

May 22, 1934.

A. E. HUDSON
SOLE MARKING MACHINE

1,959,583

Filed Jan. 22, 1929

2 Sheets-Sheet 1

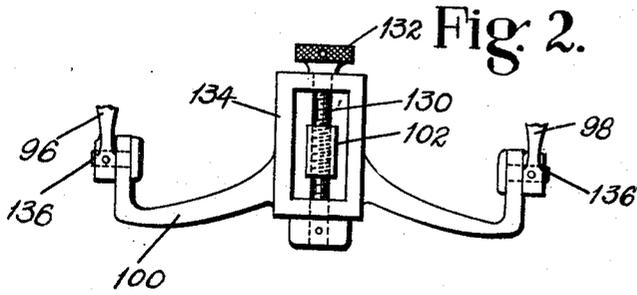


Fig. 2.

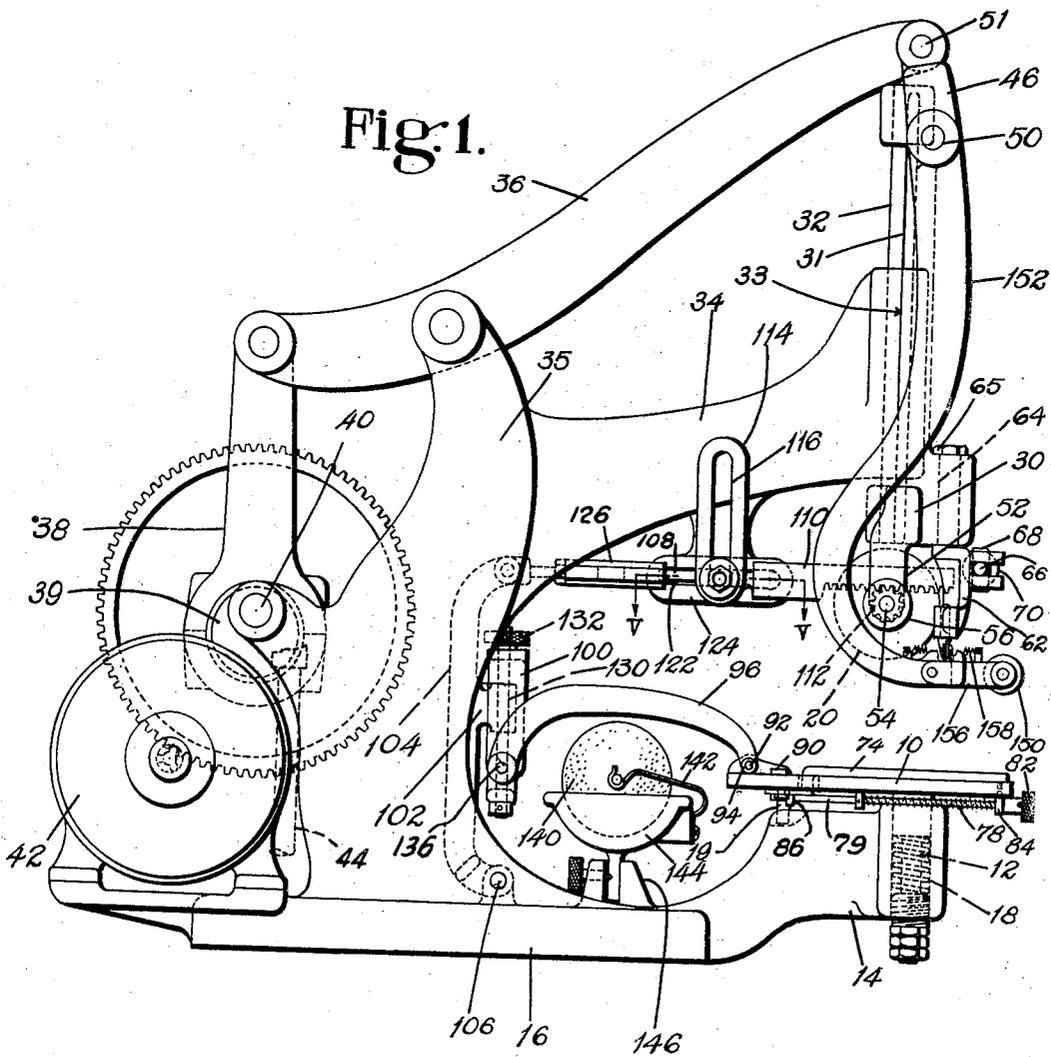


Fig. 1.

