E. E. WINKLEY.

FEED MECHANISM.

APPLICATION FILED APR. 1, 1915.

1,213,052.

Patented Jan. 16, 1917.

6 SHEETS—SHEET 1.

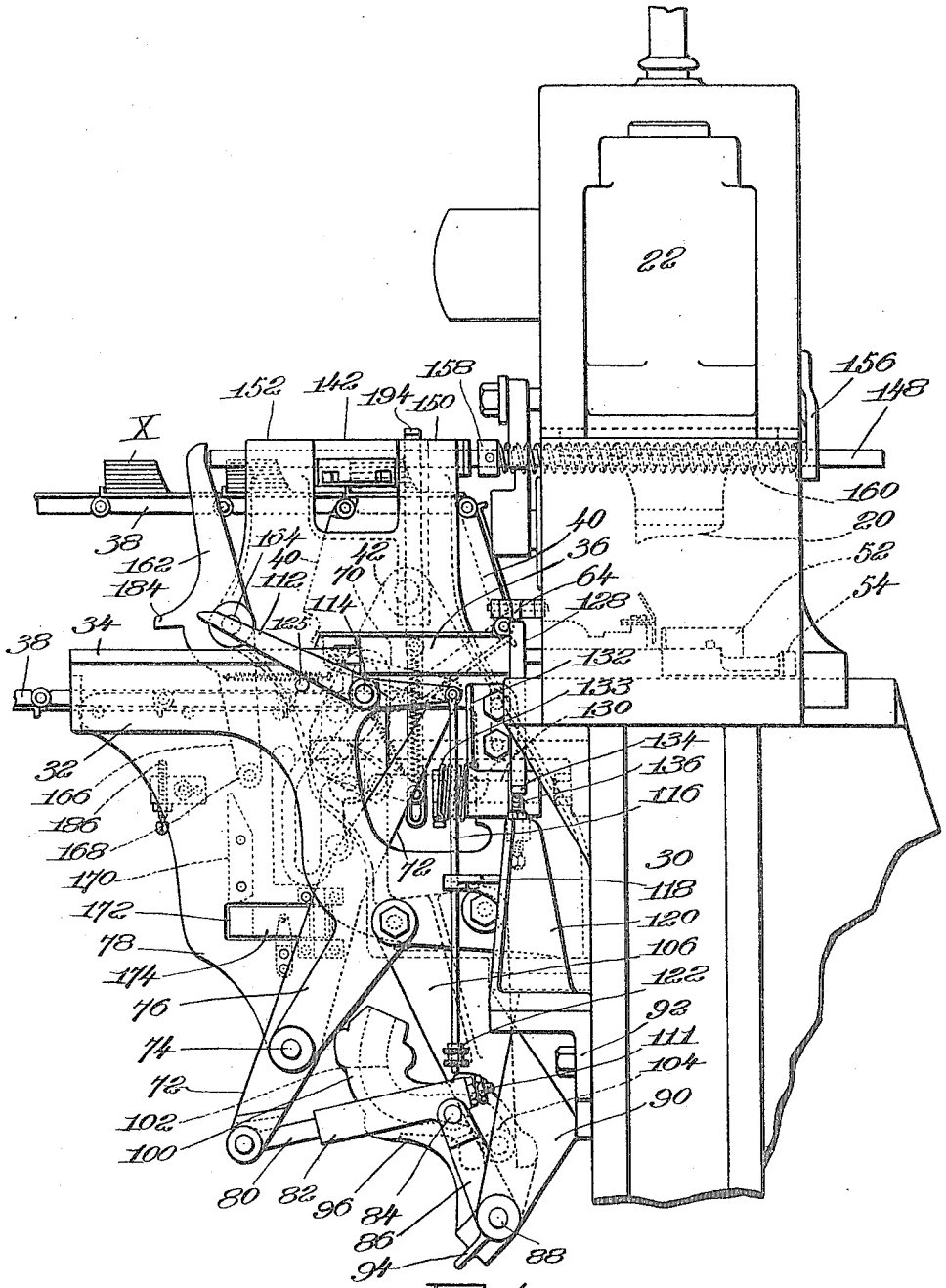


Fig. 1.

WITNESS

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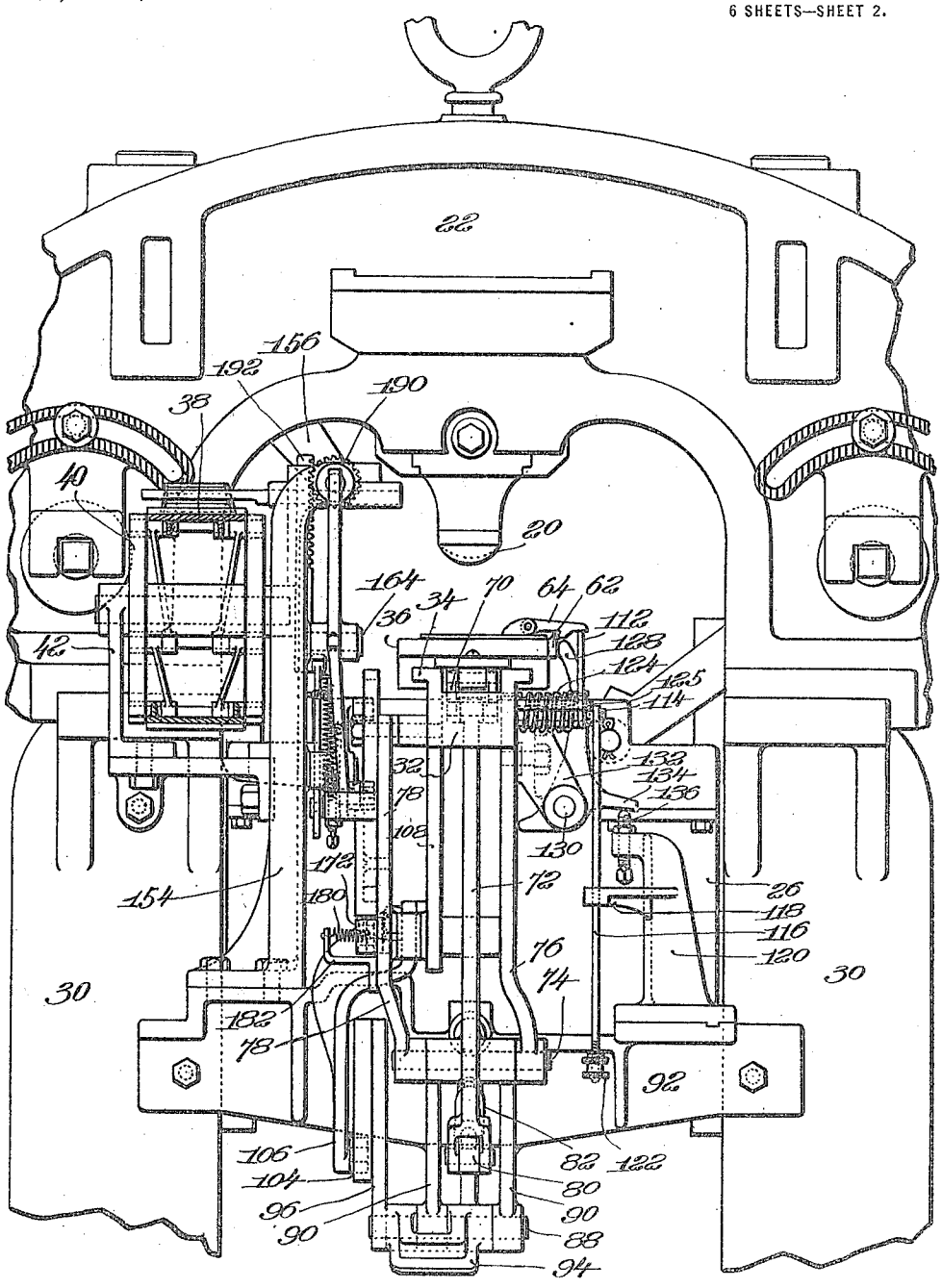


