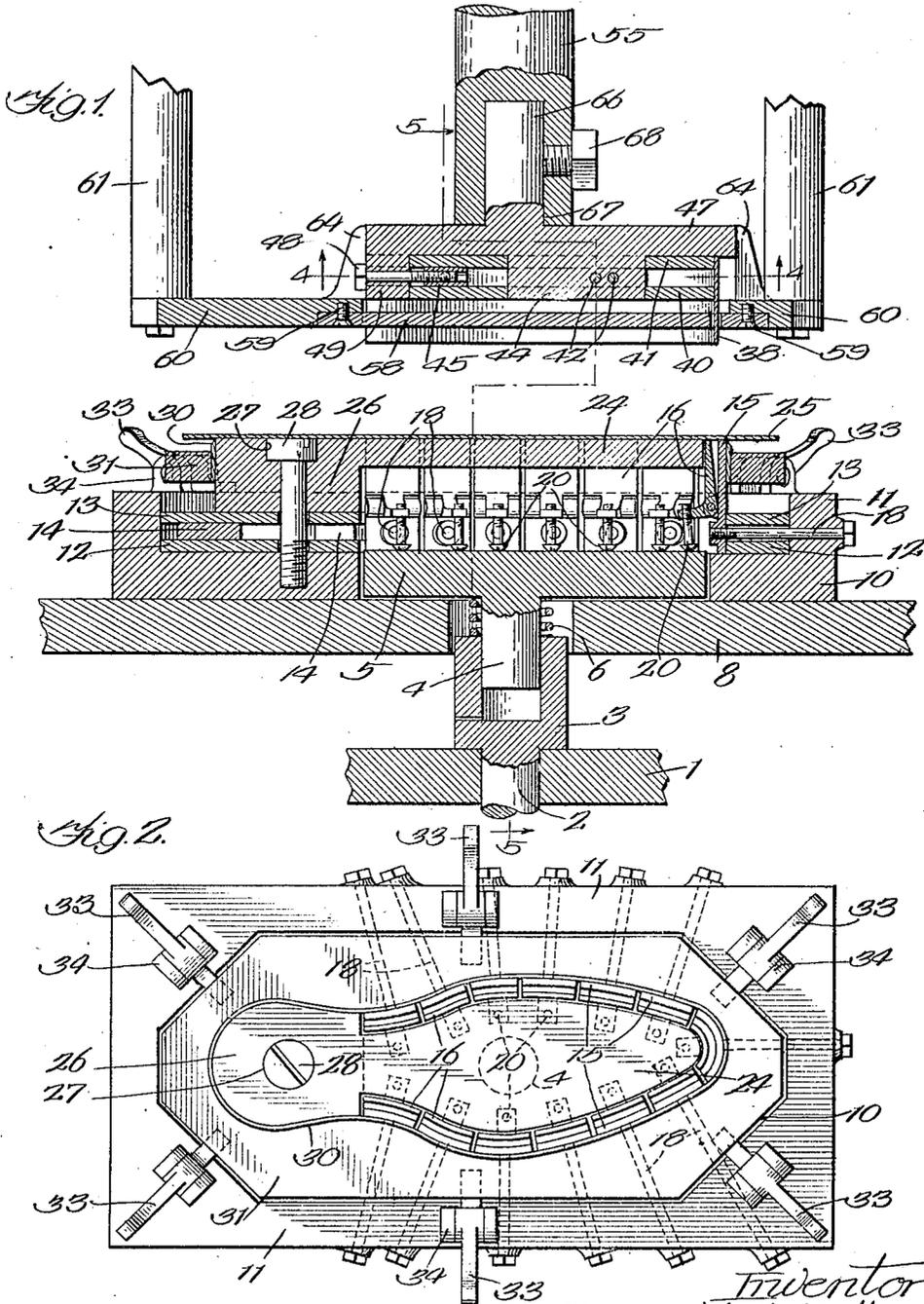


C. W. MOFFATT.
 INSOLE MAKING MACHINE.
 APPLICATION FILED JUNE 29, 1917.

1,298,371.

