Oct. 4, 1932. H. E. EDWARDS 1,881,399

MARKING DEVICE FOR REGULAR GRADED SHOE UPPER BLANKS

Filed Feb. 9, 1931 3 Sheets-Sheet 1

Fig. 1.

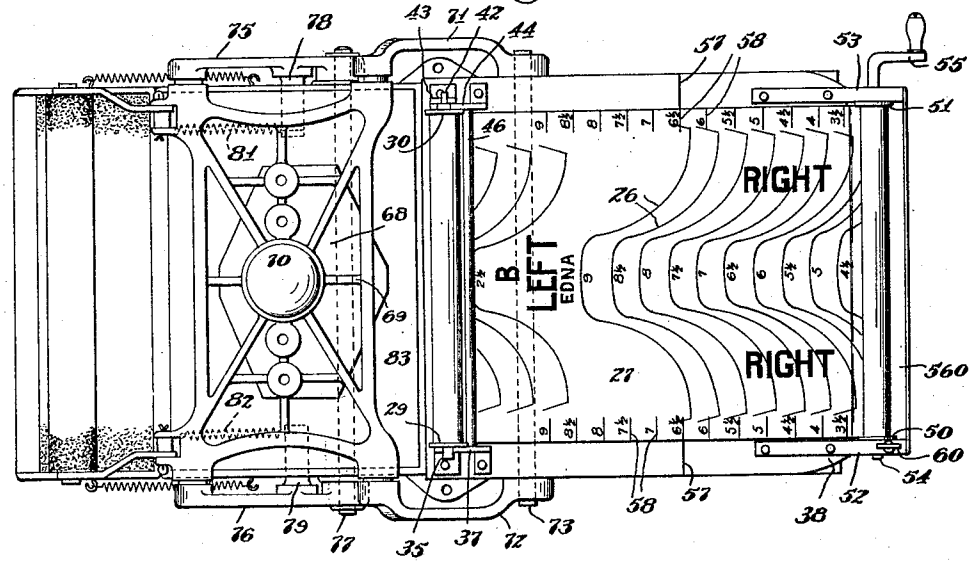
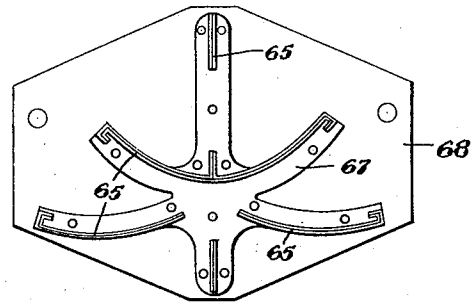


Fig. 3.



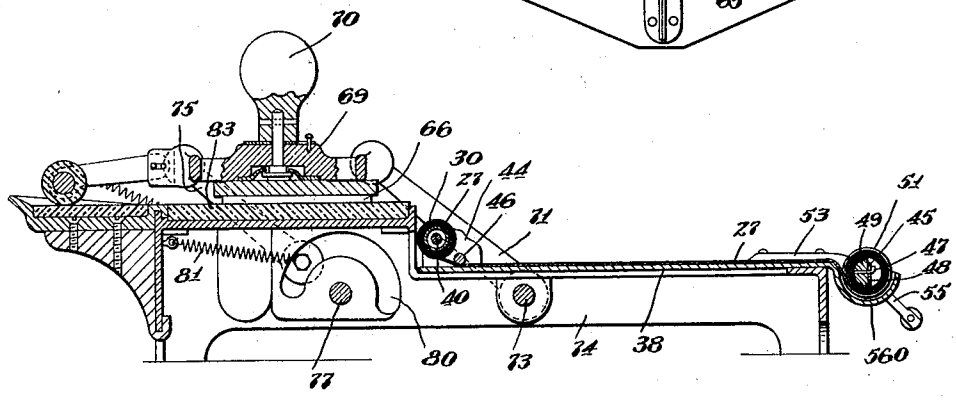


Fig. 2.

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MARKING DEVICE FOR REGULAR GRADED SHOE UPPER BLANKS

Filed Feb. 9, 1931 3 Sheets-Sheet 2

Fig. 7.