Fig. 2.

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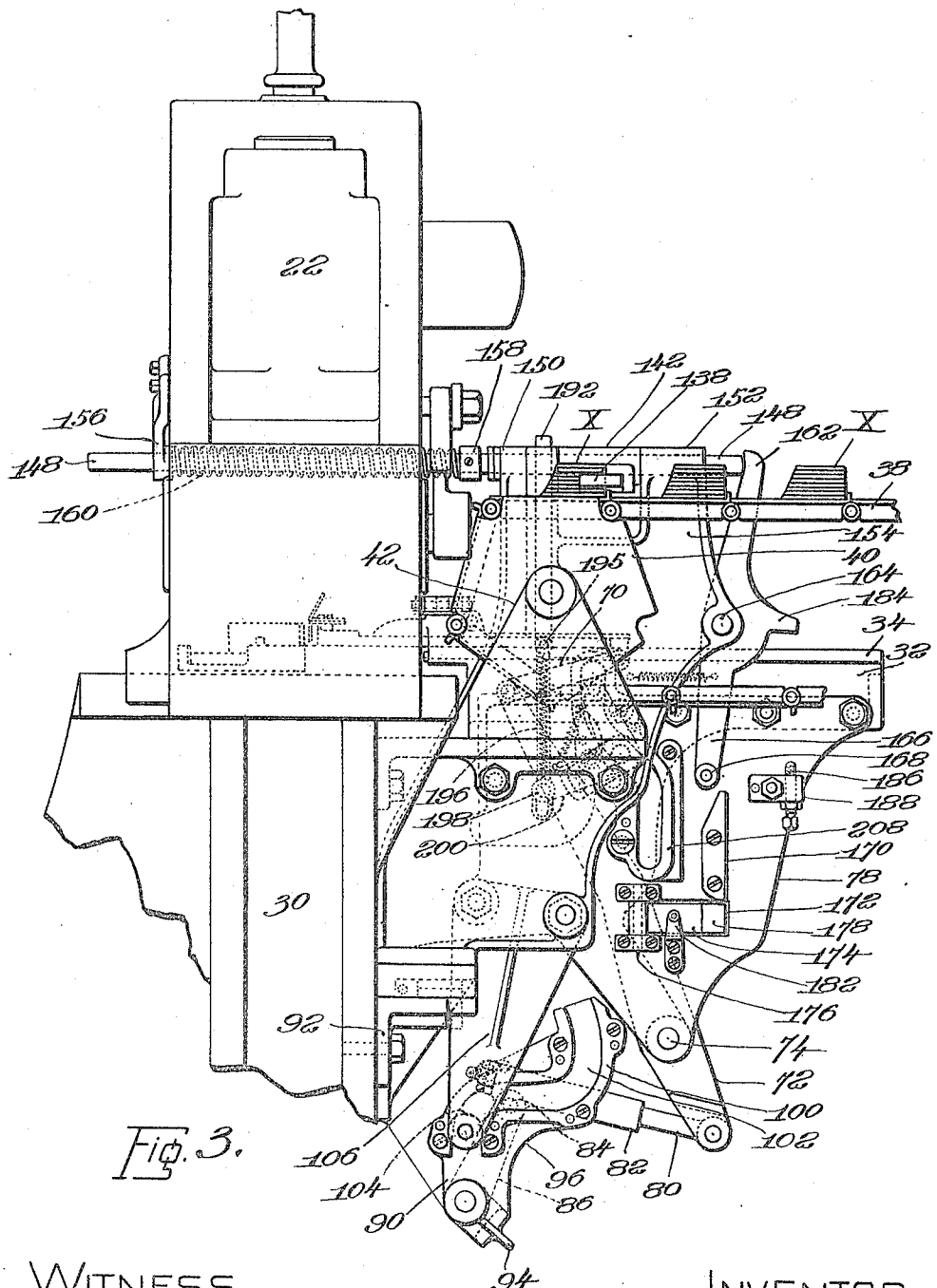


Fig. 3.