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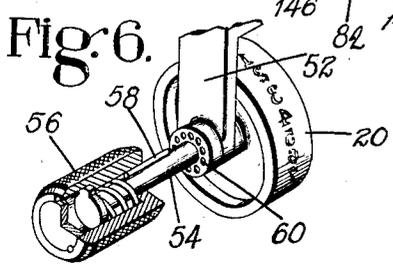
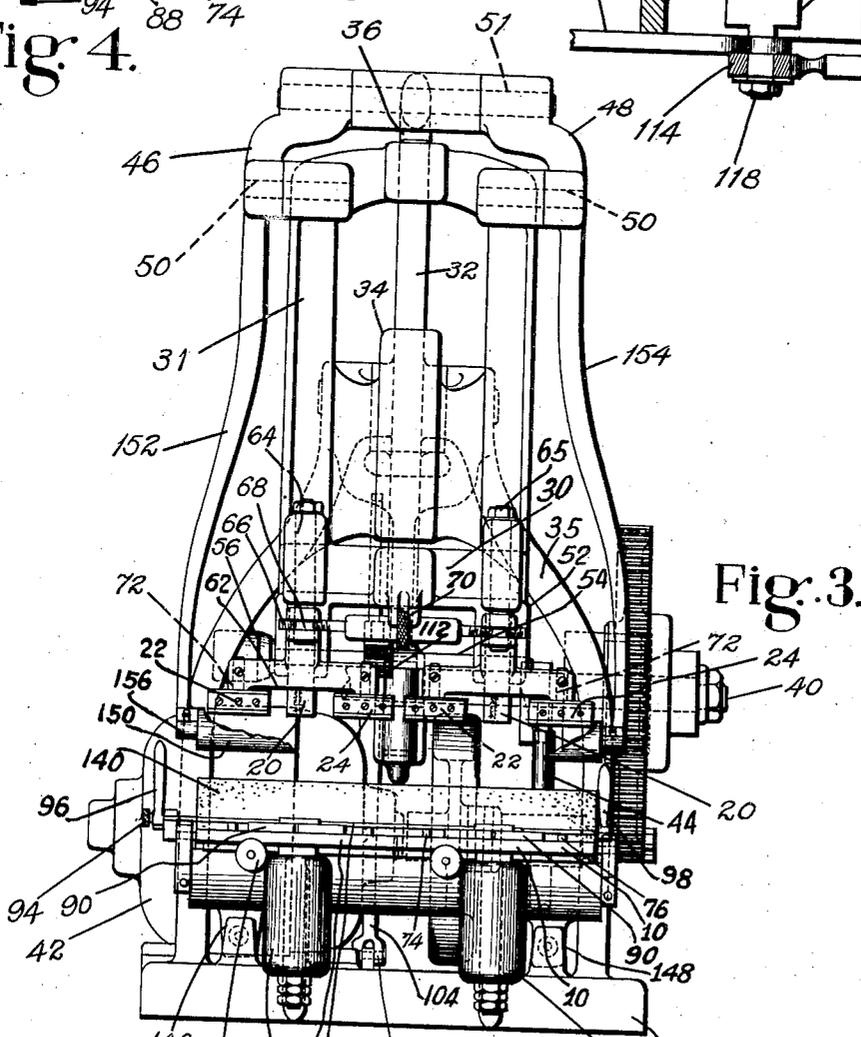
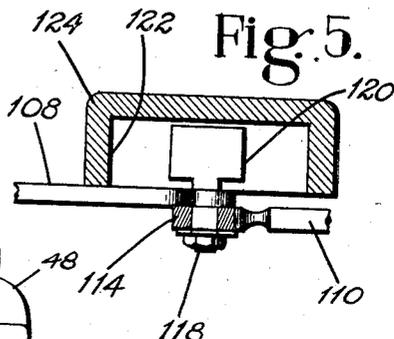
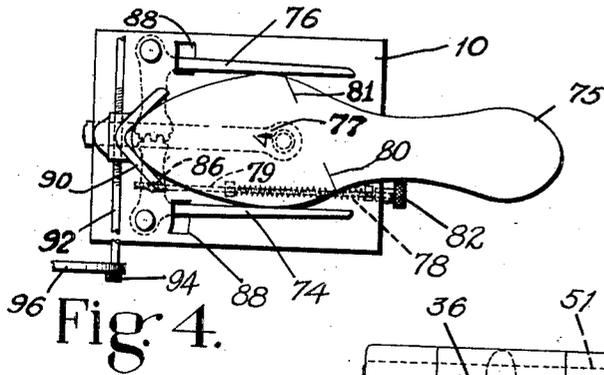
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