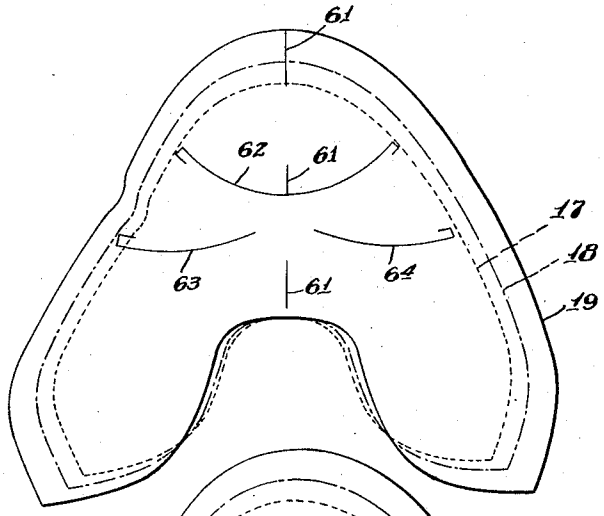


Fig. 8.

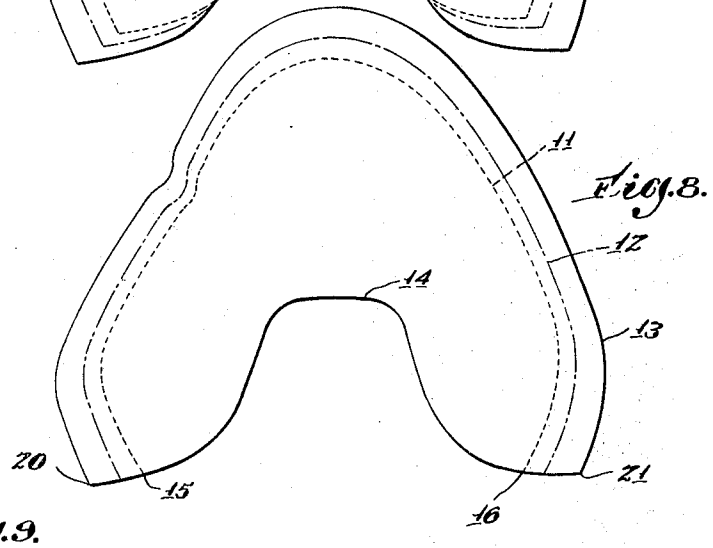


Fig. 9.

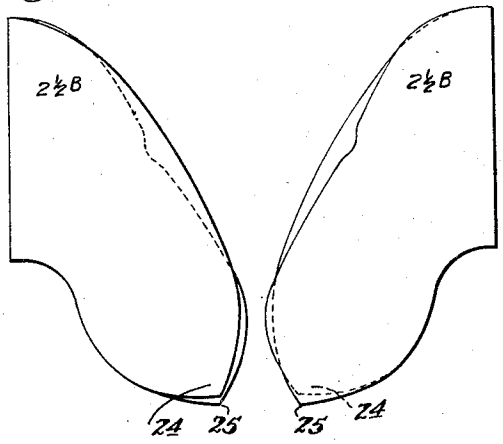


Fig. 10.

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MARKING DEVICE FOR REGULAR GRADED SHOE UPPER BLANKS

Filed Feb. 9, 1931 3 Sheets-Sheet 3

Fig. 4.

