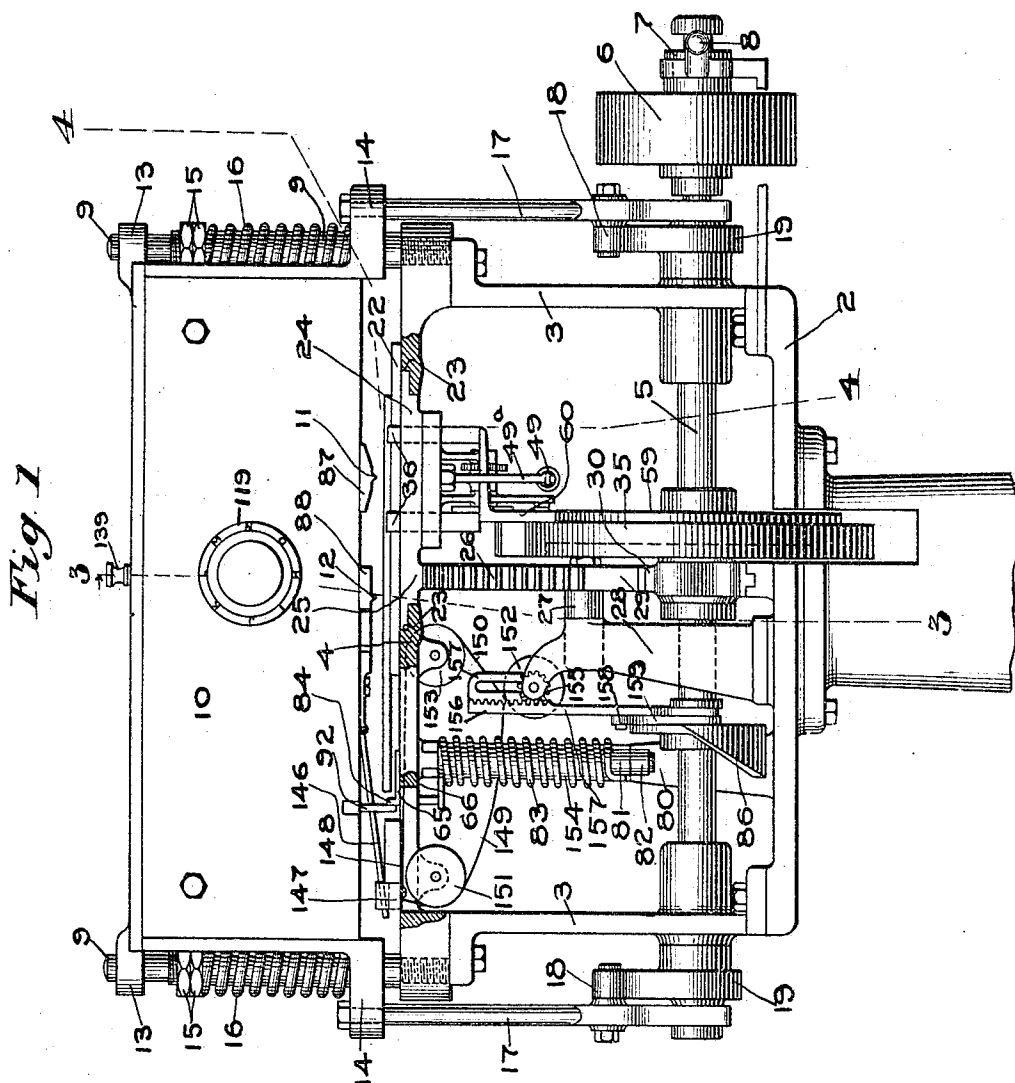


W. C. STEWART.
SOLE MARKING MACHINE.
APPLICATION FILED JULY 27, 1906.

958,028.

Patented May 17, 1910.

7 SHEETS—SHEET 1.

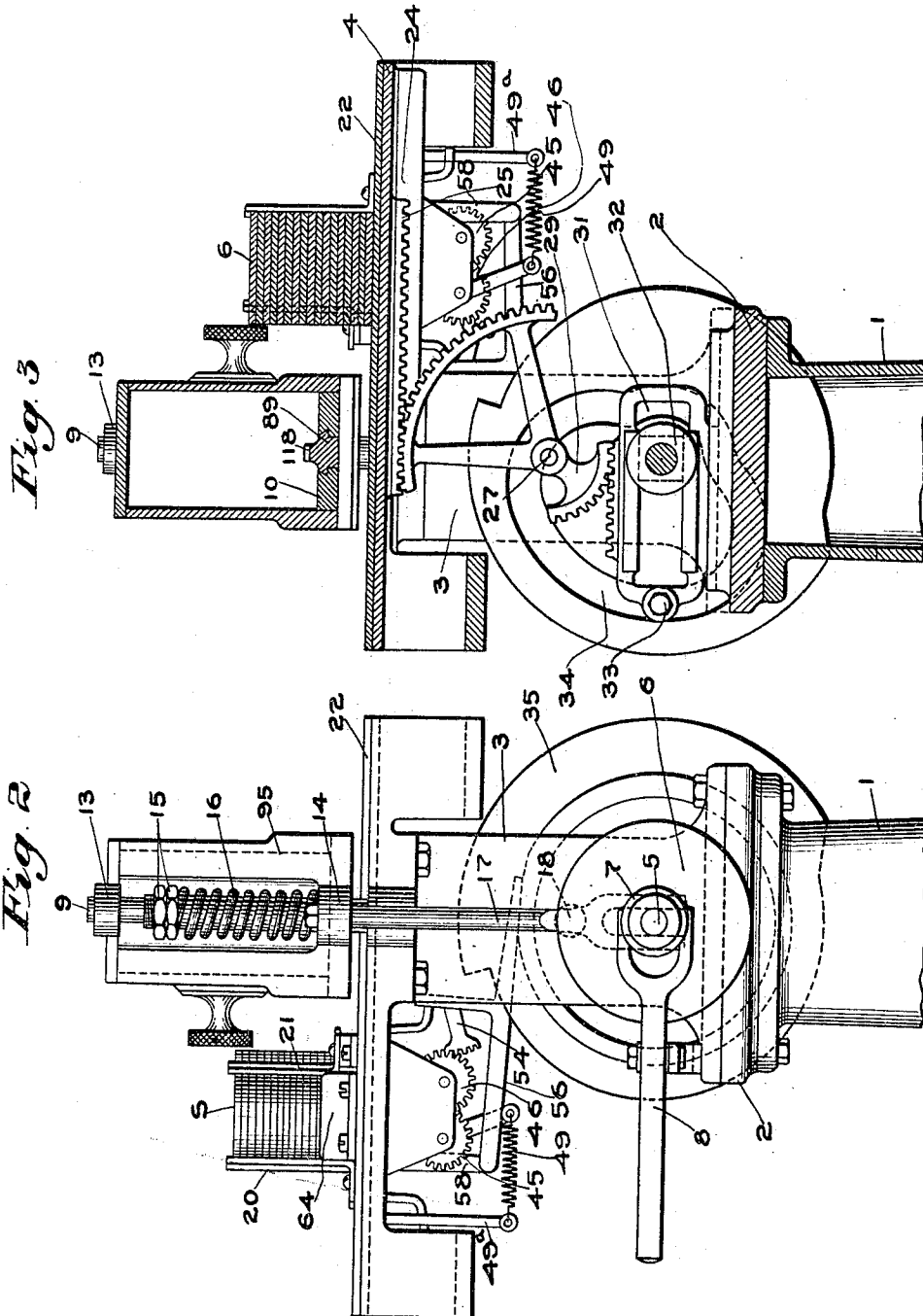


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7 SHEETS—SHEET 2.



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7 SHEETS—SHEET 4.