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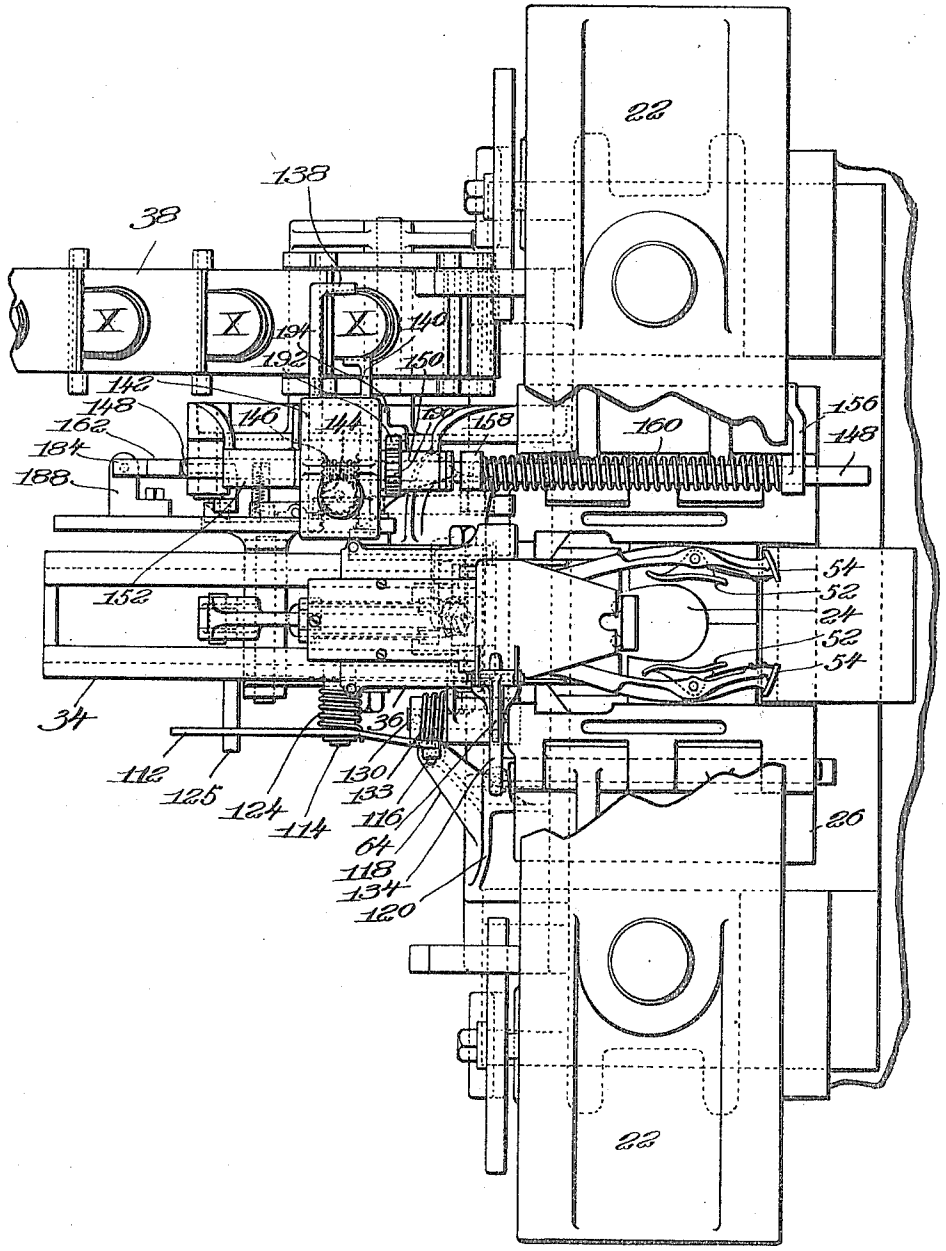
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6 SHEETS—SHEET 4.



Witness
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Fig. 4.

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6 SHEETS—SHEET 5.

Fig. 5.

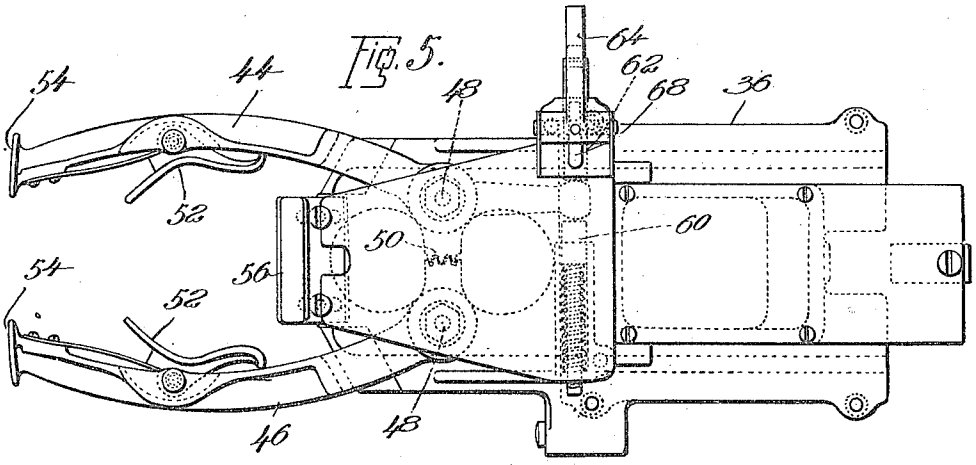


Fig. 6.

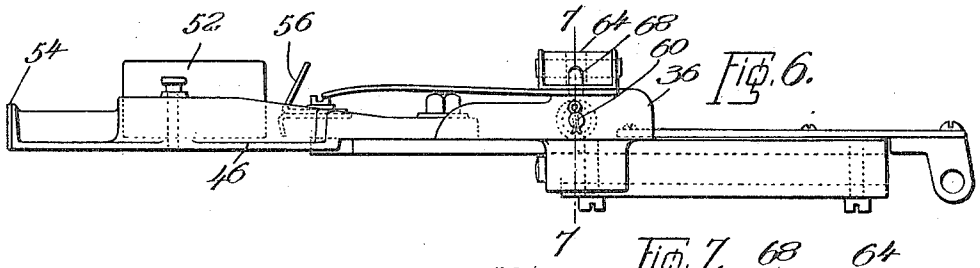


Fig. 7.

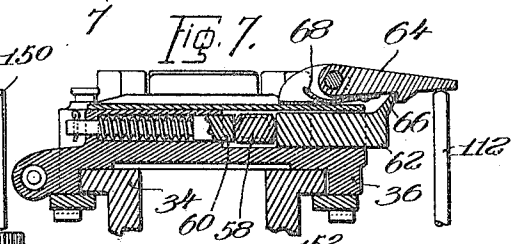


Fig. 8.