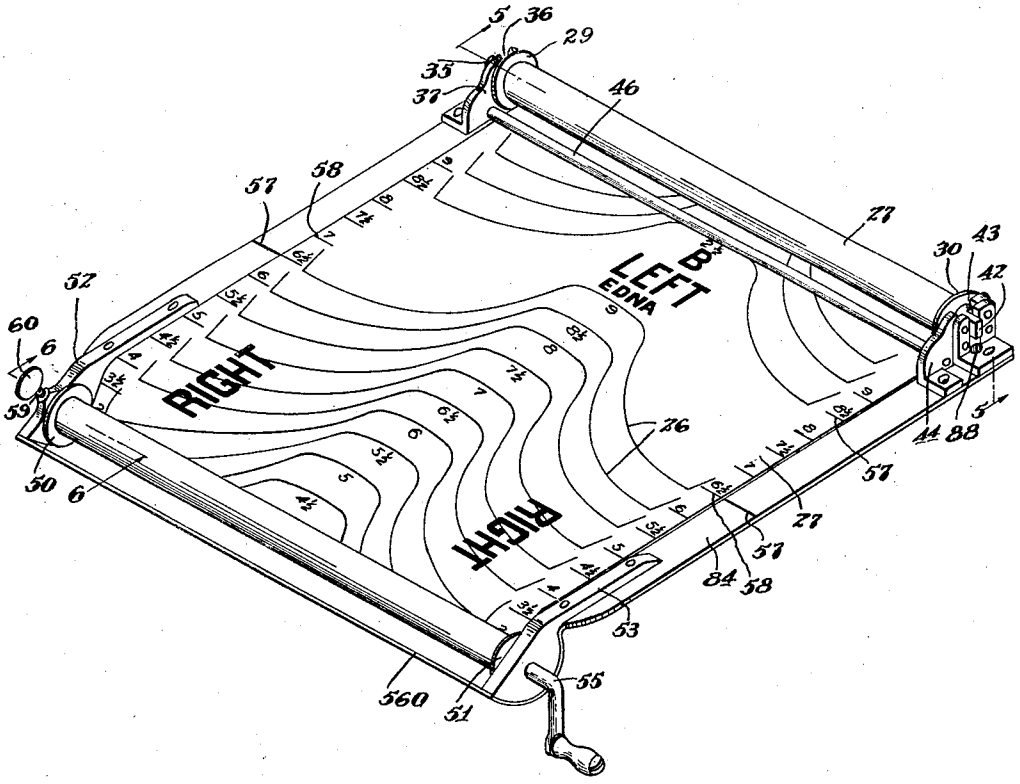
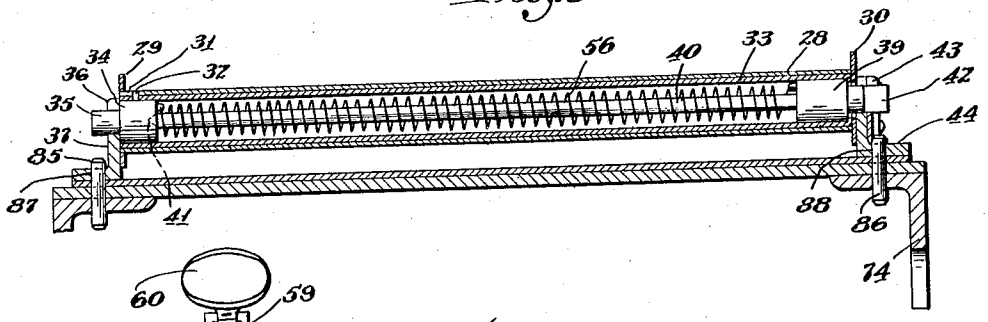


Fig. 5



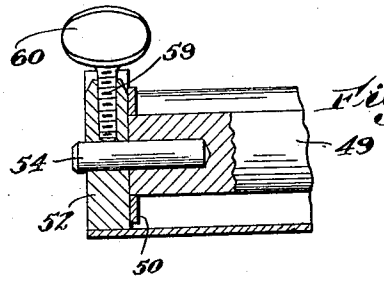


Fig. 6.

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Patented Oct. 4, 1932 1,881,399

UNITED STATES PATENT OFFICE

HERBERT E. EDWARDS, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO T. J. EDWARDS INCORPORATED, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

MARKING DEVICE FOR REGULAR GRADED SHOE UPPER BLANKS

Application filed February 9, 1931. Serial No. 514,366.

The present invention relates to marking devices which are used in the manufacture of shoes to mark upper blanks, such as vamps, tips, quarters, foxings and straps, with lines for use as guides in subsequent hand and machine operations. The guide lines may indicate the center lines of the blanks, the lap of one blank over an adjacent blank, or the location of overlays, underlays, perforations, embossings, ornamental cut-outs and stitches.

The marking device disclosed in my Patent No. 1,753,884, April 8, 1930, known as the Edwards stitch marker, was introduced to the shoe industry in the second quarter of 1925 with the belief that it would obviate the troubles shoe manufacturers had experienced for years in marking upper blanks by hand through the medium of the stencils described in said patent. Immediately upon its introduction the Edwards stitch marker was adopted as standard shoe factory equipment by those shoe manufacturers employing center graded upper blanks. While the Edwards stitch marker is an extremely important factor in the art of marking center graded upper blanks it has never been able to make any lasting impression in the art of marking regular graded shoe upper blanks.