Fig 6

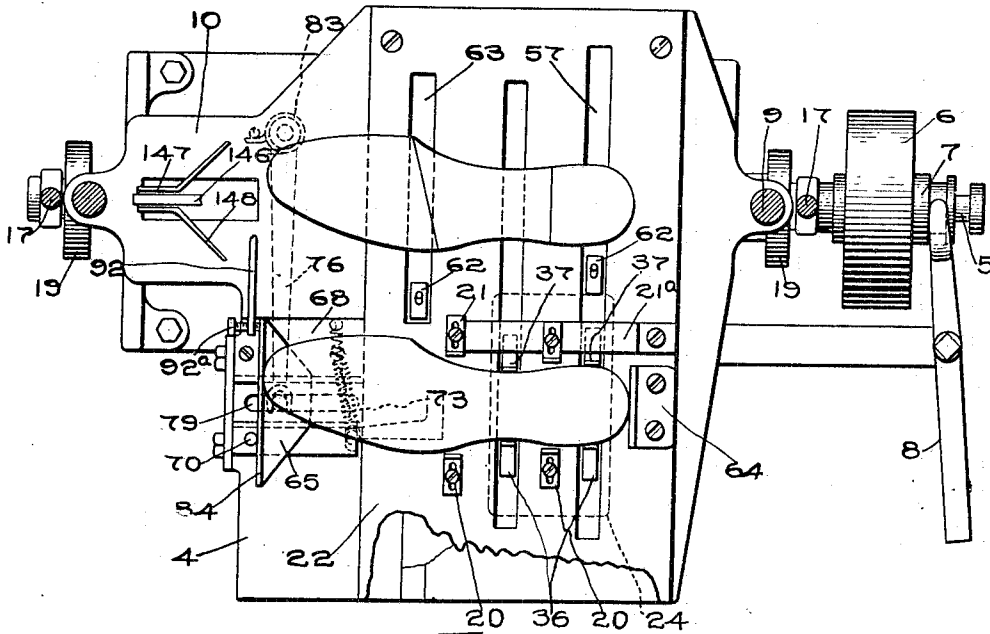
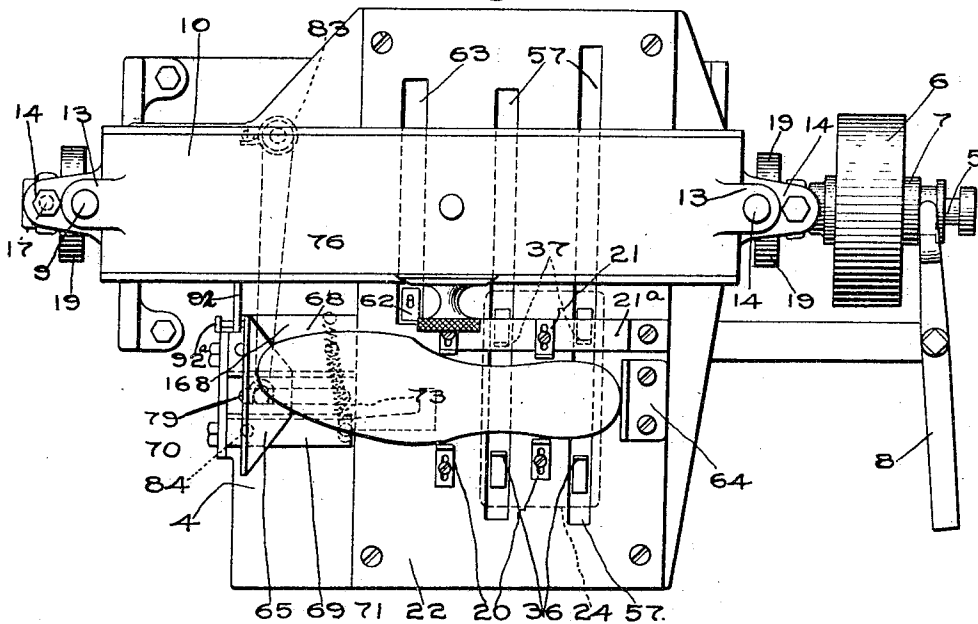


Fig 7



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7 SHEETS—SHEET 6.

Fig. 10.

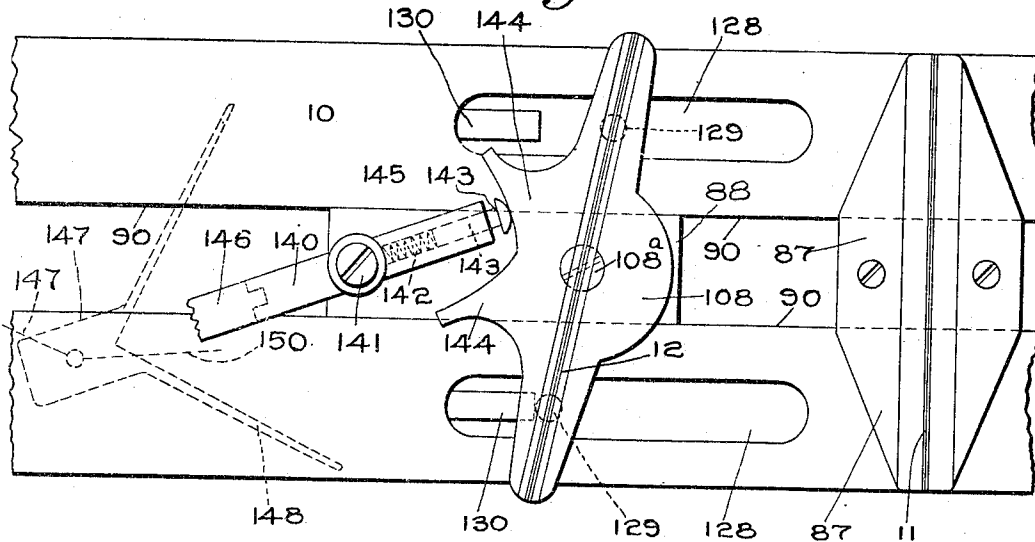
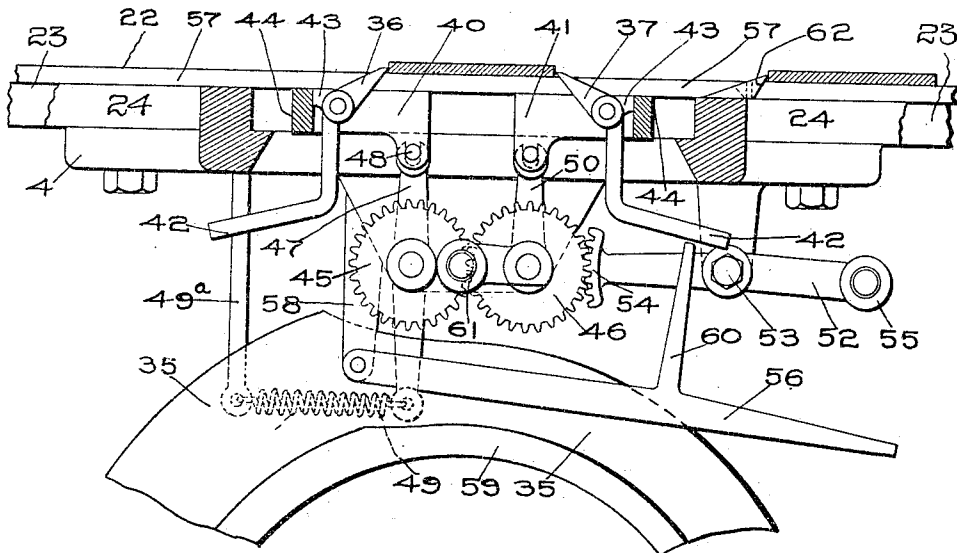


Fig. 11.



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7 SHEETS—SHEET 7.

Fig. 12

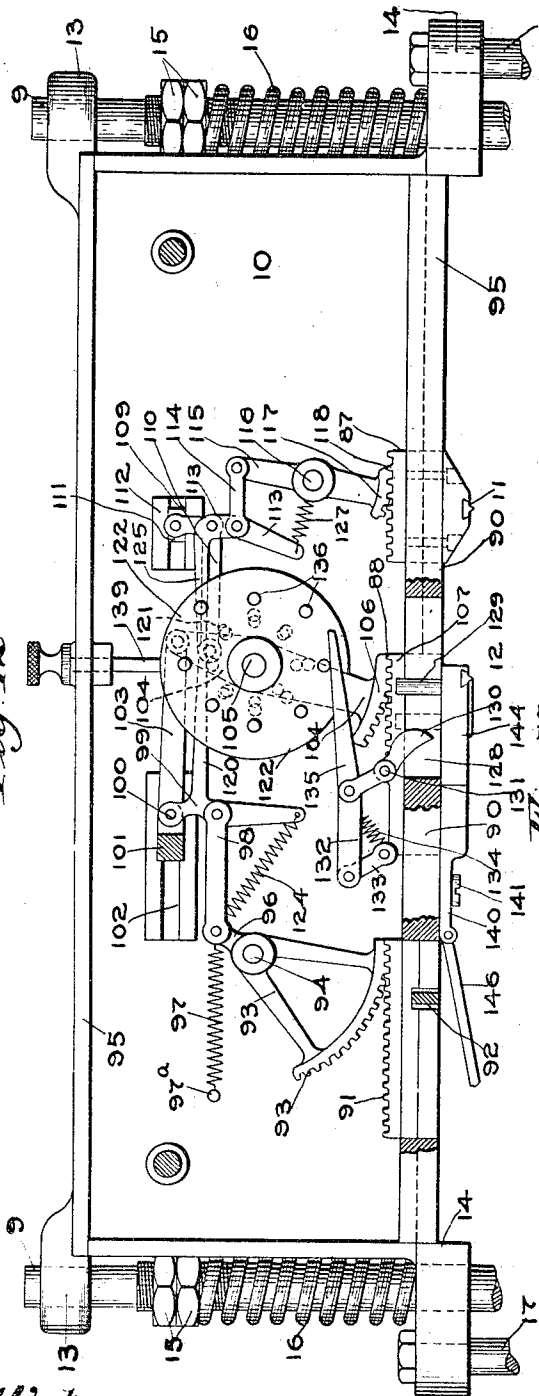
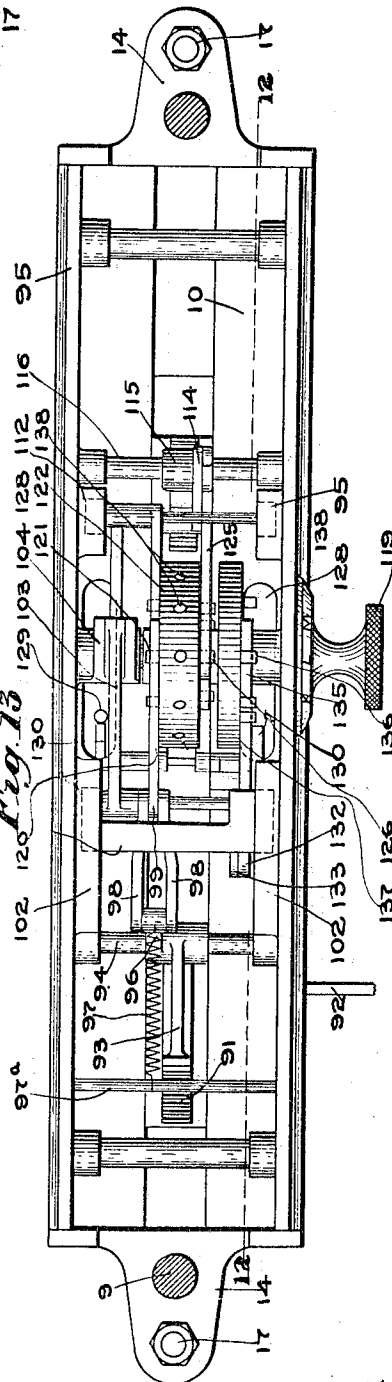


Fig. 13



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UNITED STATES PATENT OFFICE.