Patented Mar. 25, 1919.

3 SHEETS—SHEET 1.

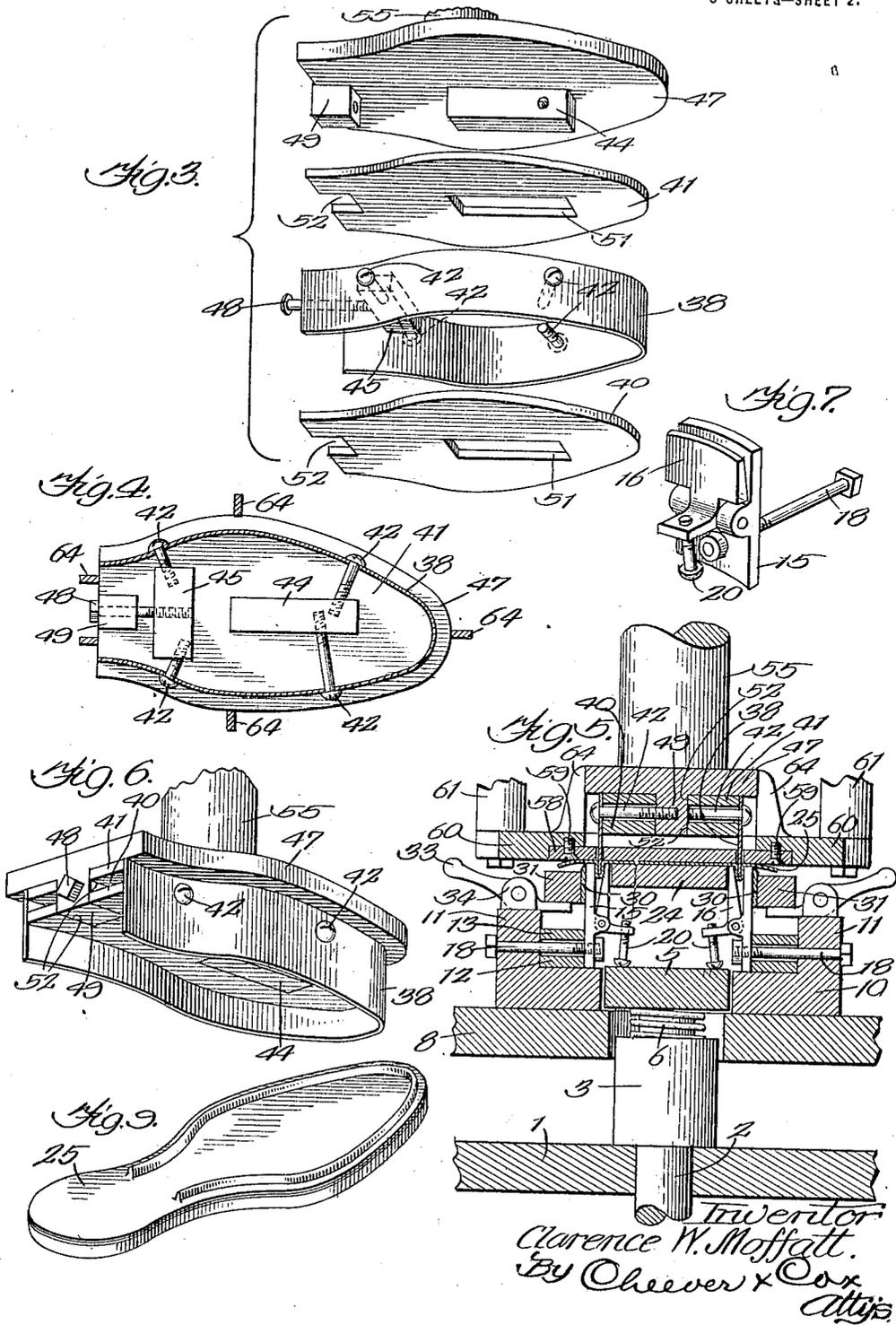


Inventor:
 Clarence W. Moffatt.
 By Cheever & Co.
 Attys.

