

M. WATRY.
 INSOLE MACHINE.
 APPLICATION FILED MAR. 7, 1908.

Patented Feb. 22, 1910.
 4 SHEETS—SHEET 1.

950,198.

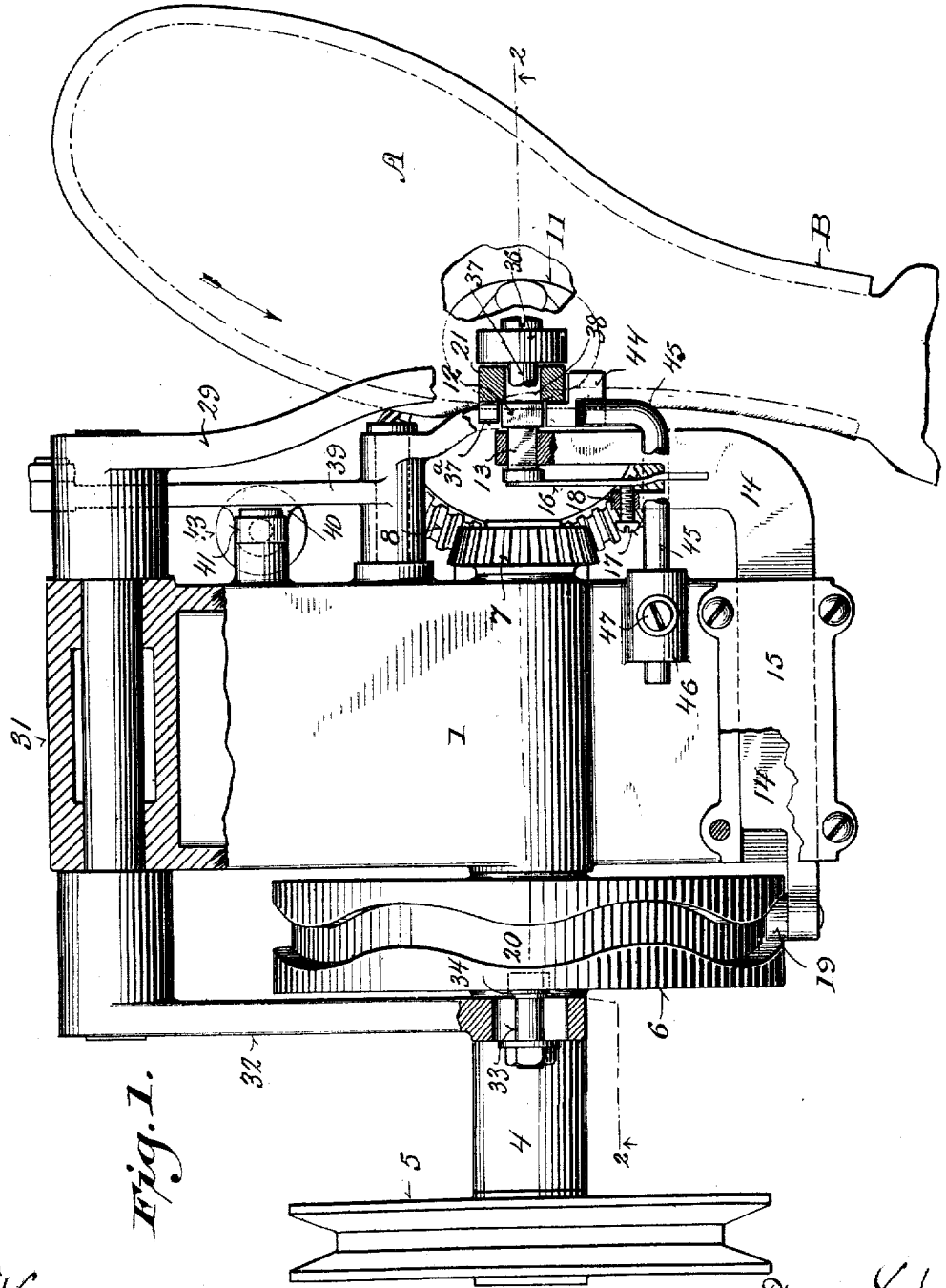


Fig. 1.

Witnesses:
 Ralph Nelson
 George Felber

Inventor:
 Mathias Watry
 by *Clifton Young*
 Attorney.