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SOLE-MARKING MACHINE.

958,028.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed July 27, 1906. Serial No. 328,044.

To all whom it may concern:

Be it known that I, WILLIAM C. STEWART, a subject of the King of Great Britain, residing at Lynn, county of Essex, State of Massachusetts, have invented an Improvement in Sole-Marking Machines, of which the following description, in connection with the accompanying drawings, is a specification, like figures on the drawings representing like parts.

My invention relates to a novel machine for marking shoe parts such for instance as soles to indicate the points or positions at which a tool should commence or cease its action or between which its operation should be confined. In operating upon shoes, for instance, with machine operated tools, the part operated upon is usually guided by hand, the operative relying upon his eye and judgment to bring the work into contact with the tool to cause it to enter or leave it at proper places. This is particularly true, for example, in thinning out or shanking the edges of the shanks of shoe soles where the tool should commence its operation, say, at a point corresponding to the breast line of the heel seat of the sole and should leave it at about the termination of the fore part or at or about its widest part. Under the present practice, the skill of the operative alone is relied upon to determine how closely the operating tool enters and leaves the work at these points and as skill is necessarily a variable factor variation or non-uniformity of product results. My invention aims to avoid these variations or lack of uniformity by providing a machine which will place marks upon the work to guide or indicate to the operative the exact point or points at which operation should commence and cease or between which the operations of the tool should be confined.

My invention also contemplates means for adjustably positioning these marks for different sizes and styles of shoe parts and also for rights and lefts.

All the above, however, with other features and objects of my invention will be best understood and appreciated from the following description and accompanying drawings of a machine embodying one form of my invention and selected for purposes of illustration, its scope being more particularly pointed out in the appended claims.

Referring to the drawings:—Figure 1 is a front elevation with parts broken out of a machine selected for illustration; Fig. 2, an elevation of the right side thereof; Fig. 3, a vertical section looking to the right taken on the line 3—3, Fig. 1; Fig. 4, a similar section looking to the left on line 4—4, Fig. 1; Fig. 5, a view of the same showing the slide and its clamped sole moved rearward into marking position; Fig. 6, a plan of the machine with the cross head with its marking devices removed to show the sole in rear or marking position; Fig. 7, a plan of the machine; Fig. 8, an enlarged detail thereof; Fig. 9 a vertical section taken on the line 9—9, Fig. 8; Fig. 10, an enlarged plan with parts broken away of the bottom of said cross head to show the markers and the automatic right and left adjusting mechanism to be referred to. Fig. 11, an enlarged vertical sectional detail of Fig. 4; Fig. 12, an enlarged vertical section of the reciprocatory cross head taken on the line 12—12, Fig. 13; and Fig. 13, a plan thereof with its top removed.

Referring to the drawings, in the particular embodiment of my invention herein illustrated, I have shown a machine provided with suitable marking devices for placing the desired marks or lines upon a shoe sole to direct and guide the operative in subsequently operating upon the sole by machine operated tools, particularly in thinning or shanking out the edges of such a shoe sole between the heel and the ball, that is, along the shank portion of the sole.

As herein shown the machine comprises a suitable column or standard, 1 (see Fig. 2), carrying at its upper end a frame work of suitable shape and construction to support the operating parts of the machine, said frame work comprising the head, 2, (Fig. 1,) the vertical sides or standards, 3, and the horizontal table, 4, the sides being bolted to said head, 2, and table, 4, and provided with suitable bearings for a horizontal drive shaft, 5. The ends of this shaft are extended through said bearings and the right end thereof is provided with a usual drive pulley, 6, adapted to be rotated constantly from a suitable source of power and connected with said shaft when desired by means of a movable clutch member, 7, operated by a shipper lever, 8. At its rear said table, 4, is provided with a pair of upright guides, 9, on

which slides vertical horizontal cross head, 10, carrying a heel marker, 11, and a forepart marker, 12, both slidably mounted thereon, and said forepart marker being mounted to permit swinging it to a more or less angular position suitable for marking upon either a right or left sole. These markers may be of any desired type or construction; as herein shown they are indenting or impressing tools of considerable length as shown best in Fig. 10, thereby being adapted to make a line or impression extending completely across a shoe sole from one to the other edge thereof. One of these tools is shown pivotally mounted upon said cross head. At its ends (Fig. 1) this cross head is provided with upper and lower guides, 13 and 14, that side on said guide rods, 9, and adjacent their upper ends these guide rods are threaded to receive jam-nuts, 15, between which and the lower cross head guides, 14, coil springs, 16, are interposed surrounding said rods, which operate to depress said cross head and normally maintain it in a lower position. This cross head is adapted to be periodically raised against the tension of its springs to permit a sole to be placed beneath it upon the table, 4, or a suitable work plate, 22, thereon immediately preceding its depression, so that the marking devices may mark said sole in their descent. To this end said guides, 14, are provided with depending actuating arms, 17, the lower ends of which carry rollers or other studs, 18, running on the edge of lifting cams, 19 (Fig. 1), secured exteriorly to said sides, 3, on said drive shaft, 5, and which operate upon the rotation of said drive shaft, to lift the cross head as the rollers run upon the higher parts of said cams while permitting the cross head to be depressed by said springs when the rollers run upon the lower parts thereof. To guide the movements of the cam ends of said arms, the said arms are formed at their lower ends (see Fig. 2) to embrace said drive shaft which thereby prevents other than vertical movement of said arms.

To receive a stack or pile of soles to be marked the table top (see Figs. 4, 6 and 7), is provided with front and rear vertical sole holders, 20 and 21, respectively, each of which (Fig. 4), at its lower end is provided with a horizontal flange slotted to receive an adjusting screw by which the holders may be adjusted toward or from each other for different widths of soles and toward or from a central position to position the stack relative thereto and to the sole feeding devices presently described. As here shown the front sole holders, of which two are shown herein, are secured directly to a work plate, 22, on said table, 4, but as the lowest sole is to be fed out from under the stack into a rear position for marking, the rear holders of which there are also two are adjustably

mounted above and clear of said work plate on a laterally extended overhanging horizontal arm, 21^a, best shown in Fig. 7, which permits the lowest sole to be fed out from under the stack as described while confining the remaining soles of the stack in position.

That each sole may be taken from its position at the bottom of the stack or moved rearward beneath the marking devices suitable feeding means are provided, in the present instance, comprising the following mechanism: At its right side (see Fig. 1) and directly beneath said work plate, 22, the table, 4, is provided with suitable front to back guide ways, 23, shown in section, Fig. 1, for a slide or carriage, 24, which in the operation of the machine is reciprocated from front to rear. To provide for this reciprocation the slide has a horizontal rack, 25 (Fig. 3), meshed with a vertical oscillatory segmental rack, 26, pivoted at 27, on an upright, 28 (Fig. 1) of said head, 2. This rack (see Fig. 3) is provided with a depending arm, 29, formed as a segmental rack and operated by a slide rack, 30, mounted to reciprocate horizontally on said drive shaft, 5, as a guide, said slide rack being provided with a rectangular slot, 31, constituting guide ways for a block, 32, in which said shaft turns. At its rear end at the left (Fig. 3) this slide rack, 30, is provided with a horizontal roller or other stud, 33, running in a cam groove, 34, formed in the left side of the cam, 35 (Fig. 1), mounted on and to rotate with said shaft, 5. As this shaft is rotated the cam will cause a front to back slide of the rack, 30, with a corresponding but opposite movement of the rack, 25, and the slide, 24, connected with it. That the lower sole of the stack may be fed rearwardly with this slide or carriage, 24, the latter is provided with front and back sole feeding members or jaws, 36, 37, respectively. As herein shown (see Figs. 6 and 7) two feeding jaws are provided for the front edge of the sole and two for the rear, both pairs being pivotally mounted in vertical recesses or slots of inner slides, 40, 41, respectively, Fig. 11, each slidably mounted within the slide or carriage, 24. These are provided with depending angular arms, 42, normally tending to swing the jaws, 36 and 37, upward. To prevent a greater vertical movement than is necessary to permit the sole to enter between them, the jaws are provided with stop lugs, 43 (Fig. 11), which engage cross plates, 44, of said inner slide to limit this movement, thereby stopping the vertical movement of the jaws in position to engage the edges of the lower sole of the stack as the inner jaw carrying slides are moved to cause the jaws to grip said sole. For effecting these movements the jaw carrying slides are adapted to be moved toward and from one another, the 13

mechanism for producing this result, in the present instance (Fig. 11) comprising a pair of gear wheels, 45, 46, suitably mounted in depending brackets from said slide, 24; and in mesh one with another (see Fig. 11).