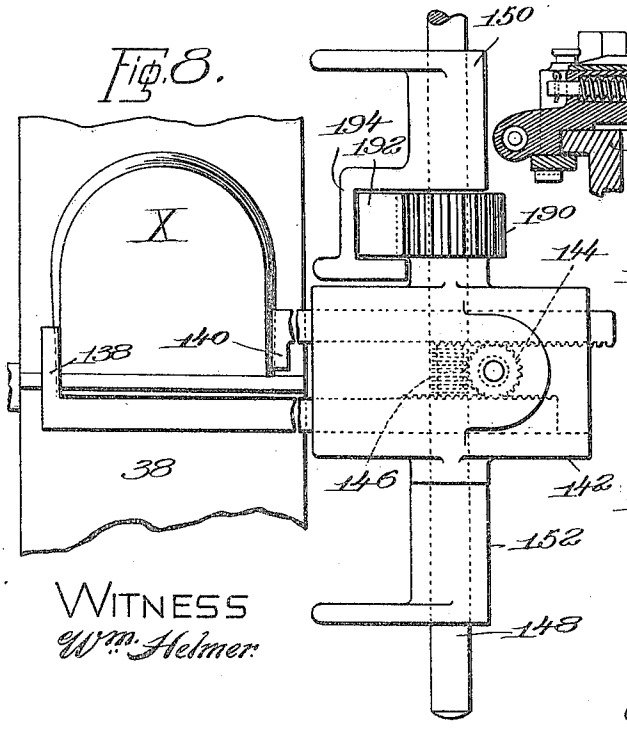
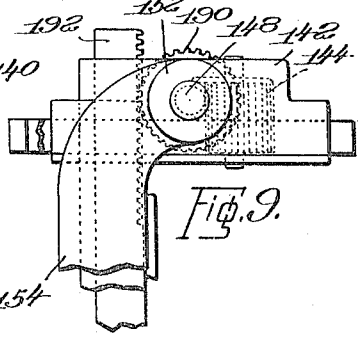


Fig. 9.



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FEED MECHANISM.

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1,213,052.

Patented Jan. 16, 1917.

6 SHEETS—SHEET 6.

Fig. 10.

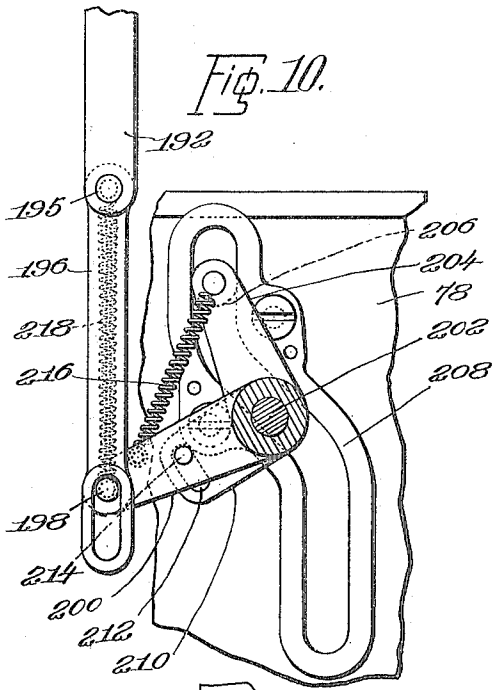
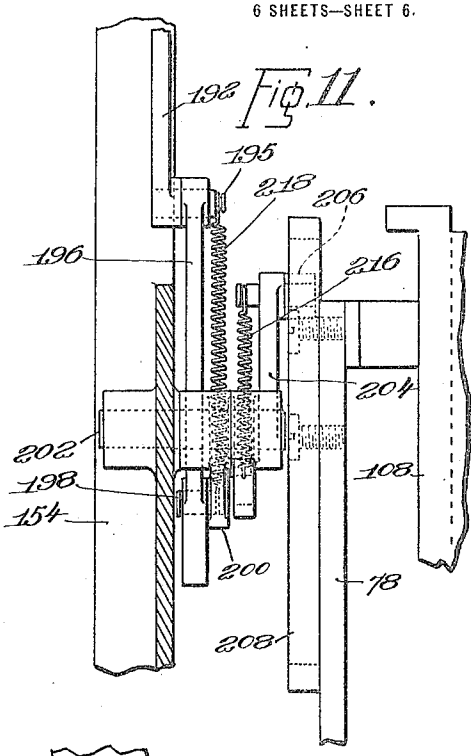


Fig. 11.



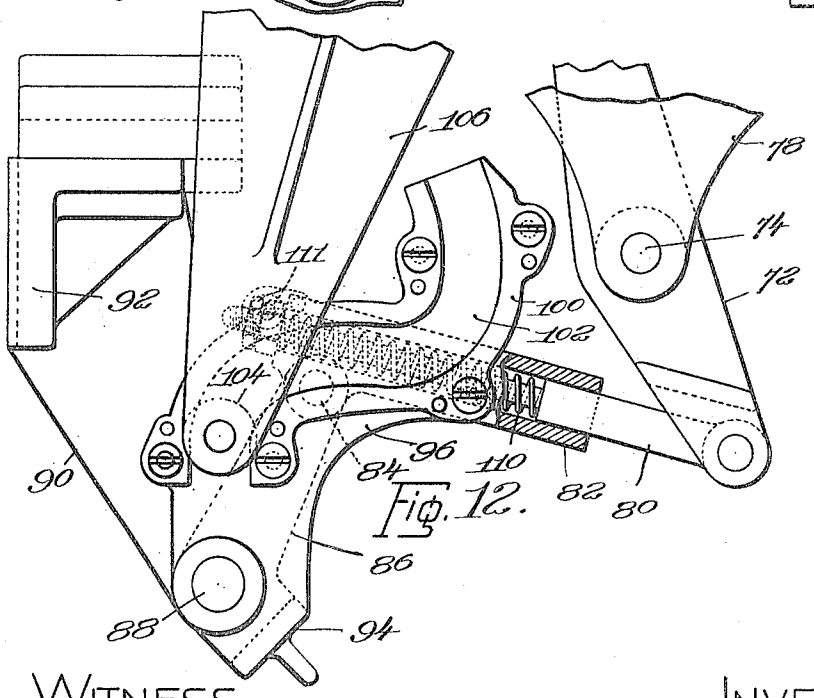


Fig. 12.

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UNITED STATES PATENT OFFICE.

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FEED MECHANISM.

1,213,052. Specification of Letters Patent. Patented Jan. 16, 1917.

Application filed April 1, 1915. Serial No. 18,496.