1,959,583

SOLE MARKING MACHINE

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Application January 22, 1929, Serial No. 334,240

20 Claims. (Cl. 33—4)

This invention relates to improvements in marking machines and is illustrated as embodied in a marking machine of the type designed for impressing marks simultaneously upon the right and left soles of a pair of soles for boots and shoes.

After soles have been cut, they are sorted according to size, and for the convenience of operators performing subsequent shoemaking operations a size number is usually stamped upon each sole. Thereafter, an operator can tell at a glance the size of any sole which he picks up and act accordingly. It is also customary to place temporary marks on the soles at the ball lines as indications for the guidance of operators in commencing or finishing various operations of the soles, as in shank reducing where it is highly important to avoid cutting the tread of the sole in front of the ball line.

Features of the invention consist in improved mechanism for interconnecting size numbering devices and gaging devices for use in adjustably determining the positions of pairs of soles of different sizes and styles in respect to devices for making temporary marks on soles at the ball lines.

In the illustrated machine, the positions of each sole of a pair are determined relatively to the devices for making marks at the ball lines of the soles by toe gages adjustable to register the ball lines of the soles with the ball line marking devices whatever the lengths of the soles, and to facilitate the rapid performance of the desired marking operations the size numbering devices are interconnected with the toe gages, so that, upon adjustment of the numbering devices according to the length of a given pair of soles, the toe gages are correspondingly adjusted. In order that the adjustment of the toe gages effected by adjusting the size numbering devices from one size to another may be conveniently varied to agree with any system of length grading, the illustrated machine is provided with means varying the adjusting movement of the toe gages effected by a given adjustment of the size numbering devices. Preferably too and as illustrated, the ball line marking devices and the numbering devices are carried by a single marking head, to which the toe gages are so related that operative movement of the marking head does not disturb the adjustment of the toe gages.

In the illustrated machine also, there are provided, for each sole of a pair, side gages interconnected for simultaneous swinging move-

ment to center the sole transversely in respect to the size numbering device for that sole, and further to facilitate the rapid and accurate performance of marking operations provision is made for equal and opposite adjustment of the toe gages with respect to the side gages in order that the toe gages may be so positioned as to swing the respective soles of the pair into position to register the ball line markers with the ball lines of the soles whatever the angular relations of the longitudinal median lines of the foreparts and heel parts of the soles may be.

Preferably too and as illustrated, a pair of line markers is provided for each sole, these markers being adapted to make separated marks extending inwardly from the opposite edges of each sole at the ball line and being simultaneously adjustable angularly to facilitate registering the marks of each pair with the ball lines of soles differing in the respect above referred to, as well as independently adjustable angularly with respect to one another so that the respective markers may be brought into alignment with the ball line of a sole which is not a straight line but may be a broken or a curved line as is the case with a cottage shank shoe. It is well known that the sharply defined ridges which extend across the foreparts of soles having "cottage-roof" shanks terminate at the ends of the ball lines and may extend different distances from the ends of the ball lines and at different angles to the longitudinal median lines of the shank portions of the soles in accordance with the styles of the soles. Accordingly, it will be readily understood that in the marking of such a sole at the ball line it is highly important to be able to place the marks at an angle to one another and to be able to change this angular relation since not only are the marks used to assist the operator in properly performing the shank reducing operation but also in positioning the sole properly with respect to a pair of molds which mold the shape of the shank portion after the shank reducing operation has been performed, thereby insuring that the sharp break across the forepart of the sole will be located properly relatively to the reduced portion of the shank. To facilitate the removal from the sole of the size marks and ball line marks when they are no longer needed, the illustrated line markers and size numbering devices are made of soft rubber, and the illustrated machine is provided with an inking mechanism which is especially adapted for the application of ink to such soft rubber marking devices.