The shaft of the front gear, 45, is provided with a lever, 47, fast thereon, the upper end of said lever being forked to engage a horizontal pin, 48, mounted in a depending ear of said slide, 40, said arm and slide being normally maintained in inner position to bring the jaw, 36, against the edge of the sole by a coil spring, 49, connecting the lower arm of said lever with a depending arm or pin, 49^a, of said slide. Similarly the shaft of the rear gear wheel, 46, is provided with a vertical lever arm, 50, the upper end of which is forked to embrace a similar pin, 51, of said slide, 41. Both of said levers, 47 and 50, being fast on their respective shafts and the gears being in mesh, movement of either lever will cause a corresponding movement of the other, thereby effecting reciprocal movements of said jaw carrying slide members, 40, 41. For normally separating the said slides when the slide, 24, is moved to its forward or sole receiving position, a horizontal actuating lever, 52, is provided (see Fig. 11) pivoted at 53 on a depending arm of said slide, 24, and having a segmental rack, 54, in mesh with the teeth of said gear, 46, and adapted to operate the same. To operate this actuator, 52, its rear end is provided with a roller or other stud, 55, which periodically engages and runs on the peripheral edge of said cam, 35 (see Figs. 4 and 5) by which it is periodically elevated or depressed.

By reference to Fig. 4, it will be noted that as the roller, 55, is elevated the actuator rack is depressed rotating the gear wheels, their shafts and the arms connected therewith to produce separation of said jaw carrying slides and their jaws. The jaws and inner slides will remain separated until the high part of the cam, 35, rotates beneath the roller, 55, when the latter will fall by its weight upon the low part of said cam causing sufficient elevation of the rack, 54, to rotate the gears, 45 and 46, in the opposite direction and causing said jaws, 36, 37, to approach one another to grasp the bottom sole of the stack between them and hold the same in fixed position relative to the slide, 24, during its succeeding rearward or sole feeding movement caused by operation of said slide, 30, described, thereby to present the sole in predetermined marking position beneath the markers.

To permit the jaw members, 36 and 37, to project above the work plate, 22, to grasp the sole as described, said plate is provided with a series of front to back rectilinear slots, 57 (see Figs. 6 and 7), in which said jaw members travel as the slide is reciprocated

between sole receiving and sole marking positions.

As it is convenient in moving the sole to a rear position for marking to leave it there to be subsequently displaced by the next sole to be fed to position for marking, means are provided for actuating at least the rear pair of jaws to cause them to release their grasp upon the rear edge of the sole after the sole has been fed into position beneath the marking devices to permit the said jaws to be returned to grasp a new sole at the bottom of the stack. Furthermore to leave the marked sole in said position, the rear jaws, 37, are first moved rearward to release said sole and are then depressed below the surface of the work plate, 22, to pass under the sole as the slide, 24, is moved forward into sole receiving position. To produce the releasing movement of said jaws, 37, the horizontal arm of the shaft arm, 50 (Fig. 11), carries a roller, 61, which is adapted to be engaged by the high part of said cam, 35, when the slide is in rear position and which operates to swing the horizontal arm of said gear shaft upward to move the vertical arm thereof, and the inner slide, 41, and jaws, 37, carried thereby, rearwardly for the purpose stated. To provide for immediate depression of these jaws when in this rear position, the slide, 24, is provided with a depending arm, 58, best shown in Fig. 11, to the lower end of which is pivotally secured a lever, 56, which rides upon the edge of a cam, 59, formed on or connected with the opposite or right side (Fig. 1) of said cam, 35. Intermediate its ends this lever is provided with an upright, 60 (Fig. 11), the upper end of which is adjacent the rearwardly bent arm, 42, of said rear jaw, 37. Referring now to Figs. 4 and 5, it will be noted, that in the operation of the machine, said lever, 56, rides upon its cam, 59, the high part of which elevates said lever to cause its upright, 60, to engage said depending arm, 42, and lift it, thereby depressing the jaw, 37, below the top of said table, this movement being timed to take place immediately preceding the forward movement of the slide. The high part of this cam is of sufficient length to maintain the rear jaws, 37, depressed during the forward movement of said slide until they have again been positioned beneath the over hanger, 21^a, when the high part of the cam rotates from beneath the lever and permits the jaw to rise, when the sole feeding movements are again repeated. By the operation of this feeding mechanism the bottom sole of the stack is moved rearwardly into marking position beneath the markers of the vertically reciprocating cross head, where it is marked by the downward movement of said markers, subsequent to which the rear jaws, 37, release the soles as they are moved rearwardly and

depressed by the action of the cam, 35, and the upright arm, 60, described. The slide with its clamping jaws is then moved into its forward or sole receiving position beneath the stack leaving the marked sole in position beneath the markers. To provide suitable means for pushing this sole rearwardly out of the way of the next sole fed into marking position the rear end of the slide, 24, has a pair of pivoted pawls, 62 (Figs. 6, 7 and 11), having a vertical V-shaped recess to receive an upright pin by which they are pivotally mounted upon said slide. As here shown, these pawls are triangular in shape, their bases resting on the upper face of said slide with their apices normally projecting above the top plate, 22, which is provided with a vertical longitudinal slot at its left side to permit the outer pawl to slide back and forth therein while the right pawl travels in the outer slot, 57, referred to. By this arrangement the pawls are tipped rearwardly as their projecting upper ends engage and trail under the rear face of the sole which has been marked, so that said ends can pass freely under it and again rise into their normal position as they are moved out from beneath it; on their next rearward movement the projecting points of the pawl will engage the front edge of the marked sole and push it rearwardly in advance of the in-feeding sole out of the way, and onto the rear of the work plate, 22, from which it is subsequently pushed rearward by the next sole operated upon in like manner. These pawls thus constitute sole ejectors to prevent interference with the movements of subsequently marked soles.

Referring now to Figs. 6 and 7, it will be noted that the table is provided with end guides to engage the heel and toe of the soles of the stack. As here shown, the heel guide or gage, 64 (Figs. 6 and 7), is stationary and high enough to engage several of the lower soles of said stack, while the toe gage, 65, is constructed to engage only the lower sole. This gage is first moved into an outer position as the slide, 24, moves forward and then inward to cause it to engage the end of said bottom sole and move it inward to abut the heel end thereof against the heel gage to bring said bottom sole into a predetermined position in which it is grasped by said jaws, 36 and 37, so that when the sole is fed or moved rearwardly beneath the marking devices the heel end will always occupy the same relative position irrespective of the length, size or style of sole operated upon. This toe gage, with its operating means constitutes one form of sole sizing or measuring mechanism for the machine and is best shown in Figs. 1, 8 and 9. In the present instance the toe gage, 65 is formed as a slide, having a depending rib, 66, movable

from side to side or longitudinally of the sole in a suitable guide way, 67, formed in said table, 4, said guide way being provided at its rear and upper side with a stationary face plate, 68, the front edge of which fits into a groove or rabbet in said rib, a similar groove at the front of said rib receiving a clamping plate, 69, pivoted at 70 at the right side of said table. This arrangement permits the toe gage to be slid back and forth in its guide way, so that it may be caused to engage the toe ends of the different sized soles which may be employed, thus to measure the same, the movement of the right or inner end of said clamping plate (Fig. 8) toward or from the rib, 66, operating to clamp or release the gage, 65, in any of the positions in which it is moved. That the clamping plate, 69, may be moved toward and from said rib, 68, it is provided with a depending arm or pin, 71, extending through a slot, 72 (see dotted lines Fig. 8 and full lines Fig. 9) in said table, 4, a coil spring, 73, connecting the end of said pin with a fixed pin depending from said table operating normally to swing said plate rearwardly to clamp the gage rib and hold it in position. To swing the pin and hence the free end of the clamping plate forward to release the toe gage, the slide, 24, is provided with a horizontal bracket arm, 75 (Fig. 8), which engages said pin, 71, as the slide is moved to its outer or forward position to receive a sole from the stack. This gage is moved toward and from the end of the sole or longitudinally in its guide way by the horizontal arm, 76 (Fig. 8), of a spring controlled vertical rock shaft or spindle, 77 (Figs. 1 and 8), the outer end of said arm engaging a pin, 78 (Fig. 9), depending from the rib, 66, of said gage, the table, 4, having a transverse slot, 79, to permit reciprocation of said pin. This rock shaft is journaled at its upper end in a bearing on the under side of said table, 4, and at its lower end in an upright, 80, (Fig. 1) adjacent which it is provided with a horizontal arm, 81, between which and a pin depending from said table, 4, a coil spring, 83, surrounding said shaft is interposed which operates to swing said arms inwardly or toward the right (Figs. 6 and 7) so as to bring the vertical flange, 84, of said toe gage, 65, into engagement with the toe of a sole, this movement being timed to take place simultaneously or immediately following the movement of the clamping plate, 69, to release the gage, so that it can be moved inwardly by said arm. Since the inward movement of the gage measures the length of the sole and this determines its size, I denominate this the sole measuring or sizing mechanism, particularly since it also governs the mechanism for adjusting the positions of the markers 11 and 12 for different sizes

of soles as will presently be described. That the rock shaft arms may be swung outwardly so as to move the toe gage to the left into position to again engage a fresh sole when the slide, 24, and its jaws, 36, 37, are moved into front or sole receiving position, the lower rock arm, 81, is provided with a roller or other stud, 82 (Fig. 1), which is adapted to be engaged by a cam, 86, secured to said drive shaft, 5, to periodically swing the roller and its arm, 81, to the left (Fig. 1), and rock the shaft, 77, compressing the spring, 83, and swinging its upper gage actuating arm, 76, outwardly sufficiently to cause the toe gage to engage the toe end of any sized sole when said gage is subsequently moved toward the heel gage, 64, and as the roller, 82, moves to a low part of said cam, 86, said movement, of course, being produced by the spring, 83. The oscillation of this shaft and its arms are timed to take place periodically, sliding the toe gage outwardly when released by the action of the arm, 75, prior to the slide reaching its outer or forward position, and sliding inwardly immediately thereafter to size or measure the sole then at the bottom of the stack.