Upper blanks in a series of the different sizes (which term is used herein to include half-sizes) and the different widths of the same style which have a common portion of their peripheries held to the same grade, are called center graded. Notwithstanding the variations in sizes and widths, a series of center graded upper blanks of the same style may be marked in the Edwards stitch marker employing a single gage which registers with the common portion in the peripheries of the blanks throughout the series.

Regular graded upper blanks have no common portion in their peripheries and therefore a different gage for each size in each width must be provided in order to mark a series of regular graded upper blanks of the same style in the Edwards stitch marker. As there are usually fifteen different sizes and about five different widths, on an average, in a series of regular graded vamps of the same style, it follows that seventy-five different gages for rights and seventy-five different gages for lefts must be manufactured in order to mark such a series of regular graded upper blanks in the Edwards stitch marker. This large number of separate gages is the principal reason why shoe manufacturers of regular graded shoes have found it impracticable to supplant the stencil method of hand marking with the Edwards stitch marker.

The principal object of the present invention is to produce a marking device by which regular graded shoe upper blanks may be marked in a rapid, reliable and economical manner.

To the accomplishment of this object a feature of the invention contemplates the provision in a marking device, of a set of gages and a marking member relatively movable in two directions normal to each other to correlate the marking member with at least one of the gages and to mark the upper blank registered with the gage correlated with the marking member.

Broadly considered, the gages in the set may be of the wall or bumper type, disclosed in either my patent hereinbefore referred to, or in my Patent No. 1,796,686, March 17, 1931, or in the reissued patent to Woodworth, 17,715, June 24, 1930, each gage being located in spaced relation on an extensive surface positioned on the marking device and shiftable beneath the marking member thereof to correlate at least one of the gages therewith. Bearing in mind that substantially one hundred and fifty separate gages are required to mark an average range of sizes in the average run of widths in a series of regular graded upper blanks of the same style, including rights and lefts, it is apparent that the surface would be rather long for convenient handling in the marking device. Even if the extensive surface was articulated between the gages its bulk would present difficulties. Therefore, I prefer to mount the separate gages on a sheet in the form of line contours corresponding to certain contours of at least one complete range of sizes and

widths of the same style in a series of right and left regular graded shoe upper blanks and to mount the sheet in a marking device so that at least one gage thereon may be selectively correlated with the marking member. Such a sheet may contain an enormous number of gages without interfering with its capability of being wound on a roll which may be stored with other rolls containing other sets of different gages in a readily accessible position when not in use and which may be readily insertable into and removable from the marking device.

Other features of the invention relate to certain devices, combinations and arrangements of parts hereinafter described and then set forth broadly and in detail in the appended claims which possess advantages which will be apparent to those skilled in the art.

The various features of the present invention will be readily understood from an inspection of the accompanying drawings illustrating the best form of the invention at present known to the inventor, in which

Figure 1 is a view in plan of a marking device for marking regular graded shoe upper blanks;

Fig. 2 is a view in central sectional elevation of the marking device illustrated in Fig. 1;

Fig. 3 is a view in underside plan of the marking member;

Fig. 4 is a view in perspective of an attachment for converting the present commercial Edwards stitch marker into a device for marking regular graded shoe upper blanks;

Fig. 5 is a view in front sectional elevation on the line 5—5, Fig. 4, taken at a time when the attachment illustrated therein is positioned on the bed of an Edwards stitch marker, the gage sheet being removed to facilitate disclosure;

Fig. 6 is a detail view in sectional elevation on the line 6—6, Fig. 4;

Fig. 7 is a view in plan of a plurality of superimposed regular graded vamps;

Fig. 8 is a view in plan of a plurality of superimposed center graded vamps;

Fig. 9 is a view in plan of a vamp provided with shank-ease folded on its center line exposing to view the portion for the outside of the shoe, and

Fig. 10 is a view in plan of a vamp provided with shank-ease folded on its center line exposing to view the portion for the inside of the shoe.