These and other features of the invention may be best understood from a consideration of the following description read in connection with the accompanying drawings, in which

- 5 Fig. 1 is a side elevation of the machine;
 Fig. 2 is a detail in front elevation of part of the connecting mechanism between the numbering devices and the gaging devices;
 Fig. 3 is a front elevation of the machine, with
 10 parts broken away;

Fig. 4 is a plan view of a portion of the work-supporting table with a sole positioned therein, which has been marked by the machine;

- Fig. 5 is a detail section on the line V—V of
 15 Fig. 1; and

Fig. 6 is a detail perspective showing a numbering dial and means for adjusting its position.

- The illustrated marking machine is adapted for use with unattached soles supported in pairs during the marking operations upon a pair of
 20 similar tables 10 (Figs. 1 and 3), with a right sole upon one table and a left sole on the other. Each of these tables is provided with a depending stud 12 received within a socket at the outer
 25 end of a bracket 14 extending forwardly from the base 16 of the machine. A spring 18 is interposed between the socket and the stud 12 in order resiliently to support the table against the pressure of the marking devices. The tables
 30 are prevented from turning by lugs 19 (Fig. 1) entering slots milled in the brackets.

- Marking devices comprising size numbering dials 20, 20 and line markers 22, 22 and 24, 24 to mark the position of the ball line, for example,
 35 are supported upon a vertically movable marking head 30 comprising an open frame 31 and a central rod 32. The line markers have soft rubber marking edges, since printed marks made by soft rubber markers may be removed when
 40 no longer needed more readily than marks involving indentations. The rod 32 is received within a bore in a rigid arm 34 extending forwardly from a frame 35 fixed to the base 16. Guide lugs 33 (Fig. 1) are provided on said arm
 45 34 for engagement with the side members of the open frame 31 of the marking head 30 to prevent twisting movement thereof as said head is reciprocated vertically by means of a lever
 50 36 operated through an eccentric rod 38, which in turn is actuated by an eccentric 39 upon a shaft 40 driven, by means of interconnecting gears, from a source of power such as an electric motor 42. A single revolution clutch provided between the source of power and the
 55 eccentric is controlled by the operator by means of a treadle rod 44.

- The power-actuated lever 36 is connected to the upper end of the frame 31 of the marking head 30 by means of links 46 and 48 (Fig. 3)
 60 which are pivoted to the upper end of said frame and by means of pins 50 and to said lever by a pin 51.

- At the lower end of the frame 31 of the head 30, depending bearings 52 are provided for a
 65 transverse shaft 54 upon which the marking dials 20 are mounted and a knurled handle 56 is mounted upon one end of said shaft to enable the operator readily to turn the marking dials to bring into marking position the desired
 70 numeral. In order that the dials may be rotated just enough to bring the desired numerals upon the devices into printing position, means, such as the pin 58 in the knurled handle 56 and the recesses 60 in one of the depending
 75 bearings 52 (Fig. 6), may be provided to enable

the size marking dials to be locked in adjusted position. To this end the knurled handle 56 is splined to the shaft 54 and spring pressed to carry the pin 58 into engagement with one of the sockets 60.