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 Feed Mechanisms; 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 mechanism for feeding heels in the process of manufacture, and more particularly to feeding heels automatically to a heel-compressing machine.

The general object of the invention is to provide heel-feeding mechanism operating in proper timed relation to the operation of the machine for treating the heels.

In carrying out this object the invention contemplates the provision of means for supplying heels to the feed-slide of the heel-compressor, comprising an endless conveyer for the heels extending to the compressor from an extraneous supply-point, and means for operating said conveyer so as to supply a heel to the feed-slide automatically at each operation thereof. A particular application of this object, as herein illustrated, is to feed heels to a heel-compressor by transferring them from a suitable, automatically operated source of supply, to the feed-slide of the compressor, in timed coöperation with the movements of the compressor. Such a mechanism is particularly adapted for use in connection with a conveyer on which heels are brought from one machine to another in the process of manufacture, as to a compressor from a machine in which the heels are built or are subjected to a preliminary operation, for example a shaping operation. If the heels are delivered to the conveyer from such machines heel seat down, a more particular object of the invention is to produce a feed-mechanism having provision not only for transferring the heels from the conveyer to the machine for performing the next operation, but also for inverting the heels as an incident of the transferring operation, so that when delivered to the heel-compressor they shall be placed tread face down on the feed-slide, as is necessary for the operation of a heel-compressor of commercial form.

A further object of the invention is to produce a transferring device or clamp, for use in connection with feed-mechanism of the kind in question, this clamp being of simple and effective construction and operation and being adapted to perform simultaneously the operations of transferring and inverting the heels.

To the foregoing ends, in the embodiment of the invention used for illustrative purposes, I employ an arrangement in which the conveyer on which the heels are brought to the compressor is located adjacent the feed-table of the compressor, and the transferring means or clamp is arranged to move transversely between the conveyer and the feed-slide on said table. I also employ a transferring device or clamp in which clamp-jaws are movably mounted on a body which is arranged to swing about a horizontal axis located between the conveyer and the feed-slide.

Other novel features of construction by which the invention is carried out will be set forth in connection with the following description of the illustrated embodiment of the invention.

In the accompanying drawings, Figure 1 is a side-elevation of feed-mechanism embodying the present invention, the drawing showing the upper part of a heel-compressor in connection with which the feed mechanism is employed; Fig. 2 is a front-elevation of the parts shown in Fig. 1; Fig. 3 is a side-elevation of the same parts, from a direction opposite to that of Fig. 1; Fig. 4 is a plan-view of the feed-mechanism and adjacent parts of the compressor; Figs. 5 and 6 respectively are a plan and a side-elevation, on a larger scale than the preceding figures, of the feed-slide of the compressor; Fig. 7 is a section on the line 7—7 in Fig. 6, looking from right to left in the latter figure; Fig. 8 is a plan of the transferring-clamp; Fig. 9 is a front-elevation of the same, with one of the clamp-jaws broken away; Fig. 10 is a detail, in side-elevation, of the cam-mechanism by which the transferring-clamp is given its swinging movement; Fig. 11 is a front-elevation of the same parts; and Fig. 12 is a side elevation of the cam-mechanism by which the feed-slide of the compressor is actuated.

The invention is shown as embodied in feed-mechanism used in connection with a heel-compressing machine of a well-known type. Such a machine is disclosed, for example, in its general characteristics, in

United States Letters Patent No. 776,875, to E. A. Tripp, dated December 6, 1904. The construction and operation of this heel-compressor need not, therefore, be particularly described, but it will be understood that the machine comprises the usual heel-seat die 20, supported on the yoke 22 of the frame of the machine, this die coöperating with a mold 24 which is carried by the cross-head 26 of the machine. This cross-head is moved vertically, by means not shown, along guides on the upright members 30 of the frame of the machine. The cross-head 26 is provided, as in said Tripp patent, with a feed-table 32 projecting forwardly from the head, but this table is somewhat longer than usual, and of a different form, to provide for the mechanisms peculiar to the present invention which are associated therewith. The table is provided, at the top, with the usual slide-guides 34 upon which the usual feed-slide 36 reciprocates.

In the embodiment of the invention illustrated in the drawings, the heels are brought to the compressor by an endless conveyer 38, consisting of flat links pivoted together in the form of a chain, and this conveyer is supported by sprocket-wheels 40 located so that the upper reach of the conveyer, on which the heels are carried, is located alongside the position occupied by the feed-table 32 when the head and the table are in their uppermost position. The sprocket-wheels 40 are journaled on a shaft turning in uprights 42 fixed to the frame of the machine. The conveyer may be supposed to extend to the heel-compressor from a machine for performing a preliminary operation on the heels, such a machine, for example, as the heel-shaping machine disclosed in my prior Patent No. 1,102,310, dated July 7, 1914. It will be understood that the conveyer is moved by means such for example as illustrated in my Letters Patent of the United States No. 1,181,090, dated April 25, 1916, for giving a step-by-step movement to the conveyer by which its links are brought successively to a position in which the heel upon each link may be supplied to the feed-slide of the compressor, this movement of the conveyer being timed in relation to the operation of the compressor by any suitable connections between the actuating mechanism of the compressor and that of the heel-shaping machine or other machine with which it is associated.

The feed-slide of the compressor is of substantially the same construction as that disclosed in the said Tripp patent, except that there is a slight modification in the means for controlling the operation of the clamping-fingers to adapt the feed-slide for coöperation with the mechanism peculiar to the present invention. As shown in Figs. 5, 6 and 7 the feed-slide carries the usual arms 44 and 46, mounted upon pivots 48 so as to swing horizontally, and connected together, for simultaneous opposite movement, by means of gear-segments 50 meshing with each other. The arms are also provided with the usual fingers 52 for grasping the heels, and ejectors 54 for removing the compressed heels from the mold. The arm 44 is provided with a rearward extension 58, of which the end is constantly pressed by a spring-pressed plunger 60 tending to swing the arms toward each other. Movement of the arms away from each other is produced through the movement of a slide 62, which engages the part 58 opposite to the plunger 60. Above the slide 62 a latch 64 is pivoted on the carriage, this latch having a shoulder which coöperates with a lug 66 on the end of the slide. A spring 68, attached to the latch, tends constantly to swing it downwardly into engagement with the lug 66.

The means for moving the feed-slide 36 on the slide-guides 34 are somewhat different from those disclosed in the said Tripp patent, a modification being necessary to produce the greater length of movement required in the present construction. As in said patent, however, the carriage is actuated by power derived from the vertical movement of the head of the compressor.