Referring first to Fig. 8 it illustrates a 2½—B vamp 11, a 5—B vamp 12 and a 9—B vamp 13, all center graded, superimposed for the purpose of demonstrating that they have a common portion extending along the throats 14 between the point 15 and the point 16. Thus, a gage provided with either of the walls disclosed in my two patents, both hereinbefore referred to, shaped to register with the said common portion, will correlate the vamps 11, 12 and 13 singly with the marking members disclosed in said patents, respectively. As the vamps 11, 12 and 13 form only a few of the vamps in a series of the usual run of sizes and of widths of the same style the gage for engaging uniformly the common portion of the three vamps 11, 12 and 13 may, and ordinarily does, engage the similar common portion in all the other vamps in the same series.

Fig. 7 illustrates a 2½—B vamp 17, a 5—B vamp 18, and a 9—B vamp 19, all regular graded, superimposed for the purpose of demonstrating that they have no common portion that can be engaged by a single gage. In consequence, in order to mark, in the present commercial Edwards stitch marker, a series of regular graded vamps comprising about fifteen sizes running from two to nine in about five different widths and including rights and lefts, one hundred and fifty different gages would be required.

As shown in Figs. 9 and 10, in both center graded and regular graded shoe upper blanks the opposite wings 24 and 25 may vary to impart what is called "shank-ease" to the wing of the vamp on the inside of the shoe. In consequence the difficulties of gaging a regular graded shoe upper blank are increased by the presence of shank-ease.

In order to mark a series of regular graded shoe upper blanks, such as vamps, of at least one complete range of sizes of one width and style, the throat and wing contours 26 (Figs. 1 and 4) of the different patterns for the vamps are transferred to a longsheet 27. As shown in Figs. 1 and 4 the sheet 27 is provided with the regular graded throat and wing contours 26 of a set of patterns running from 2½—B to 9—B of the same width and style, a total of fourteen contours. Stated in another way, the sheet 27 comprises a set of gages 26 each gage in the set having a contour shaped to register with a contour on an upper blank of a definite size, width and style. The sheet 27 may be provided with a plurality of sets of gages so that it may be employed in marking a number of the different sized regular graded vamps in the different widths of the same style. As indicated in Figs. 1 and 4 the sheet 27 is provided with one set of gages for gaging right vamps in the run of sizes in the B width of the Edna style and another set of gages for gaging left vamps in the same run of sizes, width and style.

One end of the sheet 27 is anchored to the peripheral surface of a hollow cylindrical spool or roll 28 (Figs. 2, 4 and 5) provided with end flanges 29 and 30. Adjacent the flange 29 the spool 28 is provided with a slot 31 (Fig. 5) which engages a lug 32 projecting from the peripheral surface of a cylin-

drical rod 33. One end of the rod 33 is provided with an internal head 34 secured rigidly thereto which has a cylindrical projection 35 mounted to rotate in the bottom of an open slot 36 formed in a bracket 37. As shown in Fig. 1 the bracket 37 is secured to one rear corner of the bed plate 38 of the marking device disclosed in my Patent No. 1,796,686 hereinbefore referred to.

The other end of the rod 33 is provided with an internal head 39 loosely mounted to rotate within the rod but held from movement longitudinally thereof by a small rod 40 one end of which is secured to the head 39 and the other end of which is mounted to rotate in a step bearing 41 formed on the inside face of the head 34. The internal head 39 is provided with a rectangular projection 42 which is held from rotation in a slot 43 formed in a bracket 44 secured to the other rear corner of the bed plate 38.

With this construction the rod 33 and the spool 28 may be removed bodily from the brackets 37 and 44, the spool 28 removed from the rod 33 and another spool 28, provided with a different sheet 27 containing a different set or different sets of gages 26 positioned on the rod 33 which is then reinserted in the brackets 37 and 44. Thus, in effect, the rod 33 constitutes a permanent part of the marking device, while the rolls 28 and the sheets 27 wound thereon constitute interchangeable units which may be stored, when not in use, in labelled boxes.

The free end of the sheet 27 is provided with an eyelet (Fig. 2) which, after the sheet has been conducted under a small roll 46 (Figs. 1, 2 and 4), supported from the brackets 37 and 44, and over the upper surface of the bed plate 38, is hooked on a hook 47 carried by a slabbed face 48 formed centrally on a cylindrical roll 49. The opposite ends of the roll 49 are provided with flanges 50 and 51 which rotate in engagement with the inside flanges of brackets 52 and 53, respectively, secured to the bed plate 38 on opposite sides of the sheet 27. The opposite ends of the roll 49 are provided with cylindrical rods 54 (Fig. 6) and 55(Fig. 4) journaled in the brackets 52 and 53, respectively. As shown in Fig. 2 the front end of the bed plate 38 may be formed as a trough 560 spaced from the periphery of the roll 49 to receive the sheet 27 when wound up thereon. The rod 55 is bent to form a crank which is operated by the operative to rotate the roll 49 and thus wind a portion of the sheet thereon and at the same time withdraw another portion of the sheet from the spool 28 and position it on the bed plate 38. For this reason the roll 49 and the spool 28 are designated hereinafter as the receiving roll and the delivering roll, respectively.