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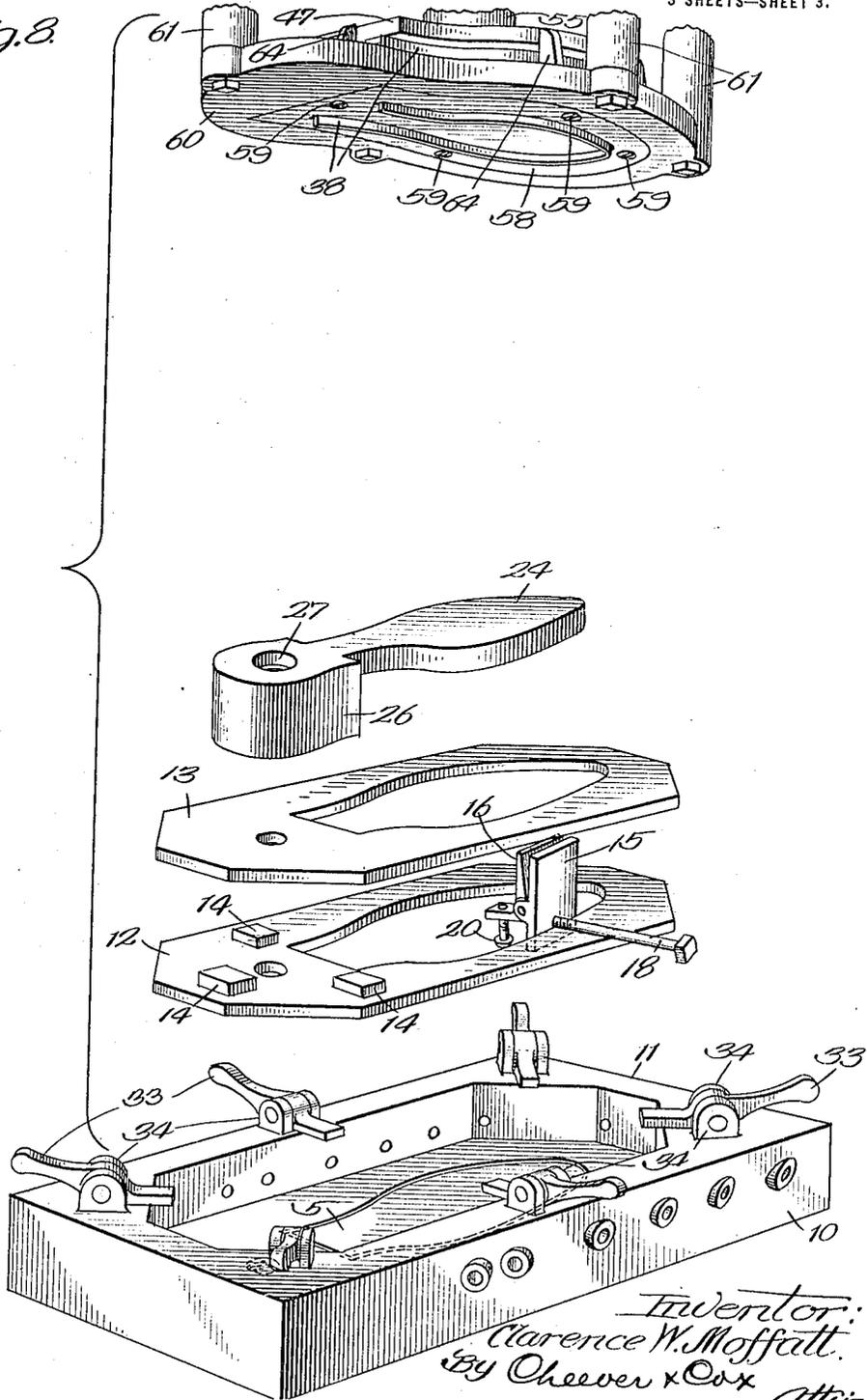
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Fig. 8.