As shown particularly in Figs. 1, 2 and 3, two links 70 are pivoted to the forward end of the feed-slide, and these links connect it with a lever 72 which is mounted to rock upon a horizontal pivot 74 carried by two brackets 76 and 78 depending from the feed-table 32 and rigid therewith. The lever 72, as shown particularly in Fig. 12, is pivoted, at its lower end, to a plunger 80 mounted in a sleeve 82. Near its rear end the sleeve is connected, by a pivot 84, with an arm 86 which extends upwardly from a horizontal pivot-rod 88 and turns loosely thereon. The rod 88 is carried by two brackets 90, which are mounted on a transverse frame-member 92 secured, at its ends, to the upright frame members 30. Accordingly, the pivot-rod 88 is stationary, while the pivot-rod 74 reciprocates vertically with the head and the feed-table of the machine.

The arm 86 is integral with one end of a yoke 94 pivoted upon the rod 88, and the other end of this yoke is provided, as shown in Figs. 2 and 12, with an integral upwardly extending arm 96, to which is fixed a cam 100 having an S-shaped slot 102 in its face. This cam is engaged by a cam-roller 104, which is journaled on an arm 106. This arm is fixed to a plate 108, which is rigidly connected with the head and the feed-table of the compressor, so that the arm 106 moves vertically with these parts. This vertical movement of the arm causes the roller 104 to traverse the cam-slot 102, and since the roller is restricted to direct verti-

cal movements, the cam 100 and the arm 96 are caused to swing inwardly and outwardly, about the pivot-rod 88, in accordance with the shape of the cam-slot. It will be apparent that the result of this operation is to cause the arm 96 to remain in its outermost position while the head of the compressor is in its lowermost position and during a short part of the movement of the head above this lowermost position; that during an intermediate part of the vertical movement of the head the arm 96 is swung quickly outwardly or inwardly, according as the head is descending or ascending, and that when the head is near its uppermost position the cam has only a slight inward or outward swinging movement which is sufficient, in fact, merely to compensate for the link action of the parts 82 and 72, so as to restrain the feed-slide against any horizontal movement at this time. Accordingly, the movements of the cam 100 and the arm 96, as transmitted through the yoke 94, the arm 96, the sleeve 82, the stem 80, the lever 72, and the links 70 to the feed-slide, are such as to cause the feed-slide to remain stationary for a short time as the head of the compressor begins to rise with the slide in its innermost position, then to move outwardly on the table to its extreme outermost position during the first part of the rising movement of the head, then to remain stationary on the table during the latter part of the rising movement and during the first part of the following descent of the head, then to move inwardly quickly to its original position as the head nears its lowermost position.

The stem 80 and the sleeve 82 constitute normally the equivalent of a rigid link connecting the lever 72 and the arm 86, since a spring 110 is interposed between the stem and the end of the sleeve to prevent relative movement in one direction, while stop nuts 111 are fixed on the rear end of the stem to positively prevent any relative movement in the opposite direction. The spring 110, however, permits relative movement in case any obstruction is encountered to the normal movement of the feed-slide owing to failure of a compressed heel to be properly discharged from the mold, and thus the machine is protected against injury which might otherwise occur through this cause.

The means for controlling the mechanism of the feed-slide will now be described. It is necessary for the fingers 52 to be held apart, when the slide is in its outer position, until the heel has been received between them, and thereupon the fingers must be released so as to grip the heel and hold it until the heel has been brought, by the inward movement of the slide, into a position above the mold 24, and thereupon the fingers must be moved apart to release the heel, and so held until they have received a fresh heel. The latch 64, acting upon and through the slide 62, is the means employed to hold the fingers 52 apart in their heel-releasing position. In order to release this latch when a heel is to be gripped a lever 112 is mounted, as shown particularly in Fig. 1, upon a stud 114 fixed to the feed-table of the compressor. The rear end of this lever is pivoted to a rod 116, which slides loosely through a bracket 118 projecting forwardly from an upright 120 which is fixed to the cross-member 92 of the frame of the machine. A spring 124, coiled about the stud 114, normally holds the lever 112 in the position shown in Fig. 1, in which it rests against a stop pin 125 projecting from the feed-table. The rod 116 is provided, at its lower end with adjustable stop-nuts 122, and when the feed-table reaches the upper extremity of its rising movement these nuts engage the bracket 118 and thus rock the lever 112. At this time the feed-slide is in its outermost position, and the extremity of the latch 64 is directly above the forward end of the lever 112, as shown in Fig. 7. Accordingly the lever lifts the latch, thus disengaging it from the lug 66 on the slide 62, and thereupon the plunger 60 moves the arms 44 and 46 and the fingers 52 into position to grip the heel which has previously been placed between the fingers.

The releasing movement of the fingers is produced by means of a lever 128, which, as shown particularly in Fig. 2, is fixed to a stud 130 which turns in a bracket 132 projecting from the side of the feed-table. A spring 133, coiled about the stud 130 as shown in Fig. 1, tends normally to swing the lever 128 outwardly to the position shown in Fig. 2. The lever is provided with an arm 134, however, which projects above a stop-screw 136 adjustably fixed in the upper end of the upright 120. When the feed-slide is in its innermost position in which it delivers the heel to the mold 24, the end of the slide 62 is directly opposite the upper end of the lever 128, as shown in Figs. 1, 2 and 4. With the parts in this position, when the head and the feed-carriage are moved to their lowermost position the arm 134 engages the stop screw 136, so that the lever is swung into engagement with the slide 62, thus moving the arms 44 and 46 away from each other and at the same time causing the lug 66 on the slide 62 to be engaged and retained by the latch 64. The feed-fingers 52 are thus restored to and held in position to receive a fresh heel upon the subsequent outward movement of the feed slide 36.

While the mechanisms associated with the head and the feed-slide of the compressor, as above described, are somewhat different from those previously employed in heel-

compressors of the type in question, the present invention resides particularly in the means for transferring heels from the conveyer 38 to the feed-slide of the compressor, and these transferring means will now be described.