In order to store power in the delivering roll when the crank 55 is rotated to wind a portion of the sheet 27 on the receiving roll so that the delivering roll may retract the sheet upon its release from the receiving roll, a spring 56 is coiled around the rod 40. One end of the spring 56 is secured to the head 34 and the other end of the spring 56 is connected to the head 39. As the head 34 rotates with the delivering roll and as the head 39 is held from rotation when the sheet 27 is withdrawn from the delivering roll by the rotation of the receiving roll, the spring 56 is tensioned and thus acts to retract the sheet 27 upon the release of its free end from the receiving roll.

As shown in Fig. 1 the bed plate 38 is provided with two lines 57 located, respectively, on opposite sides of the sheet 27. The opposite sides of the sheet 27 are provided with a plurality of sets of lines 58 adapted to register with the lines 57, one set at a time, to indicate the proper location of the front portion of a certain sized vamp to receive the marks from the marking member to be described. As shown in Fig. 1 the lines 58 for a 6½ size vamp are registered with the lines 57. Now if a 6½ regular graded vamp of the B width in the Edna style is registered with the contour 26, on the sheet 27, labelled 6½, the said vamp will be properly correlated with the marking member to receive the marks therefrom.

In order to hold the sheet 27 stationary with any one of the sets of lines 58 registered with the lines 57 the bracket 52 is provided with a set screw 59 having a wing 60 thereon to facilitate the engagement of the end of the screw with the rod 54, thus to lock the receiving roll in position against the tension of the spring 56.

In the illustrated embodiment of the invention the vamps are marked with a broken center line 61, a curved line 62 having its opposite ends reversely bent and two curved lines 63 and 64 having only one end reversely bent. The lines 62, 63 and 64 define between them an area to be perforated subsequently. The line 62 acts as a guide in the subsequent perforating operation. The perforated area is bordered with stitching and the lines 62, 63 and 64 act as guides in the subsequent stitching operation.

The lines 61, 62, 63 and 64 are formed by narrow faces 65 (Fig. 3) formed on the bottom of vertical flanges 66 (Fig. 2) projecting from a flat plate 67 secured to the bottom of a wooden block 68. The block 68 is interchangeable with other blocks carrying marking faces 65 having different configurations and is therefore detachably connected to a cross-head 69 and to an operating handle 70 substantially in the manner illustrated and described in the reissue patent to Woodworth hereinbefore referred to.

At its front end the cross-head 69 is journaled in bearings carried, respectively, by

the upper ends of arms 71 and 72 (Fig. 1) projecting from the opposite ends of a horizontal rock-shaft 73 journaled in the frame 74 to which the bed plate 38 is secured. At its rear end the cross-head 69 is journaled in bearings carried, respectively, by the upper ends of arms 75 and 76 projecting from the opposite ends of a horizontal rock-shaft 77 journaled also in the bed 74. Intermediate their ends the arms 75 and 76 carry, respectively, pins 78 and 79 which project inwardly through the bed 74. To this end the bed 74 adjacent each of the pins 78 and 79 is provided with an arcuate slot 80. The pins 78 and 79 are connected, respectively, to the rear face of the frame 74 by coiled springs 81 and 82.

With this construction the springs 81 and 82 tend to hold the narrow marking faces 65 engaged with an ink pad 83. By engaging the handle 70 the operative may swing the narrow marking faces 65 from a position where they engage the ink pad 83 to a position where they mark the vamp registered with that gage 26 on the sheet 27 which is correlated with the marking member.