The line markers 22, 22 and 24, 24 are adjustably supported upon the marking head by cross-bars 62 having upstanding studs 64 which are pivotally supported in suitable bearings upon the marking head 30 by nuts 65. A double-ended screw 66 interconnecting said line markers has right and left-hand threads engaging nuts 68 swiveled on vertical axes in lugs upon the cross-bars 62, and is provided with a finger disk 70 by means of which the supports 62
 80 for the line markers may be turned around their vertical axes and equally and oppositely adjusted at a single operation. The finger disk 70 is maintained in central position by lugs on the head frame 31. By means of this arrangement, the angular position of the line marker carrying cross-bars 62 and hence of the markers carried thereby may be adjusted for right and left soles simultaneously. The line markers 22 and
 85 24 are supported upon the cross-bars 62 by means of centrally disposed, upwardly extending pivot pins 72 (Fig. 3), which may be held in place by set screws so that the angular position of each of these markers may be independently determined with respect to the line marker sup-
 90 porting cross-bars 62. By means of this arrangement the needs of any particular factory or style of sole may be met and the individual line markers may be so placed that their impressions will bear the desired relation to the
 95 edges of the soles. For example, the ball line on McKay soles when they are intended to have "cottage shanks" is a curved line and the adjustments provided enable the positioning of the line markers to approximate this line. In order
 100 that the marks made by the machine upon successive soles of different sizes may be registered at exactly the desired location, the machine is provided with side gages 74 and 76 and with toe gages 90 by means of which the position
 105 of the sole both laterally and endwise upon the table of the machine, and therefore with respect to the marking devices, may be readily determined and easily duplicated, this position being determined by the size and swing or style of the
 110 sole, i. e. the angular relation of the longitudinal median lines of the forepart and shank portions of the sole. Thus, the position of a sole laterally of each supporting table 10 is determined by means of gages comprising interconnected, self-
 115 adjusting side gages 74 and 76 (Fig. 4), which are normally held in position to engage the sides of a sole, being urged toward each other by means of a spring 78 surrounding a rod 79
 120 (Fig. 1) beneath the table 10 and acting to move said side gages inwardly to an initial position determined by the engagement of the hub of a knurled knob 82 on said rod with a bearing
 125 84 for the rod which is attached to the under side of the table. The rear end of the rod is threaded into a depending stud 86 on the under side of the side gage 74. It will be noted from an inspection of Fig. 4 that the side gages are pivotally attached to the under side of the table and that their arms pass through openings 88 in
 130 said table and extend along its upper side in position to engage each side of a sole.

The position of the sole lengthwise of each table 10 is determined by a V-shaped toe gage
 90 within which the toe end of the sole is re-

ceived and centralized and in combination with the lateral gages 74 and 76 its position accurately determined. If all the soles to be treated were of such a design that the center of the toe lay at a predetermined distance from the side of the sole, then these toe gages might be mounted in fixed position upon the tables 10, but since the position of the center of the toe varies considerably in accordance with the swing of the sole and the style of the sole, means are provided for adjusting the position of each of the toe gages 90 laterally upon the table so as to bring these gages into the desired relation with the lateral gages. To this end, a transverse rod 92 interconnecting the respective toe gages and having a right and left-hand threaded connection therewith is provided with a head 94 which may be grasped by the operator and turned to adjust the toe gages laterally upon the tables to twist the foreparts of the soles into proper relation to the line markers 22, 22 and 24, 24. The arrangement is such that the toe gages may be adjusted simultaneously.