The heels are transferred by a clamp comprising two jaws 138 and 140, shown particularly in Figs. 4 and 8. These jaws are adapted to seize a heel by engagement with its opposite lateral surfaces, and they are provided with straight parallel shanks which move in slide-ways in a clamp body 142. These shanks are provided with rack-teeth on their inner surface, and these teeth are engaged by a pinion 144 journaled in the body 142. This pinion is also engaged by rack teeth 146 on a round rod 148 which passes loosely through a transverse opening in the body 142 and slides in bosses 150 and 152 at the upper bifurcated end of an upright 154. This upright, as shown in Fig. 2, is fixed on the cross-member 92 of the frame of the compressor, so that the rod 148 is held stationary in horizontal position. This rod constitutes a pivot about which the body 142 may be rocked, and it also constitutes means for actuating the clamp-jaws. For the latter purpose the rod 148 is extended so as to engage and slide in a bracket 156 fixed to the frame of the compressor, and a spring 160 is interposed between the bracket 156 and a collar 158 which is fixed on the rod, as shown particularly in Fig. 4. This spring tends to slide the rod outwardly through the body 142 of the clamp, and by such movement, transmitted, through the pinion 144, to the shanks of the clamp jaws, these jaws are moved toward each other so as to grip a heel placed between them, as in Fig. 8. The rack teeth 146 on the rod are annular in form, so that, while the heel is gripped by the jaws, the head 142 may be swung around the rod to transfer the heel to the heel-slide and at the same time invert it. After the heel has been so transferred it is necessary to disengage the clamp-jaws from it, and this is accomplished by moving the rod 148 rearwardly through the head. The means by which this movement of the rod is produced is shown particularly in Figs. 3 and 4. A lever 162 is mounted on a pivot 164 carried by the upright 154, and the upper end of this lever is in position to engage the rod 148. The lever has a depending arm 166, which carries a cam-roller 168 adapted to coöperate with a cam mounted on the plate 78 forming a part of the framework of the feed-table of the compressor. The cam comprises a block 170 fixed to the plate 78, and a movable part or latch which has a vertical face 172 normally continuous with the forward face of the block 170. This cam-latch is in the form of an arm 174 arranged to swing about a vertical pivot 176 on the plate 78. The arm 174 is held in its normal position, as shown in the drawings, by a spring 180 attached to the arm and to a bracket 182 fixed on the plate 78, as shown in Figs. 2 and 3. The lever 162 is also provided with a forwardly extending arm 184 which is located directly above a screw 186 adjustably mounted in a lug 188 on the plate 78. The forward end of the cam-latch 174 is provided with a beveled rear surface 178, as shown in Figs. 3 and 4, for a purpose to be presently described.

The parts just described operate as follows: As the head and the feed-carriage rise the cam-roller 168 on the arm 166 of the lever 162 occupies a position to the left of the cam-block 170, viewing Fig. 3 so that the lever has no effect at this time upon the rod 148. This is the time during which the heel transferring mechanism is operating to transfer a heel from the conveyer to a position above the feed-slide. Near the termination of the upward movement of the head, however, when the feed-slide has reached its outward position, in which it may receive the heel so transferred, the screw 186 engages the arm 184 of the lever 162, and thus rocks the lever in a direction to press the rod 148 inwardly and thus open the clamp-jaws. At this time the cam-roller 168 is opposite the beveled surface 178 on the cam-latch 174, and accordingly as the lever is rocked the roller is pressed against this beveled surface, thus swinging the latch inwardly until the roller clears the end of the latch, whereupon the latch is returned by the spring 180, thus bringing the cam surface 172 on the latch into position behind the roller 168. Upon the subsequent descent of the head and the feed-carriage the roller is retained in its outward position by the parts 172 and 170, thus holding the clamp-jaws open during the descent of the head and while the clamp is swinging into position to engage another heel on the conveyer. At the termination of the downward movement of the head, however, the cam-block 170 descends entirely below the roller 168, whereupon the spring 160 forces the rod 148 forwardly, thus again closing the clamp-jaws.

The means for swinging the clamp upon the rod 148 may now be described. For this purpose the clamp-body 142 is provided with a pinion 190, as shown particularly in Fig. 8, and this pinion is engaged by a rack 192 which slides vertically in a slideway 194 on the upright 154. As shown particularly in Figs. 3, 10 and 11, the lower end of the rack 192 is connected, by a pivot-pin 195 with the upper end of a link 196. The lower end of this link is slotted, and the slot is engaged by a pin 198 fixed on a rocker-arm 200. This arm swings freely upon a stud 202 projecting inwardly from the upright 154, as shown in Fig. 11. A second rocker-arm 204 is

mounted to swing on the stud 202, and this arm carries a cam-roller 206 which engages the slot in the face of a cam 208. This cam is fixed on the plate 78 constituting a part of the frame work of the feed-table, so that the cam rises and descends in accordance with the movements of the feed-table and the head of the compressor, while the stud 202 remains stationary. Accordingly, the arm 204 is rocked about the stud by the vertical movements of the cam.

The arm 204 is integral with an arm 210, which is provided with a slot 212 engaged by a stud 214 fixed in the arm 200. A spring 216, connecting the arms 204 and 200, tends to retain the stud 214 at the end of the slot 212, while a spring 218, connecting the studs 195 and 198, tends to retain the stud 198 at the end of the slot in the link 196. Accordingly, except when any unusual resistance is encountered, the movements of the cam-roller 206 are transmitted, through the arms 210 and 200, acting as a bell-crank lever, to the link 196 and thence to the rack 192, and it will be apparent that the shape of the cam 208 is such as to cause this movement to occur at intermediate parts of the rising and falling movements of the feed carriage, so that the heel-clamp is swung inwardly or outwardly, as the case may be, at this intermediate point, while it is held stationary, in its inner or outer position, when the feed carriage is at or near the uppermost and lowermost limits, respectively, of its travel. The springs 216 and 218, and the pin-and-slot connections between the several arms shown in Figs. 10 and 11, are merely for the purpose of yielding to prevent injury to the mechanism in case the swinging movements of the clamp are interfered with in consequence of any irregularity in the position of the heel on the conveyer, or from any other cause.

