has been operated upon, said pusher being movable from a position in front of the piece into operative position behind it, and means for moving said guide out of the path of the pusher to permit the latter to be moved into operative position.

20. A stock-cutting maching having, in combination, means for cutting the stock into sections, means for feeding the stock to the cutting means, a reciprocating pivoted pusher for advancing the sections, said pusher being movable from a position in front of the stock into operative position behind the stock after the stock has been advanced to the cutting means, and means for preventing the pusher from engaging the stock on its rearward stroke.

21. A machine for operating upon pieces of sheet material having, in combination, a magazine for containing a stack of pieces, a feed table, a pusher for periodically removing a piece from the bottom of the stack in the magazine and feeding it across the feed table, an oscillating arm on which the pusher is pivotally mounted, and means including a cam for causing the stock-engaging end of the pusher to travel in a rectilinear path of movement.

22. A machine for operating upon sheet material having, in combination, means for cutting the material into pieces, an endless belt conveyer for removing and delivering the pieces, a support for the pieces after they leave the conveyer, a magazine for receiving the pieces, and a feed roll for engaging the pieces as they leave the conveyer and advancing them across said support to the magazine.

23. A machine for operating upon sheet material having, in combination, means for cutting the material into pieces, an endless belt conveyer for removing the pieces and delivering them in butting end-to-end relation, a chute for receiving said pieces as they leave the conveyer, and maintaining their end-to-end relation, a magazine for receiving said pieces, and a feed roll for engaging the pieces as they leave the conveyer and advancing them through said chute to the magazine.

24. A machine for operating upon sheet material having, in combination, means for

cutting the material into pieces, means for removing and delivering the pieces, a feed roll for engaging the pieces as they leave the removing and delivering means and advancing them further, a chute for receiving the pieces and maintaining them in butting end-to-end relation as they are advanced by the feed roll, and a magazine adjacent the chute in which the pieces emerging from the chute are stacked progressively from beneath, the magazine being constructed and arranged to position the stack with the bottom piece thereof in the path of the pieces in the chute and inclined downwardly therefrom.

25. In a machine of the character described, means for cutting a strip of material into three or more sections, means for feeding strips widthwise to the cutting means, and means for removing the sections from the field of operations of the cutting means and stacking them, said means operating to insert the sections at the bottom of the stack in succession one beneath another to make a single column of sections.

26. In a machine of the character described, means for cutting a strip of material into a plurality of pieces by a series of transverse cuts, means for removing the row of pieces thus formed in a direction widthwise of the row, means for simultaneously feeding all of the pieces cut from one strip in one direction and at an angle to the widthwise direction of feed, and means for delivering the pieces in succession to a single discharge station.

27. In a machine of the character described, means for cutting a strip of material into three or more sections by a series of transverse cuts, means for removing the row of sections thus formed in a direction widthwise of the row, and means for moving the row in another direction and delivering the pieces in succession one above another in a single column.

28. In a machine of the class described, a cutting bed and a plurality of cutters relatively movable to effect cutting operations upon material supported on the cutting bed to produce a plurality of sections lying side by side and forming a row of sections corresponding to the original strip of material, a support at one side of the bed, and means for moving all of the sections from the bed to the support and concurrently along the support in end to end relationship in a direction corresponding to the long dimension of the original strip.

29. In a machine of the character described, a work supporting bed and a plurality of cutters relatively movable with respect to each other to effect cutting operations upon strips of material successively presented in cutting position, and means for removing the sections of each strip concurrently and stacking them serially in a single column.

30. In a machine of the character described, a stationary cutting block, a reciprocable head, a plurality of cutters carried by the head for co-operation with the block to cut strips of stock into sections, a reciprocable member for moving all of the sections of a strip in a direction widthwise of the original strip, and a conveyer belt for moving all of the same sections together in a direction at right angles to the first movement so that all of the sections can be delivered at a single delivery station.

31. In a machine of the class described, a plurality of cutters for cutting strips of material into sections, means for moving the sections of each strip all in one direction corresponding to the longitudinal dimension of the original strip and delivering the sections in succession at one delivering position, and a magazine for receiving the sections thus delivered and stacking them in a single column.

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