Referring to Figs. 1 and 2 it is apparent that if no sheet was positioned over the bed plate 38 the marking member, on its repeated downward movement, would engage the bed plate in an invariable position. This invariable position, for the purposes of description and definition, is termed a target. The sheet 27 covers this target, but the forward portion of each of the upper blanks gaged by the sheet must be positioned over the target in such a way that the marking member marks the upper blank in the proper position depending on the grade for the particular size and width of the blank. The position of the lines 57 may be selected arbitrarily provided they are in a vertical plane intersecting some portion of the target. The spacing between the lines 58 may be also arbitrary. The particular spacing between the lines 58 in the illustrated embodiment of the invention is purely arbitrary, the spacing selected permitting the various contour lines 26 to be distinguished one from the other readily.

Any convenient method of providing the sheet 27 with the line contours 26 may be employed. In a set of patterns for a series of regular graded shoe upper blanks of the same width and style there is one which is cut through to indicate the location of the marks to be made on the blank. The lines 58, corresponding to the size of the cut-through pattern, are then registered with the lines 57. Then the marking member is operated to mark the sheet. The slots in the cut-through pattern are superimposed upon the corresponding marks made upon the sheet and then the line 26 is drawn, using the throat and wings of the superimposed cut-through pattern as guides. After one contour 26 is drawn upon the sheet all the others may be readily plotted as the variation in grade between the cut-through pattern and the next succeeding larger and smaller size in the series is a known factor. The line contours may be drawn in ink but a pencil line is satisfactory as the various pencil lines may be protected by providing the sheet with a coating of suitable material.

It is expected confidently that the illustrated embodiment of the present invention will assist many shoe manufacturers now making only center graded shoes to adopt regular graded patterns when it is to their advantage to do so on certain styles. As there are hundreds of Edwards stitch markers now in operation in center graded shoe factories, it is desirable that these marking devices be converted readily into devices for marking regular graded shoe upper blanks and be as readily reconverted into devices for marking center graded upper blanks.

To this end, the brackets 37, 44, 52 and 53, for the sheet delivering and receiving rolls, respectively, may be mounted on a brass plate 84 (Fig. 4) which is insertable upon and removable from the bed plate 38. The rear corners of the bed plate in the Edwards stitch marker are provided with vertical pins 85 and 86 (Fig. 5) for the removable gage used in gaging center graded upper blanks described in my Patent No. 1,796,686 hereinbefore referred to. The brackets 37 and 44 are provided with holes 87 and 88, respectively, which may be received by the pins 85 and 86. The plate 84 may be described as a removable bed plate 38 as their functions in the marking operation are identical.

It will be readily understood by those skilled in the art that certain features of the illustrated embodiments of the present invention may be used advantageously in the marking of center graded shoe upper blanks. For instance, in marking such blanks it is sometimes necessary to adjust the gage, which engages the common portion of the blanks, for each size to compensate for a constant graduation in a portion of the blank other than the portion engaged by the gage from one size to the next succeeding size in the series. In such cases it would be much easier to employ a sheet 27, having thereon a plurality of identical contours, which is shifted to correlate any selected one of the contours with the marking member and at the same time compensate for the graduation between the different sizes than to depend upon an adjustable gage.

For the purpose of disclosure I have illustrated the sheet 27 as being provided with a separate set of contours 26 for rights and a separate set of contours for lefts. In certain cases, however, the contour 26 may be made

in two colors, one for a right blank and the other for a left blank. If the line contour 26 was made in black ink for a right blank a red line associated therewith would indicate the variation therefrom in a left blank of the same size, width and style. Therefore, the operative could mark the blanks successively in pairs, each comprising a right and left blank.

Nothing herein explained is to be interpreted as limiting the invention in the scope of its application to use in connection with the particular apparatus or the particular mode of operation or both selected for purposes of illustration and explanation. While the particulars of construction herein set forth are well suited to one mechanical form of the invention, it is not limited to these details of construction, nor to the conjoint use of all its features, nor is it to be understood that these particulars are essential since they may be variously modified within the skill of the artisan without departing from the true scope of the actual invention, characterizing features of which are set forth in the following claims by the intentional use of generic terms and expressions inclusive of various modifications.

What is claimed as new, is:

1. In a marking device, the combination of a set of gages and a marking member relatively movable in two directions normal to each other to correlate the marking member with at least one of the gages and to mark an upper blank registered with the gage correlated with the marking member.

2. In a marking device, the combination with a bed and a marking member, of a sheet movable on the bed and having contours thereon corresponding to upper blank contours of at least one complete range of sizes of the same width and style.