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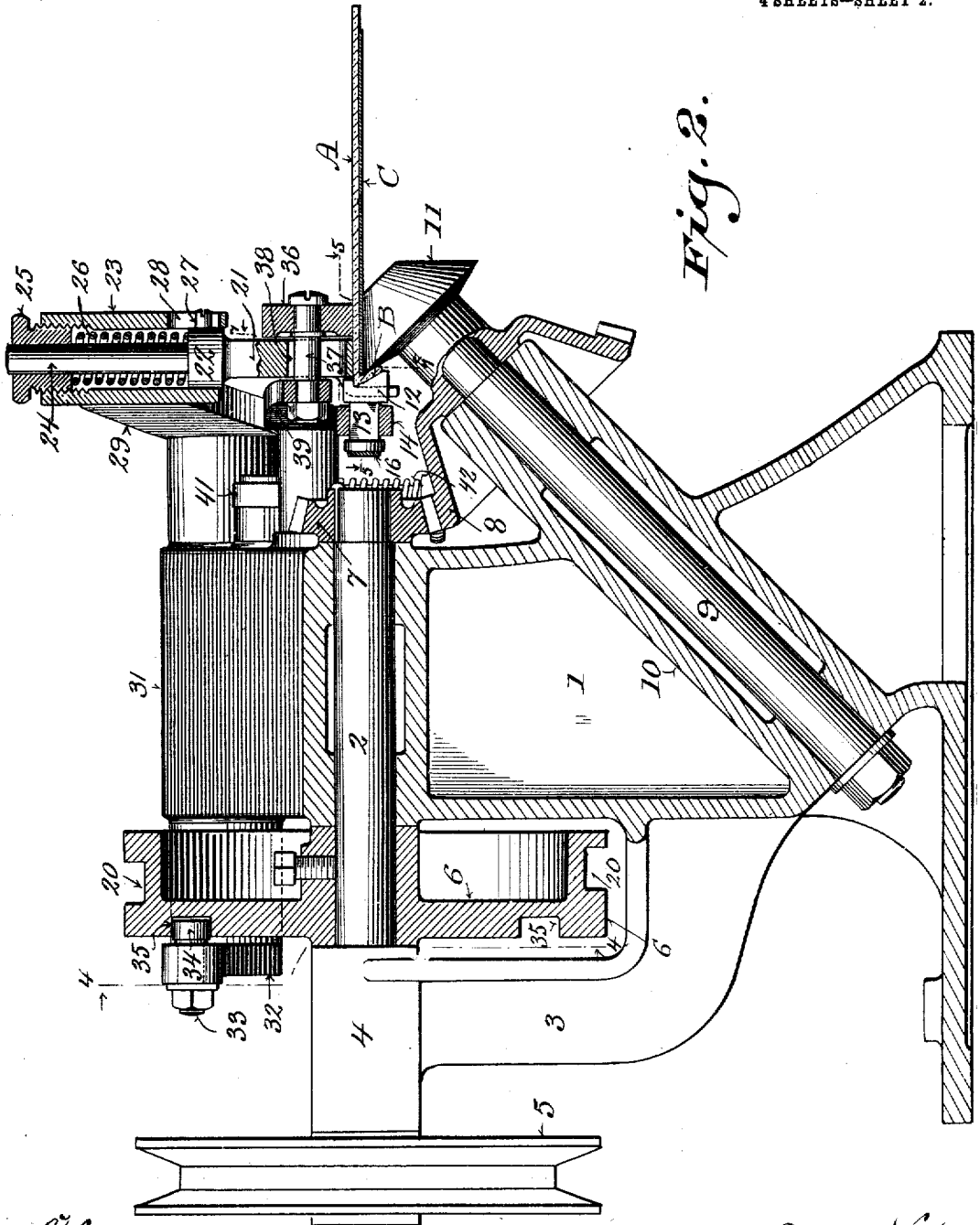


Fig. 2.