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UNITED STATES PATENT OFFICE.

CLARENCE W. MOFFATT, OF MAYWOOD, ILLINOIS.

INSOLE-MAKING MACHINE.

1,298,371.

Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed June 29, 1917. Serial No. 177,628.

To all whom it may concern:

Be it known that I, CLARENCE W. MOFFATT, a citizen of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Insole-Making Machines, of which the following is a specification.

My invention relates to machines for making insoles for shoes. The machine is designed to produce insoles having marginal ribs or wales as shown, for example, in the Seaver Patent No. 607,396, and the Emmonds Patent No. 1,065,035. This present application involves improvements upon the machine shown in my prior Patent No. 1,198,470, granted to me September 19, 1916. In the machine of my said patent the dies and other rib forming parts were fixed in outline, thus necessitating the making of a number of new parts every time an insole of different size or shape was wanted. The general object of the present invention is to make these parts adjustable or conformable so that by using suitable easily made templates the principal parts may be used over and over again for insoles of different sizes and shapes. The invention includes a number of contributory concepts which cannot be readily described in a few words, but which will be completely understood from the following description and claims. The mechanisms which embody the improvements and enable me to carry out the objects of the invention are illustrated in the accompanying drawings in which:

Figure 1 is an assembly view chiefly in vertical section of the upper and lower die carriers and associated parts.

Fig. 2 is a top plan of the parts shown in the lower portion of Fig. 1. These include the recessed die, templates, and templet holder.

Fig. 3 is a distributive view in perspective of the chief component parts of the projecting die shown in the upper portion of Fig. 1.

Fig. 4 is a sectional view looking upward on the line 4—4, Fig. 1.

Fig. 5 is a sectional view on the irregular line 5—5, Fig. 1.

Fig. 6 is a bottom perspective view of the projecting die and associated parts. This is an assembly view of the parts shown separated in Fig. 3.

Fig. 7 is a perspective view of one of the clamps which helps hold the wale while

the body of the insole is being pasted or otherwise secured to the fabric.

Fig. 8 is a distributive view in perspective of the projecting and recessed dies and associated parts. These parts are shown assembled in Fig. 1.

Fig. 9 is a perspective view of a typical insole produced by the machine.

Similar numerals refer to similar parts throughout the several views.

It will be understood that the parts shown in the accompanying drawings may be substituted for corresponding but non-adjustable parts shown in my said prior patent, but it is unnecessary in the present case to illustrate the entire machine because the operation will be readily understood from the parts here shown and the design of the remainder of the machine may be varied without departing from the spirit of the present invention.

To facilitate an understanding of the mechanism without reference to my prior patent, it may be stated that in producing one of these insoles, canvas or other fabric is first spread over the top of the recessed die, (see the lower portion of Fig. 1). The projecting die then descends and forces the fabric into the recessed die. This forms a downwardly projecting rib or wale which follows the outline of the to-be-produced insole at a slight distance from the margin thereof (except at the heel portion, where no such rib or wale is required). Next, a presser foot or plate descends from above and holds the fabric down while the projecting die is being retracted upward. After the projecting die has been withdrawn, a plate rises from beneath the recessed die and actuates a set of clamping fingers which thereupon grip the wale and hold the fabric in place. The presser foot is then lifted, whereupon the body of the insole, which usually consists of leather, is pasted onto the fabric. After this the trimming operation is performed, that is, the insole is cut to proper outline. In the machine shown in my prior patent, the recessed die is shifted laterally from under the projecting die before the "body" is cemented to the fabric, but my present invention is not especially concerned with the cementing and trimming operations.