3. In a marking device, the combination with a bed and a marking member, of a sheet movable on the bed and having lines thereon corresponding to upper blank contours of at least one complete range of sizes of the same width and style.

4. In a marking device, the combination with a bed and a marking member, of a sheet movable on the bed and having lines thereon corresponding to upper blank contours of at least one complete range of right and left sizes of the same width and style.

5. In a device for operating upon regular graded shoe upper blanks, the combination with a bed provided with a delivering roll and a receiving roll, of a gage sheet on the delivering roll extending therefrom over the upper surface of the bed to the receiving roll, and means for rotating the receiving roll.

6. In a device for operating upon regular graded shoe upper blanks, the combination with a bed provided with a delivering roll and a receiving roll, of a gage sheet on the delivering roll extending therefrom over the upper surface of the bed to the receiving roll, and means for rotating the receiving roll and storing power in the delivering roll to retract the sheet when it is released from the receiving roll.

7. In a device for operating upon regular graded shoe upper blanks, the combination with a bed provided with a delivering roll, a receiving roll and at least one gage line, of a gage sheet on the delivering roll extending therefrom over the upper surface of the bed to the receiving roll and provided with at least one series of separated lines, and means for rotating the receiving roll to register any one of the lines on the sheet with the gage line.

8. A device for operating upon regular graded shoe upper blanks having, in combination, means for supporting an upper blank, means for operating upon the supported blank, and a set of different gages, each gage in the set having a contour shaped to register with a contour on an upper blank of a definite size, width and style.

9. A marking device having, in combination, means for supporting an upper blank, means for marking the supported blank, a set of different gages, each gage in the set having a contour shaped to register with a contour on an upper blank of a definite size, width and style, and means for correlating the marking means and at least one of the gages.

10. A marking device having, in combination, means for supporting an upper blank, means for marking the supported blank, a set of different gages, each gage in the set having a contour shaped to register with a contour on an upper blank of a definite size, width and style, and means for relatively moving the marking means and the set of gages to correlate the marking means and at least one of the gages.

11. A marking device having, in combination, means for supporting an upper blank, means for marking the supported blank, a string of gages for locating differentially dimensioned upper blanks in a predetermined position on the work supporting means relatively to the marking means, and means for relatively moving the marking means and the string of gages to correlate the marking means successively with the gages.

12. A marking device having, in combination, a work support, a marking member, a plurality of gages for locating different sized upper blanks of the same width and style in a predetermined position on the work support relatively to the marking member, and means for correlating the marking member and at least one of the gages.

13. A marking device having, in combination, a work support, a marking member, a

plurality of gages for locating differentially dimensioned right and left upper blanks of the same style in a predetermined position on the work support relatively to the marking member, and means for correlating the marking member and at least one of the gages.

14. A marking device having, in combination, means for making marks upon a series of upper blanks of the same width and style but varying in size, a work support, and a plurality of gages each shaped to locate upper blanks of one size singly on the work support in position to receive the marks.

15. A marking device having, in combination, means for making marks on upper blanks, a work support, and a plurality of gages each shaped to locate upper blanks of the same size, width and style singly on the work support to receive the marks.

16. A marking device having, in combination, means for supporting an upper blank, means having an invariable path of movement for marking the supported blank, means for gaging a series of differentially dimensioned upper blanks, and means for moving the third named means across the path of movement of the marking means to locate upper blanks of the same size, width and style in position in the path of movement of the marking means to receive the marks.

17. In a marking device, the combination with a work support and a marking member for marking the work on the support, of a sheet, provided with a plurality of gages, interposed between the work and the work support.

18. In a marking device, the combination with a work support, a marking member for marking the work on the support, and a sheet, provided with a plurality of gages, interposed between the work and the work support, and movable thereon to correlate at least one of the gages with the marking member.

19. In a marking device, the combination with a work support, a marking member for marking the work on the support, and a sheet, provided with a plurality of gages, interposed between the work and the work support, of means for shifting the sheet on the work support to correlate at least one of the gages with the marking member.

20. A marking device having, in combination, a marking member, a work supporting surface having a definite area forming, in effect, a target for the marking member, a sheet of flexible material having a plurality of gages thereon movable over the target, and means for registering at least one of the gages on the sheet with the target.

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

HERBERT E. EDWARDS.