Having described the feeding mechanism for positioning the sole beneath the markers, I will next describe the arrangement and adjustment of said markers. The vertical reciprocatory cross head, 10, which as has been stated is periodically elevated and depressed to permit the sole to be fed into position beneath the same, is provided as described with a plurality of marking devices, herein shown as the heel marker, 11, and the fore part marker, 12, which are removably secured in slide blocks, 87, 88, respectively, which in the present instance, are provided with projections, 89, to slide in longitudinal guideways, 90, formed in the bottom of the cross head to permit longitudinal adjustment thereon. By this arrangement marks may be placed in predetermined position, for example, across the breast line and at the rear of the fore part on the different sizes or types of soles to be marked. That the positions to which these markers are adjusted may, when desired, be automatically controlled by the movements of the sole sizing or measuring gage, 65, referred to, and hence by the work or sole to be marked, suitable mechanism is provided which I will now describe. As here shown, (see Fig. 9) the bottom of the cross head is provided at its right end with guide ways, 90^a, to receive lateral or horizontal dovetailed projections, 89^a, of a rack, 91, longitudinally slidable therein, and which is provided with a forwardly projecting arm, 92, the free end of which rests upon the work table, 4, and is provided with a horizontal adjusting screw, 92^a, (best shown in Fig. 8), that stands on the outer side of and is adapted

ed to engage or to be engaged by said vertical flange, 84 of the toe gage as the latter is moved outward and inward to measure the soles. This arm, 92, is (see Figs. 8, and 9), preferably pivotally connected with the rack, 91, to permit free vertical reciprocations of said cross head without raising the front end of said arm, 92, above the flange, 84, of said toe gage, 65. When the toe gage is moved to the right (Figs. 6 and 7) the arm, 92, and its rack, 91, are moved with it also to the right, to follow the return or measuring movements of the gage, 65, by a segmental gear, 93 (Fig. 12), secured on a horizontal rock shaft, 94, journaled at its ends in suitable bearings on the inner face of the cross head sides, 95, and oscillated to its outer position by the outward movement of the rack, 91. For so moving this segmental gear inwardly, it has an upwardly extending arm, 96, connected by a coil spring, 97 (Fig. 12), with a cross pin, 97^a, suitably secured in said sides, 95, said spring acting to swing said arm, 96, outwardly and the segmental gear, 93, inwardly, to slide the rack, 91, meshed therewith with it. Thus the segmental gear, 93, is caused to move with and to follow the movements of the toe gage, as the latter measures each sole. The movements of the segmental gear, 93, are communicated to the marking devices by means of links, 98 (Figs. 12 and 13), leading to a bell crank lever, 99, fulcrumed at 100 on a horizontal slide, 101, mounted in suitable guide ways, 102, formed or connected with said sides, 95, said slide, 101, being pivotally connected by a link, 103, with the upper end of a vertical oscillatory lever, 104, in the present instance secured upon a horizontal pivot shaft, 105, journaled at its ends in said sides, 95. The lower arm of this lever is provided with a segmental gear, 106 (Fig. 12) in mesh with a horizontal rack, 107, formed or secured to the slide block, 88, which carries the fore part marker, 12, referred to.

It will now be apparent that the movements of the toe gage, producing corresponding reciprocations of the slide, 101, produce also corresponding and proportionate movements of said sole marker, 12. That the heel marker may also be correspondingly moved, the upper arm of said lever, 104, is pivotally connected to an L-shaped link, 109, the short vertical arm, 110, of which is in turn pivotally connected with a slide, 111, also mounted at its ends in suitable guide ways, 112, in said sides, 95. At the elbow of this link, 110, is pivoted a bell crank lever, 113, the lower arm of which is connected by a link, 114, with the upper arm of a vertical oscillatory lever, 115, (Fig. 12) fast on a rock shaft, 116, secured at its ends in said sides, 95. The lower arm of this lever is provided with a segmental rack, 117, in

mesh with a horizontal rack, 118, on the slide block, 87, to the under side of which the heel marker, 11, is removably secured.

It will now be seen that as the lever, 104, is moved to adjust the sole marker, the connections between it and the heel marker will also cause the latter to be moved simultaneously and in the same direction, the amount of movement of each being proportioned to place each marker in the predetermined positions referred to relative to each sole operated upon, which is invariable for a given size and style of sole. As the respective or predetermined positions in which the marks should be placed will necessarily vary somewhat for different types or styles of soles, suitable mechanism has also been provided to vary the positions of the markers relative to the size measuring mechanism. To this end, Fig. 12, the inwardly extending horizontal arm, 120, of the bell crank, 99, is adapted to bear upon one of a series of style pins, 121, extending horizontally from the rear face of a disk, 122, journaled on said shaft, 105. These style pins, 121, are arranged on said disk at different distances from the axis thereof, so that the arm, 120, may be elevated or depressed as it is brought to bear upon that one of said pins which is turned into topmost position beneath it. Said bell crank arm, 120, is normally depressed to cause it to rest upon the pin below it by means of a coil spring, 124 (Fig. 12), connecting a vertical depending arm of said bell crank, 120, with the gear arm, 96. By this arrangement when the style disk is set for any given style of sole, elevation or depression of said bell crank arm, 120, according to the particular pin upon which it is pressed will cause the bell crank, 99, to turn on its pivotal connection with the links, 98, thereby moving the link, 103, inward or outward accordingly, so as to increase or decrease the movements of said oscillatory lever, 104, from a given movement of the segmental gear, 93, correspondingly to vary the position of the marker as described.

Inasmuch as the relative distance between the heel marker and sole marker is not usually the same in different types of soles, it is desirable that the heel marker should also be adjusted correspondingly to place it in a given position with reference to the type or style of sole to be marked. To this end the horizontal arm, 125, of the bell crank, 113, is extended also inwardly to bear upon similar style pins, 126, extending forwardly from the front face of said disk, 122, these pins also being arranged at different distances from the axis of said pin, 105, to set the arm, 125, at required elevation to produce the required variable movement of the heel marker, 11, and operating in a similar manner to that described for

the sole marker, 12. For normally depressing this arm 125, into contact with one of the style pins below it, the depending arm of said bell crank, 113, is connected by a coil spring, 127, with said pivot pin, 116.

Since the rear of the fore part of the sole usually extends obliquely across the sole relative to the medial line thereof, the fore part marker is adapted to be swung diagonally across the lower face of the cross head into one or the other of two positions to vary its obliquity or angular position and so as to mark a right or left sole and as this oblique position will vary with the different styles of soles to be marked, means are provided for adjusting or limiting its swinging movement to correspond to the style desired.

As here shown (see Fig. 12) the bottom of the cross head is provided at its sides with longitudinal slots, 128, in which vertically extending pins, 129, of the sole marker slide block, 88, are adapted to travel, said slots also receiving the depending stop ends of oscillatory levers, 130, pivoted at 131, to said slide block, 88, and adapted to engage said pins, 129, to limit the swinging movement of the same in either direction, the position of said stop ends determining the angular position of said marker. The upper ends of these levers, 130, are pivotally connected to a horizontal controlling member or actuator, 132, the outer ends of which are pivotally connected by links, 133, with the corresponding end of said slide block, 88, constituting a parallel motion and permitting of vertical movement of said actuator, 132. These controlling actuators, 132, are normally depressed so as to swing the depending stop ends of said levers, 130, inwardly or to the right, (Fig. 12,) by means of a coil spring, 134, connecting the lower ends of said links, 133, with the upper ends of said levers, 130. That said levers and their depending stop ends may be moved to fix the sole marker in any desired style position, said actuators, 132, are each provided with an inwardly projecting arm, 135, which is adapted to be engaged by the forwardly extending and radially arranged pins, 136 (see Figs. 12 and 13), upon another style disk, 137, fast on the hub, of said style disk, 122, immediately in front of the latter. As these pins, 136, are also mounted at different distances from the axis of the disk, rotation of the disk will bring the desired pin, 136, into the position to engage or bear upon the arm, 135, to limit its vertical downward movement, thereby correspondingly varying the position of the stop ends of said levers, 130, and limiting the movement of the sole marker positioning pins, 129, thereby determining the oblique position of said fore part marker, 12. That both the style disks, 122 and 137, may be

simultaneously locked in adjusted position, the edge of the disk, 122, is provided with a series of notches or holes, 138, and the top plate of the cross head has a vertically movable pin, 139, to engage the upper hole and thus hold the disk stationary with the desired style pins, 121, 126, 136, adapted respectively to engage the bell crank arms, 120, 125, and said actuator arm, 135. To facilitate turning these disks the hub, referred to, extends through the front side, 95, of the cross head, and is provided at its outer end with a knob, 119 (Fig. 13), the face of which is provided with letters from H to O inclusive or other indicating characters or marks indicating the styles or type of sole to be marked.