Mechanism is also provided for interconnecting the marking dials 20 and the toe gages 90 so that rotation of the dials by the knurled handle 56 is effective simultaneously to adjust the toe gages from front to rear for different sizes, i. e. lengths. To this end the opposite ends of the transverse rod 92 are received in rearwardly extending arms 96, and 98 which are pivotally attached at their opposite ends to the sides of a yoke 100 (Figs. 1 and 2). This yoke is adjustably connected to a central, forwardly projecting part 102 of an upright lever 104 pivoted at its lower end at 106 to the base of the machine and joined at its upper end to a forwardly extending rod 108 which has a sliding connection with a rack 110 meshing with a pinion 112 upon the transverse shaft 54 carrying the marking dials 20. When the dial shaft 54 is rotated by the operator to mark a new size number, the toe gages are repositioned accordingly. In view of the reciprocating vertical movement of the marking head, the sliding connection, mentioned, between the rack 110 and the rod 108 is necessary in order that the effective length of said connection may not be varied as the machine is operated. To this end the rear end of the rack 110 is provided with a vertically extending piece 114 having a slot 116 to receive a connecting stud 118 (Fig. 5) connecting the forward end of the rod 108 and the rack 110. Vertical movement of the end of the rod 108 and its stud 118 is prevented by the engagement of an enlarged portion 120 on said stud 118 in a slot 122 of a frame piece 124 depending from the arm 34. It will be noted that a turnbuckle 126 (Fig. 1) is provided for adjusting the length of the rod 108, as when the machine is set up. Inasmuch as the system of size grading in use in different factories varies, the desired change in position of the toe gages 90, corresponding with the change in position of the marking dials, will not be a fixed amount. Accordingly, an adjustable connection is provided between the yoke 100 to which the toe gages are connected by the arms 92, 96 and 98, and the forward extension 102 of the lever 104 which is repositioned each time the marking dials 20 are moved. This adjustable connection comprises a screw 130 (Fig. 2) which is threaded in the extensions 102 and is held against longitudinal movement in a square frame 134 formed

in the center of the yoke 100. A knurled head 132 is provided for rotating the screw 130 to change the effective distance between the pivot 106 and the point 136 (Fig. 1) at which the links 96 and 98 are connected to the yoke 100, and, consequently, varies the amount of movement of the toe gages 90 caused by a predetermined rotation of the marking dials.

In view of the changing relation between the line markers 22, 22 and 24, 24 and the marking dials 20, 20, special mechanism is necessary for applying ink to said markers which will be effective in all positions of adjustment and will not bear with undue pressure upon the soft rubber edges provided upon the line markers. Accordingly, an ink-supplying roll 140 is supported by means of springs 142 in a reservoir 144 detachably secured to lugs 146 and 148 on the base of the machine. The transfer of ink from this supplying roll 140 to the marking devices is accomplished by means of an applying roll 150, which is supported at the lower end of arms 152 and 154 (Figs. 1 and 3) which are extensions of the links 46 and 48 connecting the operating lever 36 with the marking head. The ink-applying roll 150 is pivotally mounted in extensions 156 at the lower end of the arms 152 and 154, which extensions are pivotally mounted upon the lower end of said arms and normally held in the positions shown in Fig. 1, by means of suitable springs 158. With the arrangement thus provided the applying roll 150 will accommodate itself to any position of the marking devices and, because of the pivotally connected, resiliently held extensions 156, will not bear with undue pressure upon the marking devices. The relative location of the pivot pins 50 and 51 is such that a comparatively small up and down movement of the marking head serves to give a considerable front and back movement to the ink-applying roll 150. The resilient supports 142 for the ink supplying roll 140 allow the rolls 140 and 150 to turn as they engage one another so that the supplying roll 140 is constantly rotated within the reservoir 144 to bring a fresh supply of ink to the top of the roll for transfer to the applying roll 150.

In the use of the machine upon a last of soles of a particular size, the operator will, if necessary, first adjust the finger disk 70 to vary the angular relation of the cross-bars 62 carrying the line markers to the table and will also turn the head 94 to simultaneously move the toe gages 90 laterally to bring them into the desired relation to the side gages in accordance with the swing and style of the soles. Presumably, the adjustment of the connection shown in Fig. 2, by means of the knurled head 132 will only be needed when the machine is set up in a particular factory to make it accord with the system of size grading in use in that factory. If the soles to be treated are of such a character that the ball line is not a straight line, then it may be necessary to adjust the position of the line markers 22 and 24 upon the crossbars 62. These adjustments made, and the soles having been sorted out by sizes, the marking operation may proceed. During this operation, the operator will adjust the marking dial finger piece 56 in accordance with the size of the group of soles to be marked and will simultaneously place right and left soles (such as the sole 75 in Fig. 4) upon the tables 10 between the side gages 74 and 76 and then in contact with the toe gages 90. As will be clear this positioning of the soles in

pairs may very readily be accomplished, after which the marking operation to print the size numerals 77 and the line marks 80 and 81 may be completed by tripping the clutch, as by means of the treadle rod 44 to allow a single reciprocation of the marking head to carry the various marking devices into contact with the sole. Through its connection with lever 36 the ink applying roll 150 contacts with the marking devices at such a time that ink will have been freshly supplied to said devices just before they are brought against the work.