Now referring to the mechanism illustrated in the drawings, a platform 1 is supported in any suitable manner, preferably being shiftable as in the machine of my

prior patent, although the shiftability or non-shiftability is immaterial so far as my present invention is concerned. This platform is vertically apertured to form a guide 5 for the vertically movable push rod 2 shown near the bottom of Figs. 1 and 5. The push rod has a socket 3 formed at its upper end, the socket being of increased diameter and seating upon the platform 1. It forms 10 a guide for the stem 4 which projects from the bottom of the finger-actuator 5 which is here shown in the form of a plate sometimes seating upon the spring 6 which rests upon the top of the socket 3. The finger-actuator is approximately of the size and 15 shape of a typical wale and normally seats upon a platform 8 which is fastened to and supported (by any suitable means, not shown) on the platform 1. A part 10 20 which, for convenience, will be termed the "box" or "lower templet holder" rests upon the platform 8 and has an aperture in its bottom for accommodating the finger-actuator 5. This holder 10 has upstanding sides 25 11 which retain two plates 12 and 13 which form the lower templet. Different designs may be followed, but I prefer to make the lower templet of two similar plates as it facilitates manufacture and also assembly 30 when in use. The inner edges of these two plates form a backing for the clamps which retain the wale. The clamps, which are illustrated separately in Fig. 7 and are clearly shown in position in Fig. 5, consist 35 of backs 15 to the inner side of which are pivoted fingers 16. Said fingers cooperate with their backs to grip the wale as shown in Fig. 5. The backs are rigidly held in position by the studs 18 which pass between 40 the plates 12 and 13 and out through suitable apertures in the sides 11 of the holder. While the plates 12 and 13 may be held spaced apart in any suitable manner, it is desirable to obtain the proper spacing by 45 spacing blocks 14, as suggested in the lower portion of Fig. 1.

The gripping fingers 16 are provided with and actuated by adjusting screws 20 which, as shown in Figs. 1 and 5, are engaged by 50 the finger-actuator when the latter rises. This rise of the finger-actuator causes the fingers to grip the wale, as shown in Fig. 5. The finger actuator is yieldingly supported upon the cushioning spring 6 at this time, 55 and hence the danger of breakage is avoided. A table 24 serves to support the fabric while the wale is being formed and subsequently thereto, the fabric being indicated in position in Figs. 1 and 5 and being designated by the numeral 25. The table is supported at the heel end by a block 26 which 60 has an aperture 27 for receiving the stud 28 by which the table may be secured to the templet holder. The said table follows 65 the general outline of the wale but is small

enough to clear the clamping fingers 16 at all times.

The trimming is accomplished by means of a knife or cutter 30 which passes around the outside of the backs 15 of the wale 70 clamps. It is mounted upon a knife frame 31 which, at the proper time is moved upwardly to make the cut by the levers 33 fulcrumed upon the lugs 34 formed at suitable intervals upon the top of the templet holder 75 10. In the present case there are six of these levers, as shown in Figs. 2 and 8, although the number may, of course, be varied. The levers may be actuated by any suitable mechanism. Such mechanism is 80 illustrated in my prior patent, but as it is not directly concerned with the present invention, it need not be here described or illustrated.

I have now described the recessed die and 85 its associated parts. I will next describe the projecting die and its associated parts.