It will be understood by those skilled in the art that the different widths of soles for the same size vary more or less in length, but such variations for any given width are wholly in the fore part or in front of the ball marking position, consequently while the markings are longitudinally adjustable for variations in sole length for a given width, yet when such length variations are only because of different widths of the same numbered sizes, the markings should not be varied, the toe gage merely is adjusted without causing corresponding adjustment of the markers.

To prevent such corresponding adjustment and to maintain the respective markers in the predetermined positions referred to when operating upon a given size of sole irrespective of the width thereof, the arm 92, is provided with the horizontal adjusting screw, 92^a, referred to, which I denominate a width compensator. By turning this screw, its end may be brought into any desired position relative to the flange, 84, and to the arm, 92, so that the inward movement of said arm, may when necessary be limited at a desired point to offset the width increase in the length of the sole. In operation the rack, 91, moves with said arm, 92, simultaneously with and following the inward movement of the flange, 84, of the toe gage, 65, as the latter moves into contact with the sole to be marked. If the sole is longer by a certain length due to the increase in width the arm would, if unprovided with the adjusting screw, be stopped before it had traveled far enough to bring the markers to the required position for all soles of that size, and to provide for additional movement the screw is turned forward sufficiently to permit a greater relative movement of said arm, thereby compensating for variations in length due to width alone and maintaining the markers in the desired invariable or predetermined positions for a given size or style. This screw, 92^a, is long enough to permit all of the different widths of a given size to be operated upon without

varying the size position of the marking devices. As here shown, the head of the screw is provided with marks preferably letters corresponding to the different widths A, AA, B, C, D, E, EE, of each size and the arm with a suitable index or pointer, 92^x, to indicate the particular width of sole to be marked. By turning this screw to the position indicated, for example, to the letter B (Fig. 8), opposite the index, 92^x, any size of sole having the width B will be engaged by the toe gage, and its movement limited thereby, and the segmental gear, 93, will be moved to position the marking devices for that particular size of shoe, the distance between the marks being maintained the same as they would be for any other width of that size, the longitudinal adjustment of the screw as described permitting such variable movement of the toe gage as is necessary for the different lengths of different sizes without variation for width. In addition to providing markers to produce marks for guiding the operative in working upon the sole it may also be desirable to employ a marker to stamp, indent or otherwise apply marks to the sole to indicate the particular size operated upon such as 1, 1—, 2, 2—, etc.

As the stack upon the front of the table may be composed of rights and lefts arranged indiscriminately, suitable automatic means is provided to swing the forepart marker to the right or left, that the mark subsequently placed on the sole may be arranged obliquely in the proper direction relative to the medial line of the sole. This line, as will be seen by reference to Figs. 6 and 7, extends across the sole obliquely from left to right upon the left sole shown in place thereon, while on the right sole the line should extend diagonally from right to left. the soles in the particular case in hand being marked upon the flesh side. To mount this marker to swing from one side to the other it is secured (Fig. 10) at the under side of a block or plate, 108, which is pivoted by a stud, 108^a, to the slide block, 88, referred to, thus permitting it to be placed in either of said diagonal positions. For swinging this marker to one or the other positions, the under side of the slide block, 88, in the present instance, is provided with a horizontal swinging lever, 140, pivotally supported at 141 upon said block, 88, the inner end of said lever having a socket, 142 (Fig. 10) in which is slidably mounted a spring pressed pin, 143, the head of which is adapted to engage either one or the other of laterally extending cam faced ears or lips, 144, of said sole marker block, 108, and normally occupies a central position intermediate the two cam faces thereby normally maintaining said forepart marker parallel with the heel marker, 11. The pin, 143, is normally projected into engagement with said cam faces

to occupy the central position referred to by a coil spring, 145, seated behind it in said socket. For swinging this actuating lever, 140, to one side or the other to cause said pin to engage one or the other of said cam faces to swing the marker according as a right or left sole is moved into position beneath the marking devices, its front end is provided with a rising and falling pivoted arm or hinged member, 146, Figs. 10 and 12, adjacent the front end of which is slidably mounted a block, 147, having two inwardly extending horizontal arms, 148, which, in the present instance, and in the normal position of the lever, 140, extend laterally at an angle of 45° therewith forming a V to embrace and engage the toe of the sole. This block, 147, with its V is periodically moved from right to left (Figs. 1 and 10), to clear the sole to be inserted by the slide, 24, immediately following which the sleeve and its V are moved inwardly or to the right to center itself upon the end of the sole that happens to be fed into marking position. In order to thus center itself on the sole end, it will be deflected to one side or the other of its central position according as the sole end is of a right or a left sole and is deflected to the left or to the right. As the V deflects to the right or left thus to center itself on the sole end, it will through the action of the spring pin, 143, on one of the cams, 144, also move the fore part marker similarly to the right or left to conform it to the sole to be engaged thereby, the right or left deflection occurring simultaneously or immediately following the size and style movements of the markers and preceding the descent of the cross head to mark the sole positioned beneath it. To produce these movements of the V or block, 147, the latter, in the present instance, is provided with wires or straps, 149 and 150 (see Figs. 1, 9 and 10), the former passing rearwardly and down through a slot in said table, under an idler wheel, 151, to the edge of a disk or wheel, 152 (Fig. 1), to which its end is attached. The latter wire, 150, passes inwardly through said slot over a similar idler, 153, thence to the edge of the periphery or circumference of said wheel, 152. This wheel or disk, 152, is suitably mounted upon a horizontal shaft, 154, suitably journaled in a projecting arm of the upright, 28. To oscillate this shaft and its disk or wheel, 152, in one direction or the other, said shaft, 154, is provided with a pinion, 155, which is actuated by a vertically slidable rack, 156, formed on a slide, 157, having a longitudinal slot to embrace said shaft, 154, to guide its movements vertically, the lower end of this slide being forked to embrace said drive shaft, 5, thus to cooperate in guiding the same. Immediately above its forked end the said slide, 157, is provided

with a roller or other stud, 158, which runs upon an edge cam, 159, which operates to elevate the slide and rack periodically, thereby rotating the rack, 155, and the disk, 152, to wind up the wire, 149, and by its connection with the V block, 148, to move the latter outwardly into position to permit the sole to be fed rearward between its arms. The slide, 157, is normally depressed by means of a coil spring, 160, connected therewith, and with said upright, 128, and acting to pull down said slide as the cam rotates to bring its low part beneath said roller, 158. This vertical depression of the slide moves the rack, 156, and the pinion, 155, in the opposite direction to cause the wire, 150, to wind up on the periphery of the disk, 152, while the wire, 149, is unwound. This movement slides the V inward to cause one of its arms to engage the curved portion at the outside of the sole when it will swing to move the pin head, 143, referred to into engagement with one of the cam faces, 144, to swing the marker to one side or the other until limited by one of the cam stops of the levers, 130, thereby bringing said marker into the required oblique position for the particular right or left sole engaged.

In order that the marker may be prevented from swinging owing to the tautness of the wire, 149, the latter is provided with a sufficient slack portion to permit of such movement without interfering with the reciprocations of the wire.

In practice, the machine is operated as follows:—A stack of soles being placed between the front and rear holders, 20 and 21 respectively, the adjusting screw, 92^a, in the end of the rocking arm, 92, is turned to bring the width letter corresponding to the width of sole to be operated upon uppermost and the style disks are similarly adjusted by turning the lettered knob to bring the letter corresponding to the style of sole to be marked into the upper position when the locking pin, 139, is inserted in the corresponding notch, 138, in the edge of the type disk to maintain said disks and the style pins in required position. The operative then actuates the shipper lever to rotate the drive shaft, 5, and the cams mounted thereon, which first cause an outward movement of the sole measuring or toe gage, 65, and of the rack, 91, through the movement of the arm, 92, described. Immediately following these movements the release of the roller, 82, from the cam, 86, causes the toe gage operating arm, 76, through the action of the rock shaft spring, 83, to swing inwardly to bring the flange, 84, of said gage to the right (Figs. 6 and 7) against the toe of the sole to cause said sole to abut the heel gage, 64, and thereby occupy a given or predetermined position upon the work plate, 22,

and relative to said slide, 24. When in this position the cam, 35, through its groove, 34, actuates the vertical slide carrying the rack, 30, thus oscillating the rack, 25, to move the slide, 24, rearwardly, the slide arm, 75, at the commencement of said movement releasing the clamp plate, 69, to permit clamping the shoe gage in its toe engaging position.