The operation of the mechanism as a whole will now be briefly described. Assuming a heel X to have arrived on the conveyer in position to be transferred to the feed-slide, the transfer-clamp is swung into the position shown in Fig. 4, while the conveyer remains stationary between two of its successive advancing movements. The clamp-jaws are thus brought to opposite sides of the heel, this movement occurring while the feed-carriage of the compressor is descending. At the completion of this descending movement the clamp-jaws are released, and are forced into engagement with the heel by the spring 160 and the parts connected therewith. The feed-table then performs its rising movement, and during this movement the transfer-clamp is swung upon the rod 148 so as to bring the clamp-jaws and the heel contained therein above the position which will be occupied by the fingers 52 of the feed-slide when the latter is in its uppermost position on the table. This inward swinging movement of the transfer-clamp occurs during the rising movement of the feed-table, and at the same time the feed-slide moves outwardly, so that when the table has reached its uppermost position the slide is in position to receive the heel from the clamp. At the same time the clamp-jaws are disengaged from the heel through the action of the lever 162 upon the rod 148, thus permitting the heel to drop between the fingers 52 of the feed-slide. Upon the subsequent descent of the feed-table the feed-slide moves inwardly, and the transfer-clamp swings outwardly, so that the heel in the feed slide is brought into position above the mold 24 and is there released by the action of the lever 128, while at the same time the transfer-clamp is brought into position to engage the fresh heel which has in the meantime been brought by the conveyer.

It will be noted that the transfer-clamp, in swinging about its pivotal axis, not only moves a heel transversely from the conveyer into position above the feed-slide of the compressor, but also inverts the heel at the same time, thus delivering the heel to the feed-slide in tread face down position, although the heel rested on the conveyer heel seat down. This is a useful feature of my improved feed-mechanism when used in connection with any machine, such as the heel-shaper hereinbefore referred to, which delivers the heels in heel seat down position on the conveyer, but my invention, in its broadest aspects, is not limited to transferring means adapted so as to invert the heel.

Furthermore, it will be apparent to those skilled in the art that the invention is not limited to the embodiment thereof herein-before described and illustrated in the accompanying drawings, but that it may be embodied in various other forms within the nature of the invention as defined in the following claims:

What is claimed as new, is:—

1. The combination, with a heel-compressor and mechanism for advancing heels to the compressor, of means for transferring the heels, from the advancing mechanism to the compressor, said means being constructed and arranged to invert the heels before their introduction into the compressor, so that they may be received, by the advancing mechanism, in a position the reverse of that in which the compressor is arranged to operate on them.

2. The combination, with a heel-compressor, of means, including a conveyer, for carrying heels to, and feeding them into, the compressor, said means being constructed and arranged to seize the heels by their lateral surfaces and invert them after they are placed on the conveyer and before they are received by the compressor, so that the heels

may be loaded on the conveyer in a position the reverse of that in which the compressor is arranged to operate on them.

3. Heel-feeding means, having, in combination, a heel-compressor having a table and feed slide, a conveyer arranged adjacent said table and feed-slide; and means, actuated by connection, and in timed coöperation, with the table of the compressor, for transferring a heel from the conveyer to the feed-slide.

4. Heel-feeding means, having, in combination, a conveyer which may support heels in substantially horizontal position; a clamp, for seizing the heels of the conveyer, mounted on a substantially horizontal pivotal axis; and means for rocking the clamp about said axis to first place it above the conveyer in position to grip a heel and then cause it to remove the heel from the conveyer and simultaneously invert the heel.

5. Heel-feeding means, having, in combination, a conveyer which may be loaded with heels; a heel receiving member, and means for seizing the heels on said conveyer successively, and simultaneously inverting them and depositing them in a fixed position upon the receiving member for presentation to a machine for operating on said heels.

6. Heel-feeding means, having, in combination, a conveyer, which may be loaded with heels; a heel receiving member, a clamp for seizing the heels upon said conveyer, and means for swinging the clamp to convey the heel so seized from the conveyer to a fixed point on the receiving member, and to simultaneously invert the heel.

7. The combination, with a heel-compressing machine provided with a head, a table carried by the head, and a feed-slide movable horizontally on the table, of a conveyer, movable alongside the table, which may be loaded with heels; and feed-mechanism operable, in timed relation with the movements of the feed-slide, to seize a heel upon the conveyer, invert it, remove it transversely from the conveyer and transfer it to the feed-slide.

8. Feed-mechanism, having, in combination, a body provided with guideways; a pair of clamp-jaws provided with shanks arranged to slide in parallel relation in said guideways, the shanks being provided with rack-teeth; a rod upon which the body is mounted to swing, said rod being provided with rack-teeth; a pinion journaled in the body and engaging the rack-teeth on said rod and both of said shanks; means for swinging the body upon the rod; and means for moving the rod longitudinally through the body to rotate the pinion and thus actuate the jaws.

9. Heel-feeding means, having, in combination, delivering means adapted to support heels with their tread faces up, feeding mechanism constructed and arranged to grip heels with their tread faces down, and a transferring member arranged to operate above the plane of the surface of the delivering means and feeding mechanism to seize the heels from the delivering means, invert the heels, and position them in the feeding mechanism.

10. Heel-feeding means, having, in combination, a conveyer for heels, a machine for operating upon heels, and a transferring member between the conveyer and the machine constructed and arranged to seize heels from the conveyer, by engagement with their lateral surfaces, invert and remove them to a point of presentation to said machine.

11. The combination with heel compressing members, a feed table to receive heels for presentation to the compressing members, means to operate the feed table in timed relation to the movement of the compressing members, means for advancing heels to the compressing members, a transferring member for seizing heels from the advancing means, inverting and placing them on the table, and mechanism actuated by the operation of the table for controlling the movements of the transferring member.

12. The combination with a heel-compressor provided with a movable feed-table and a feed-slide carried thereby movable in a direction normal to the table movement, of means for supplying heels successively to the feed-slide in timed coöperation with the movements thereof comprising an endless conveyer adjacent the feed-table adapted to convey heels in series to the compressor, and means for advancing said conveyer step-by-step toward the compressor at each movement of the table to supply heels automatically to the feed-slide.

13. The combination with dies for engaging and compressing the sides, heel seat and tread face of a heel, said tread face die being movable relatively to the remaining dies; of a feed-slide to transfer heels successively from a position outside the dies to a position between the dies, said feed-slide also partaking of the movement of the tread face die; means for supplying heels successively to the feed-slide comprising an endless conveyer, extending from an extraneous supply-point and having a position adjacent the feed-slide, adapted to be loaded with a quantity of heels in series; and means for moving the conveyer in a constant direction of motion and in timed coöperation with the movements of the tread face die and the feed-slide so as to supply a heel to the latter automatically at each operation thereof.

ERASTUS E. WINKLEY.

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