The projecting die proper is indicated by the reference numeral 38 and, as shown in perspective in Fig. 6, consists of a strip of 90 sheet metal. It is comparatively flexible so that it may be made to conform to the outline of the plates 40 and 41 which constitute the upper templet. The die strip 38 is held tightly against the sides of said plates by 95 studs or screws 42, the number and arrangement whereof are shown in Fig. 4 and elsewhere. The number of these screws may be varied and their location changed, but four are sufficient for ordinary cases. The screws 100 of the forward pair tap into the block 44, while the screws of the rear pair tap into the block 45. Block 44 is rigidly fastened to or integral with the bottom of the upper die carrier 47, as shown in Figs. 1, 3 and 105 elsewhere. Block 45 is movable, being held by the tightening screw 48, which passes freely through the block 49 rigidly fastened to the bottom of the die carrier, as shown, 110 for example, in Figs. 3 and 4. Said screw taps into the block 45 and by turning the screw in a direction to tighten it, the screws 42 are drawn toward the heel and, as said screws are located behind the widest part of 115 the foot, tend to hold the die strip in tight contact with the edges of the plates 40, 41. Said plates have apertures 51 for accommodating block 44 and apertures 52 for accommodating block 49. The block 45 acts as a spacer between the two plates 40, 41, while 120 the blocks 44 and 49 being rigid, serve to vertically position the plates 40 and 41. The die carrier 47 is reciprocated vertically at the proper time by a rod 55 at the lower end of which the die carrier is fastened. 125

The presser foot holds the fabric down on the table 24 while the projecting die is being drawn upward out of the wale. In the present form, it consists of a plate 58 fastened by screws 59 to the plate 60 which is 130

moved vertically at the proper time by the rods 61. In the present case these rods are four in number and, with the plate 60, make a frame to which the interchangeable plate 58 is detachably attached. Plate 58 will be changed for each change in shape or size of the wale, whereas, the remainder of the frame, to-wit: the parts 60 and 61 and the operating parts therefor, (not shown), will remain as a permanent part of the machine. Upstanding fingers 64 rise from the plate 60 and form a guide for the die carrier 47, as best shown in Figs. 1 and 5. The die carrier 47 is preferably detachably attached to rod 55. In the present design, said die carrier has a stem 66 rising from it, said stem fitting in a socket 67 formed at the lower end of rod 55 and held in position by a set screw 68, as shown in Fig. 1.

The operation will now be readily understood. Let it be assumed that the machine is empty and that the finger actuator 5 is down in normal position on platform 8 and that the upper die carrier is raised as in Fig. 1. The operator now spreads a layer of fabric upon the table 24, then causes the upper die and presser foot to descend. As the upper projecting die is operated independently of the presser foot, it is possible for the two parts to move independently, and this, in fact, occurs according to the preferred program of operation. The projecting die enters into the space between the backs 15 and fingers 16 of the wale clamps, after which the presser foot 58, 60 reaches the fabric and holds it. The projecting die then moves upward and clears the fabric, whereupon the push rod 2 rises and, acting through the medium of the cushion spring 6, causes the finger actuator 5 to engage the adjusting screws 20 and force the fingers to move toward the wale and hold it against the backs 15.

My invention is not particularly concerned with the ensuing steps of the process and it is sufficient for the present purpose to say that when the process has progressed as far as the stage mentioned, the lower die and its supporting parts will be shifted laterally from beneath the upper die and die carrier, as explained in my prior patent. The cementing of the body of the insole and the final trimming by the rise of the knife 30 will then take place to produce the finished article.

When it is desired to produce insoles of different sizes or shapes, other plates will be substituted for the plates 12 and 13 in the holder 10. Likewise, other plates will be substituted for the plates 40 and 41 which determine the configuration of the projecting die 38. The plate 58 of the presser foot will also be removed and a new one of suitable configuration substituted. It will be evident that when a new size or shape of

wale is to be formed, it will be necessary to change only a few parts and these of comparatively simple construction. Practically speaking, the only parts which need to be changed are the templets 12, 13, 40, 41 and the knife 30. The plates can be made with comparative ease and the two plates of each pair are duplicates of each other. It is not necessary to make fresh plates for right and left shoes, for all that is necessary is to turn the plates up side down and a templet for producing a right insole will immediately be available for producing a left insole. In other words, rights and lefts may be produced by merely reversing the templets,—that is, turning them over. This results in a great saving over the non-adjustable or non-conformable dies shown in my prior patent. In the first place, it is not now necessary to make the parts both rights and lefts, because a single set of templets may be made to produce both rights and lefts. Furthermore, the parts which need to be changed are extremely simple compared with the parts designed to perform the corresponding function in my said patent.