10 Simultaneously or immediately thereafter the inner slides, 40 and 41, which respectively carry the sole clamping jaws, 36 and 37, are separated through the operation of cam, 35, on the actuator lever, 52, and gears, 15 45 and 46, described, permitting them to tilt upward until limited by their stops, 43. The continued rotation of the cam, 35, permits the cam roller, 55, of said lever, 52, to fall onto the low part of the cam, the spring, 20 49, cooperating to rotate said gears and move said inner slides, 40 and 41, inwardly to cause said jaws to firmly grasp the bottom sole of the stack then resting upon the top plate, 22, and hold it in predetermined position during the subsequent in-feeding thereof. Simultaneously with these movements the right and left adjusting mechanism has, through the operation of the vertical slide rack, 156, and its actuating spring, 25 160, been moved outwardly to permit the sole to be fed into marking position immediately following which the cam, 159, operates to raise said slide rack, 156, as described, and pull said V, 148, inward to 30 cause one or the other of its arms to engage the outside edge of said sole and swing the operating lever, 140, of the sole marker to move the latter into required diagonal position for the right or left sole to be 40 marked.

As the toe gage is slid inwardly to measure the size of sole, the horizontal rack arm, 92, is caused to follow it through the action of the actuating spring, 97, of the marking devices and the movement produced thereby 45 upon the racks, 93 and 91, until the width compensating adjusting screw, 92^a, strikes the flange, 84, which limits its inward motion and also that of said racks and the link, 103, connected therewith. As has been 50 described, this movement of the link, 103, produces the required adjustment of the heel and fore part markers into the required predetermined marking positions and as determined by the style adjusting means, 55 which, as has been stated, has been previously set for a particular style of sole. This movement also operates the size numbering mechanism to bring the required size number into marking position. Subsequent 60 to the movements of said markers to the predetermined positions referred to, the cams, 19, through their rotation permit depression of the cross head, 10, by the action

of its springs, 16, thus causing the size and 65 numbering markers to descend upon the sole and produce the marks at the predetermined positions and angles required, following which the cross head is elevated by the action of said cams, 19, and compressing said 70 springs, 16, so that subsequent marking movement will be produced when the cams, 19, next permit it. The elevations of the cross head and markers permit the sole to be released and to remain in the position 75 in which it was marked, the rear sole grasping jaws, 37, being first moved rearwardly and then depressed by the respective action of the cams, 60 and 35, upon the trail lever, 56, and the roller, 61, which has already been 80 sufficiently described. By this movement the slide, 24, is permitted to slide forwardly without displacing the sole first marked, the forward movements being produced by the reverse movement of the segmental 85 rack, 26.

As the slide is moved forwardly the ejecting pawls, 62, are tipped as their upwardly projecting rear ends strike the rear edge of the sole, permitting them to drag under 90 it, until they are tipped forward and again raised by their own weight upon reaching the opposite side, the next rearward movement of the slide causing the said pawls to engage the front edge of the sole and push 95 the latter to the rear edge of the table, from which it will be subsequently displaced by the next sole, as it is similarly pushed rearwardly by said pawls. In approaching its forward position the arm, 75, of the slide, 100 24, again engages the pin, 71, to swing the inner end of the clamping plate, 69, forwardly to release the toe gage, its actuating arm, 76, being thrown outward by the action of the cam, 86, so that the flange of the 105 toe gage is in position to subsequently engage the sole now at the bottom of the stack.

If at any time during the operation of the machine it is desirable to feed soles of different widths or of different styles the 110 adjusting mechanism is first moved to correspond with the soles to be marked, the machine being stopped to permit of this adjustment, if necessary, or at the conclusion of the sole marking operations by actuation of the starting or shipper lever, 8. 115

By my invention a machine of novel character and purpose is provided, which so far as I am aware, is new in the art as will be readily apparent from the foregoing 120 description of the machine, and which, after setting the width and type adjusting mechanisms, is entirely automatic in its operation, the bottom sole of the stack being measured as to size and the marking devices 125 set accordingly by means governed by the sole itself and is equally adapted to work either upon a right or a left sole, as the

case may be, without intervention or assistance of the operative, the only labor or attention required of him being to see that the stack of soles is replenished and that the machine is stopped at the conclusion of the work.

While in the particular embodiment of my invention herein described and illustrated I have shown a machine adapted to apply marks to soles having special reference to the operation of thinning or shanking out the edges of the shank portions, obviously, my invention is not limited to the specific embodiment herein shown and described, as it is equally adapted for other uses such, for example, as placing suitable marks to guide the operative in what is known to the trade as channeling shanks of shoes, that is, applying the black lines which run parallel with the edge of the shanks upon ladies' shoes to give them the appearance of a narrow sole. It should be understood also that other shoe parts may be marked in desired manner and my invention contemplates the provision of means for producing reference-marks upon any other shoe parts which will serve to aid or assist the operative in his work. My invention furthermore is not limited to the specific details or to the arrangement of parts herein shown for illustrative purposes only, as the same may be modified and varied within wide limits without departing from the spirit and scope thereof.

35 Claims.

1. A machine of the type described comprising in combination a plurality of markers adjustable to predetermined positions for making marks upon different sizes of shoe parts at invariable positions for a given size of part and means for varying the position of said marks to correspondingly invariable positions in marking parts of different styles.

2. A sole marking machine of the type described comprising means for producing a plurality of marks in predetermined positions upon a shoe sole invariable for a given size of sole and means for adjusting said means to place said marks in corresponding positions upon different styles of soles.

3. In a shoe marking machine, the combination of a front marker and a rear marker, each to make a mark extending transversely of the sole to be marked, means for adjusting the angular relation of said markers, a table for supporting the sole to be marked, and means for relatively moving the table and markers for causing the latter to act upon the sole.

4. A sole marking machine, comprising, in combination, a plurality of markers for placing marks on a sole to indicate positions thereon, means for changing the angular

position of one of said markers on its support and with respect to the median line of the sole to be marked, a table for supporting the sole, and means for relatively moving the table and markers to cause the latter to act upon the sole.

5. A sole marking machine of the type described comprising in combination a heel marker and a forepart marker, means for operating the same to place marks at predetermined positions on a shoe sole, and means effecting sizing adjustment of said markers.

6. In a sole marking machine, the combination of a front marker and a rear marker, means for changing the angular position of the front marker on its support and with respect to the median line of the sole for marking rights and lefts, a table for supporting the sole to be marked, and means for relatively moving the table and markers to cause the latter to mark the sole.

7. A sole marking machine, comprising, in combination, a heel marker and a forepart marker, a table or support for sustaining the sole to be marked, sole size measuring means, means operated from said measuring means to change the distance between the heel marker and forepart marker in accordance with the size of the sole to be marked, and means to relatively move the table or support and markers to cause the latter to act upon the sole.

8. A sole marking machine comprising in combination a heel marker and a forepart marker for marking soles at predetermined places and sole size measuring means for adjusting the markers relative to each other to produce marks in the same relative predetermined places upon soles of different size.

9. A sole marking machine comprising in combination a plurality of markers for marking soles at predetermined places, sole size measuring means for adjusting the distance apart of the markers to produce marks in the same relative predetermined places upon soles of different size, and means for adjusting said markers to the style of sole to be marked.

10. A sole marking machine comprising in combination a plurality of markers for marking soles at predetermined places, means governed by the sole to be marked for adjusting the markers to a position to produce marks in the same relative predetermined places upon soles of different size, and means auxiliary thereto for positioning said markers for a particular style of sole.

11. In a sole marking machine of the type described the combination of a sole marker and means for automatically effecting right and left angular sole adjustment thereof for marking upon rights or lefts.

12. In a sole marking machine of the type described the combination of a sole marker

and means governed by the sole to be marked for effecting right and left sole adjustment thereof to mark a right or left sole.

13. A sole marking machine of the type described comprising in combination a plurality of markers, means operating automatically to adjust the position of said markers for the size of sole to be marked, and adjusting means to prevent automatic adjustment of said markers when operating upon different widths of the same size of sole.

14. A sole marking machine comprising in combination a plurality of markers, and means relatively to adjust the angular relation of said markers to operate upon rights and lefts.

15. A sole marking machine comprising in combination a plurality of markers, sole measuring means, and means relatively to adjust the angular relation of said markers to operate upon rights and lefts.

16. In a sole marking machine a sole fore part marker and means governed by the sole to be marked for positioning the same to mark a right or left sole.

17. A sole marking machine comprising in combination a plurality of markers, sole measuring means, size and style adjusting means governed thereby to position said markers relative to the sole to be marked, and means for operating said markers to mark said sole.

18. A sole marking machine comprising in combination a heel marker, a sole or fore-part marker, sole measuring means, size and style adjusting means governed thereby to position said markers relative to the sole to be marked, means for effecting right and left sole adjustment of said fore-part marker to operate upon a right or left sole, and means for operating said markers to mark said sole.

19. A sole marking machine comprising in combination a heel marker, a sole or fore-part marker, sole measuring means, size and style adjusting means governed thereby to position said markers relative to the sole to be marked, and means operated by the sole to be marked for adjusting the fore part marker for a right or left, and means for operating said markers to mark said sole.

20. In a sole marking machine an oscillatory fore-part sole marker and means for adjusting it to one of two oblique marking positions relative to the medial line of a sole to be marked, one of said positions corresponding to a marking position for a right sole, the other for a left.