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

1. A marking machine for soles comprising supporting means arranged to support a right and a left sole side by side, adjustable gaging devices for determining the lengthwise position of said soles upon the supporting means, means engaging the soles to position the soles transversely, line marking devices, and means for simultaneously adjusting the transverse positions of said gaging devices to bring the mark supplied by the line marking devices at the desired relation to the soles in accordance with the swing of the soles when the machine is operated.

2. A marking machine for soles comprising supporting means arranged to support a right and a left sole side by side, settable numbering devices to mark the sizes of the soles upon each of the soles, gaging means for engaging the ends and sides of the soles, adjusting means for said gaging means to position the foreparts of the soles in proper relation to the line marking devices in accordance with the styles of the soles, line marking devices adapted to apply marks to the soles adjacent to the ball lines, and means for setting said numbering devices constructed and arranged to position the soles under the line markers in accordance with the size of the soles as corresponding size numbers are applied by the machine.

3. A marking machine for soles comprising supporting tables arranged to support a right and a left sole side by side, adjustable recessed gaging devices to receive the toe end of a sole and to determine the lengthwise position of said soles upon the tables, settable numbering devices to mark the sizes of the soles upon each of the soles, line marking devices, means for simultaneously setting the numbering devices, and adjusting the position of the gaging devices to position the line marks on the soles in accordance with the sizes of the soles and to apply corresponding size numbers, and means for adjusting said toe gages laterally.

4. A marking machine for soles comprising supporting tables arranged to support a right and a left sole side by side, V-shaped toe-gaging devices upon said tables, number marking devices above said table, line marking devices associated with said number marking devices, means for causing relative movement between said marking devices and said supporting tables to effect a marking operation, means for adjusting said numbering devices, means for interconnecting said adjusting means with said toe gages, constructed and arranged to be unaffected by said relative movement and whereby an adjustment of the numbering devices provides a corresponding adjustment of the position of the toe gages longitudinally of the soles to position the line marks on the sole in ac-

cordance with the size of the sole, and common means for adjusting said toe gages laterally in opposite directions without disturbing said interconnecting means.

5. A marking machine for soles comprising a sole-positioning device, a marking device adjustable to determine the character of the mark to be applied, means for manually adjusting one of said devices, means for interconnecting said positioning device and said marking device arranged to cause the adjustment of one of said devices to be communicated to the other device, and means for variably determining the extent of the movement of one of the devices accompanying a predetermined movement of the other device.

6. A marking machine for soles comprising a movable head, an adjustable marking device mounted upon the movable head, a work support, an adjustable gaging device coacting with said support variably to determine the position of the work on the support, means for interconnecting said marking device and said gaging device constructed and arranged to cause adjustment of one of the devices to be communicated to the other device and to be unaffected by the relative movement of the marking head with respect to the gaging device, and means for adjustably determining the extent of the movement of one of said devices resulting from a predetermined movement of the other device.

7. A marking machine for soles comprising a work-supporting table, an adjustable gaging device associated with said table arranged to determine the position of the sole upon the table, a marking head movable toward and away from said table provided with a position-marking device and a numbering device, means for adjusting said numbering device, means for interconnecting said gaging device and said numbering device constructed and arranged to communicate adjusting movement of one of said devices to the other device, and means for adjustably determining the extent of the movement of one of the devices corresponding to a predetermined movement of the other device.

8. A marking machine for soles comprising a marking head, a work-supporting table, a toe gage adjustable with respect to said table, a position-marking device and a numbering device carried on said head, means for manually adjusting said numbering device to apply a desired number to the sole, means for connecting said adjusting means to said toe gage to communicate a movement of adjustment to the toe gage corresponding to the movement of adjustment of the numbering device, and means for variably determining the extent of movement of the toe gage corresponding to a predetermined movement of the numbering device.