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

1. In mechanism of the class described, a wale forming die and means whereby the shape of said die may be adjusted.

2. An insole making mechanism having a recessed die into which fabric may be inserted to form a wale, and means whereby the outline of said die may be adjusted.

3. A mechanism for making insoles having fabric with wales formed therein, said mechanism having a recessed die formed in individual sections and means for holding said sections in different positions relative to each other to produce wales of different shapes and sizes.

4. In a device of the class described, a set of independent clamps each having gripping fingers pivoted together and movable as a pair, and means for holding said clamps in different alignments for the purpose described.

5. In a device for making insoles provided with wales, a set of clamps, means for inserting the fabric thereinto to form the wale and means including templets for repositioning said clamps relatively to each other.

6. A machine for making insoles provided with wales, said machine having a set of clamps for receiving the wale portion of the fabric, a templet holder, a templet in said holder for determining the alignment of the clamps, and means for securing the clamps in conformity with the templet.

7. A machine for making insoles provided with wales, said machine having a set of clamps for receiving the wale portion of the fabric, a templet holder, a templet

- in said holder, said templet having a central opening with surrounding edges of predetermined outline, and means for tightly and detachably holding said clamps against said edges.
8. A machine for producing insoles having wales, said machine having a templet holder adapted to hold templets of varying outline, a templet fitting into said holder, and a plurality of independent gripping means for gripping the wale, the gripping means being positioned by the templet to produce wales of the desired outline.
9. Mechanism for making insoles having wales, said mechanism having a set of independent clamps for gripping the wales, a templet forming an abutment against which the clamps may be held, a templet holder in the form of a receptacle into which templets of varying outline may be inserted, and means for holding the clamps, templet, and templet holder assembled in proper relationship.
10. Mechanism for making insoles having wales, said mechanism having a set of independent clamps for gripping the wale, a templet forming an abutment against which the clamps may be held, a holder for the templet, and a stud for each clamp, said stud acting upon the clamp, templet and holder for holding them all in fixed relationship.
11. Mechanism for making insoles having wales, said mechanism having a set of independent clamps for gripping the wale, two plates having acting edges of similar size and shape, a stud engaging each of said clamps and passing between said plates for holding the clamp firmly against the acting edges of said plates, and a receptacle for holding said plates in position.
12. Mechanism for making insoles having wales, said mechanism having a set of independent clamps for gripping the wale, each clamp having a back, and means for adjustably holding it in a definite position, each clamp also having a gripping finger for engaging the wale, and means movable with reference to said backs for engaging all of said fingers for actuating them.
13. In mechanism of the class described, a set of independent clamps, a templet for positioning said clamps, a templet holder adapted to have templets of varying working outline inserted thereinto, the templet holder having upstanding elements adapted to position the templet laterally, and means movable relatively to the templet for operating said clamps.
14. Mechanism of the class described having clamps, a templet for positioning said clamps, said templet having an opening in the center and having the clamps arranged within said opening, a templet holder having an opening approximately registering with the opening in the templet, and a clamp actuator passing through the openings in the templet and holder for actuating said clamps.
15. Mechanism for making insoles provided with wales, said mechanism having a plate holder with upstanding sides, a plate fitting into said holder, studs overlying said plate and abutting the sides of the holder, a second plate fitting into said holder and overlying said studs, said plates having similar openings whereby they form templets, clamps having backs held by said studs in contact with the inner edges of said plates, fingers pivoted to said backs for gripping the wale, and a movable finger-actuator beneath said fingers for engaging and actuating them.
16. Mechanism for making insoles provided with wales, said mechanism having a templet, a holder for the templet, clamps consisting of backs, fingers pivoted to said backs, adjusting screws mounted in said fingers, means for holding said backs in engagement with the templet, and a movable finger actuator engaging said screws.
17. Mechanism for making insoles provided with wales, said mechanism having a holder with an opening in the bottom and an upstanding element at the side, a plate fitting into said holder, studs overlying said plate and passing through said upstanding element, said plate having an opening approximately registering with the opening in the bottom of the holder, a second plate within said holder overlying said studs, the second plate having an opening similar to the first, clamps having backs held by said studs against the inner edges of said plates, fingers pivotally mounted upon said backs, and a finger actuator beneath said fingers, said finger actuator passing up through the opening in the holder and engaging said fingers for actuating them.
18. Mechanism for making insoles provided with wales, said mechanism having a templet, a templet holder, clamps for gripping the wale, means for actuating said clamps, means for holding said clamps in contact with the acting surface of said templet, and a table for supporting the work material approximately on a level with the top of the clamps.
19. Mechanism for making insoles provided with wales, said mechanism having a templet having an acting edge approximately following the outline of the desired wale, a templet holder, clamps for gripping the wale, means for actuating said clamps, means for holding said clamps in contact with the acting edge of the templet, and a table rigidly supported at one end, the remainder of the table being surrounded by the clamps, and being approximately flush with the acting ends of the clamps.