21. In a sole marking machine, a fore-part sole marker and means operating automatically to effect right and left sole adjustment thereof for marking rights and lefts.

22. In a sole marking machine a heel

marker and a fore-part marker, sizing means to adjust the markers to the size of sole to be marked, and means for obliquely positioning the fore-part marker for rights and lefts.

23. In a sole marking machine, a plurality of markers, means governed by the size of sole to be marked for automatically adjusting the positions of said markers for marking soles for different sizes, and adjusting means for preventing the increase in the length of sole due to variation in widths from producing corresponding variations in the position of said markers thereby to produce marks in invariable positions upon the same sizes of soles.

24. In a machine of the type described, a bed plate or table, a cross head arranged to reciprocate toward and from the same and provided with a plurality of markers, means for adjusting said markers on their supports to change their position relative to each other for marking different sizes or types of work, means for positioning the work in marking position on the bed plate or table, and means for reciprocating said cross head to mark the work.

25. In a sole marking machine, a toe gage, means for moving it to cause it to engage the edge of a sole and move it to a predetermined position, and means acting automatically for then clamping the sole in said position.

26. In a machine for marking shoe soles, a toe gage, means for moving it to cause it to engage the edge of a sole and move it to a predetermined position, and sole feeding means provided with sole holding means to maintain the sole in the same predetermined position relative to said feeding device during feeding.

27. In a sole marking machine, a heel gage, a toe gage, and means for automatically moving the toe gage toward said heel gage to abut the heel of a sole placed between them against said heel gage.

28. In a sole marking machine a heel gage, a toe gage and automatic means for moving it toward said heel gage to abut the heel of a sole placed between them against said heel gage, and means for locking said toe gage in sole abutting position.

29. In a sole marking machine, a feed carriage 24, provided with sole feeding means, and sole ejecting means comprising one or more pawls, 62, pivoted to said carriage to pass beneath the sole on the backward movement of the carriage and engage the sole edge.

30. In a sole marking machine, a plurality of sole markers comprising a heel marker, 11, and a swinging fore-part marker, 12, and means for operating them.

31. In a sole marking machine, sole measuring means, sole sizing mechanism, an arm

connected with said mechanism and provided with a width compensating adjusting screw to engage said seams.

32. In a sole marking machine, sole measuring means, a width compensating adjusting screw co-acting with said measuring means provided with marks to indicate the widths of soles to be marked and to determine the position to which said screw should be adjusted.

33. In a sole marking machine, a heel gage and a sole measuring device comprising a toe gage, a pivoted arm connected with said toe gage, and means for oscillating it to move the toe gage away from said heel gage to permit a sole to be placed in position between said toe and heel gages and for moving the toe gage in the opposite direction to engage the toe of said sole and abut the heel thereof against said heel gage.

34. In a sole marking machine, a heel gage and a sole measuring device comprising a toe gage, a pivoted arm connected with said toe gage, means for oscillating it to move the toe gage away from said heel gage to permit a sole to be placed in position between said toe and heel gages and for moving the toe gage in the opposite direction to engage the toe of said sole and abut the heel thereof against said heel gage, and means for locking said toe gage in abutting position.

35. In a sole marking machine, a heel gage and a sole measuring device comprising a toe gage, a pivoted arm connected with said toe gage, shaft means for swinging said arm and gage away from said heel gage to permit a sole to be placed in position between said toe and heel gages, and yielding means for moving said toe gage toward the interposed sole to engage the toe and abut the heel of said sole against said heel gage.

36. In a sole marking machine, a plurality of markers and type adjusting means for varying the positions of said markers for the different types of soles to be marked.

37. In a sole marking machine, a sole marker, a type disk provided with radially arranged type pins and means controlled by said pins for defining the shoe type movement of said marker.

38. In a sole marking machine, a sole marker, a type disk provided with radially arranged type pins and adjusting means for rotating it to bring a desired type pin into operative position and means controlled by said pins for defining the shoe type movement of said marker.

39. A sole marking machine, comprising, in combination, a plurality of markers for placing marks upon the sole to indicate the points for commencing or ending operations thereon, means for varying the distance between the markers in accordance with the size of the sole to be marked, and means for changing the angular relation of the markers.

40. A sole marking machine comprising in combination a flat surfaced table for supporting a shoe sole prior to its connection with the shoe upper, a marker, sole size measuring means adjustable to the size of the sole, and means operative by movement of said measuring means to vary the position of said marker by and in accordance with the size of the sole placed upon the table to bring it to a predetermined position relative to the sole to be marked, and means for relatively moving said table and marker to cause the latter to act upon the sole.

41. In a sole marking machine, a work support, two markers, one to act upon the sole adjacent the heel breast line and the other at the ball line, means for adjusting said markers relatively to vary their distance apart, sole size measuring devices for operating said means to vary the relative position of the markers in accordance with the size of the sole to be marked, and devices governed by the style of the sole to further vary the relative position of the markers in accordance with the style of the sole to be marked.

42. In a sole marking machine, the combination of a front marker and a rear marker, means for changing the relative position of said markers in accordance with the size of the shoe sole to be treated, means for changing the relative position of said markers in accordance with the style of shoe sole to be treated, and means for swinging one of said markers to different inclinations transversely of the shoe sole for rights and lefts.

43. In a sole marking machine, the combination of a front marker and a rear marker, means for changing the relative position of said markers in accordance with the size of the shoe sole to be treated, means for changing the relative position of said markers in accordance with the style of shoe sole to be treated, and means controlled by the style of shoe sole to be treated for varying the inclination of said marker.

44. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, a front marker and a rear marker, for making transverse marks simultaneously on a shoe sole, means for adjusting said markers toward and from each other to correspond to the size of the shoe sole to be treated, that the markers may mark the heel and ball lines correspondingly on soles of different sizes, means for carrying said markers, and means for angularly adjusting one of the markers in its carrying means and with relation to the median line of the shoe sole.

45. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, a front marker and a rear marker, means for adjusting said markers toward and from each other to correspond to the size of the shoe sole to be treated, means

for carrying said markers, means for separately adjusting one of the markers in its carrying means, and means for varying the angular relation of the markers with respect to each other.

46. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, a plurality of markers, means for adjusting said markers toward and from each other in accordance with the size of the shoe sole to be treated, style adjusting means for said markers, and means controlled by said style adjusting means for changing the angular relation of one of said markers to the median line of the shoe sole.

47. In a sole marking machine of the type described, the combination of a sole marker, means for effecting right and left angular style adjustment thereof for marking upon rights or lefts, and means for controlling the amplitude of such angular adjustment in accordance with the style of the shoe sole.

48. In a sole marking machine, of the type described, the combination of a plurality of markers, means for adjusting said markers toward and from each other in accordance with the size of the shoe sole to be marked, style adjusting means for changing the relative position of said markers in accordance with the style of the shoe sole to be treated, and means for changing the angular relation of said markers with respect to each other to treat right and left shoe soles.

49. In a sole marking machine of the type described, the combination of a plurality of markers, means for adjusting said markers toward and from each other in accordance with the size of the shoe sole to be marked, style adjusting means for changing the relative position of said markers in accordance with the style of the shoe sole to be treated, means for changing the angular relation of said markers with respect to each other to treat right and left shoe soles, and means controlled by the style adjusting means for limiting the amplitude of said angular adjustment.

50. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, a head carrying a slide, a front marker mounted on said slide, means for adjusting the angular relation of said marker with respect to the shoe sole to be marked, and means for moving said slide.

51. In a sole marking machine, the combination of a front marker and a rear marker, slides carrying said markers, means for varying the angular relation of said markers with respect to each other, and means for moving said slides to vary the distance between the markers.

52. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, a front marker and a rear marker, slides carrying said markers, size

adjusting means for moving said slides, relatively in accordance with the size of the shoe sole to be marked, and means for changing the relative position of the markers with respect to their size adjusting means.

53. In a sole marking machine, the combination of a marker to mark the sole substantially at the heel break line, a second marker to mark the sole at the ball line, means controlled by the operative for varying the distance between said markers, and means controlled by the operative for varying the angular relation between said markers.

54. In a sole marking machine, the combination of a front marker and a rear marker for placing marks upon a sole to indicate where operations on the sole shall commence or end, means for moving the markers relatively to vary the distance between them for marking soles between predetermined sizes, and devices for modifying the path of movement due to the action of the moving means when the soles to be marked vary from said predetermined sizes.

55. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, gaging means operatively related to the table for positioning a shoe sole thereon to be marked, an opposed head carrying front and rear markers having portions for indicating on the sole the point for commencing and ending operations thereon, means carried by the table and controlled by the operative for relatively adjusting said markers on the head, and means for causing relative approach and separation of the table and head.

56. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, an opposed head carrying front and rear markers, means carried by the table and controlled by the operative for relatively adjusting said markers on the head, means for causing relative approach and separation of the table and head, and means on the head for further adjusting the relation of the markers.

57. In a sole marking machine, the combination of a table for supporting a shoe sole to be marked, an opposed head carrying front and rear markers, one of which is angularly adjustable, means carried by the table and controlled by the operative for relatively adjusting said markers on the head, and means for causing relative approach and separation of the table and head.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM C. STEWART.

Witnesses:

CHARLES E. HOOD,
SIDNEY F. SMITH.