9. A marking machine for soles comprising supporting means arranged to support a right and a left sole side by side, self-adjusting side gages for each of said soles, adjustable end gages for each of the soles, and means for simultaneously and oppositely adjusting the respective end gages to determine their relation with respect to the side gages whereby the machine may be utilized for marking soles of different styles.

10. A marking machine for simultaneously marking right and left soles comprising two pairs of line markers to apply guide marks to the soles, and supporting means for said line markers constructed and arranged to allow

independent angular adjustment of the markers of each pair with respect to one another.

11. A marking machine for soles comprising

ing said sets for simultaneously and equally varying the angular position of the line-

marking devices with respect to said gaging devices.

6 a pair of separate line markers arranged to apply guide marks adjacent to the ends of a transverse line on a sole, and supporting means for said line markers constructed and arranged to allow independent adjustment of each of the markers of the pair angularly with respect to one another.

10 12. A marking machine for simultaneously marking right and left soles comprising line markers to apply indicating marks adjacent to the ball lines on the soles, means for positioning the respective soles, and interconnecting means for simultaneously adjusting said markers to vary their angular positions with respect to the sole-positioning means.

15 13. A marking machine for soles comprising a pair of separated line markers arranged to apply a pair of lineal indicating marks adjacent to the ends of the ball line on a sole having a "cottage-roof" shank, means for determining the angular positions of the soles with respect to the markers, and supporting means for said line markers constructed and arranged to permit adjustment of their angular position with respect to one another.

20 14. A marking machine for soles comprising a pair of separated line markers arranged to mark the position of a guide line on the sole, means for determining the position of the sole, supporting means for said line markers constructed and arranged to permit independent adjustment of their angular position with respect to one another, and means for angularly adjusting the pair of line markers as a unit.

25 15. A marking machine for soles comprising supporting means, gaging devices arranged to position right and left soles side by side upon said supporting means, line-marking devices arranged to mark the position of guide lines upon the respective soles, and a single operator-controlled means for simultaneously varying the angular position of the line-marking devices with respect to said gaging devices.

30 16. A marking machine for soles comprising supporting means, gaging devices arranged to position right and left soles side by side upon said supporting means, sets of line-marking devices arranged to mark the position of guide lines upon the respective soles, and means join-

80 17. A marking machine for soles comprising supporting means, gaging devices arranged to position right and left soles side by side upon said supporting means, line-marking devices each comprising a plurality of portions and arranged to mark the position of the ball lines upon the respective soles, means for simultaneously varying the angular position of the line-marking devices with respect to said gaging devices, and separate supporting means for individual portions of said line-marking devices constructed and arranged to allow adjustment of each portion.

85 18. A marking machine for soles comprising work-tables arranged to support a right and a left sole side by side, a marking head movable toward and away from said tables and provided with line-marking devices and numbering devices, self-adjusting means for engaging each of the soles to center the soles under the respective numbering devices, and transversely adjustable toe-end gages for engaging the ends of the soles to position the foreparts of the soles in proper relation to the line-marking devices.

90 19. A marking machine for soles comprising supporting means arranged to support a right and a left sole side by side, self-adjusting side gages for each of said soles, a marking head movable toward and away from said table and provided with position-marking devices and numbering devices, adjustable end gages for each of the soles, and means for moving the end gages toward and away from each other, accurately to determine the angular positions of the soles relatively to the marking devices.

95 20. A marking machine for soles comprising a work table arranged to support a right and a left sole side by side, a marking head movable toward and away from said table and provided with line-marking devices and numbering devices, self-adjusting side gages for each of the soles, and means for engaging the ends of the soles to swing the foreparts of the soles into predetermined angular relation with respect to the side gages to cause the line-marking devices properly to mark the soles in accordance with the styles of the soles.

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55 130
60 135
65 140
70 145
75 150

CERTIFICATE OF CORRECTION.

Patent No. 1,959,583.

May 22, 1934.

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It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 123, for "last" read lot; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of August, A. D. 1934.

Leslie Frazer

(Seal)

Acting Commissioner of Patents.