20. Mechanism for making insoles provided with wales, said mechanism having a templet having an acting edge approximately following the outline of the desired wale, a templet holder, clamps for gripping the wale, means for actuating said clamps, means for holding said clamps in contact with the acting edge of the templet, and a table having a thick heel portion rigidly fastened upon said templet, the remainder of the table being surrounded by the clamps.

21. In mechanism for making insoles provided with wales, the combination of a recessed die, a projecting die, and a templet, the templet being removable whereby templates of varying outline may be employed and the projecting die comprising a flexible strip adapted for conformation to templates of different outlines, said strip being adapted to enter the recessed die for forcing part of the work fabric thereinto.

22. In mechanism for making insoles provided with wales, the combination, with a recessed die, of a projecting die, comprising a flexible strip adapted to enter the recessed die for forcing part of the work fabric thereinto, a templet having a working edge, the templet being removable whereby templates having varying outlines may be substituted, and means for drawing the flexible strip tightly against said working edge.

23. A machine for making insoles provided with wales, said machine having a recessed die, a flexible strip for entering said recessed die, a reversible templet having a working edge for determining the outline of the strip, and a screw tension device for drawing said strip tightly into contact with the working edge of the templet.

24. A machine for making insoles provided with wales, said machine having a recessed die, a flexible strip for entering

said recessed die, a templet formed of two plates having marginal edges of similar outline forming working edges for the templet, a block fastened to the strip between the plates, a plate holder and a screw connection between said block and said plate holder for drawing up the block to thereby securely hold the strip in engagement with the templet.

25. In a machine for making insoles provided with wales, the combination of a recessed die, a removable flexible strip for entering said die, a presser foot following the outline of said strip and movable independently thereof, a reversible templet located back of the presser foot, and means for holding said strip in close contact with the working edge of said templet.

26. In a machine for making insoles provided with wales, the combination of a recessed die, a readily movable flexible strip for entering said die, the flexible strip approximating the outline of a horse shoe, a reversible templet to which said strip is fastened for determining its outline, and a presser foot having a slot through which the strip passes to enter the recessed die.

27. In a machine for making insoles provided with wales, the combination of a recessed die, a readily movable flexible strip for entering said die, the flexible strip approximating the outline of a horse shoe, a reversible templet to which said strip is fastened for determining its outline, a presser foot comprising a frame movable independently of the strip, and a plate detachably attached to said frame, said plate having a slot through which the strip passes to enter the recessed die.

In witness whereof, I have hereunto subscribed my name.

CLARENCE W. MOFFATT.