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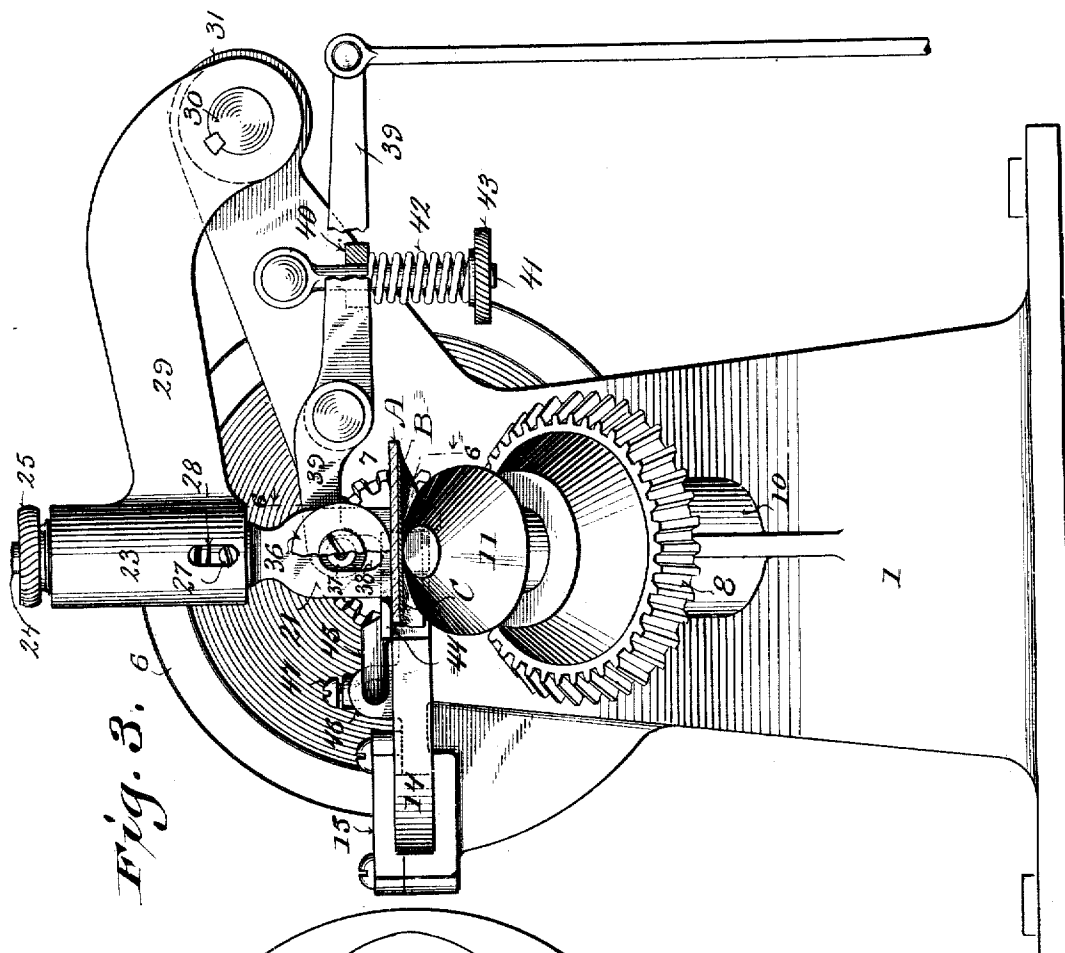


Fig. 3.

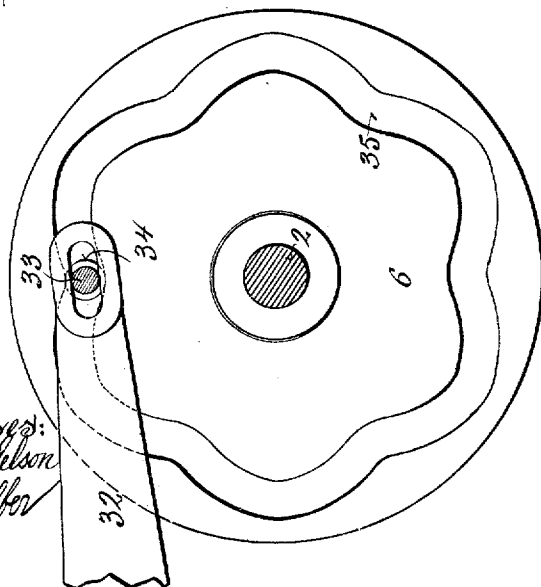


Fig. 4.

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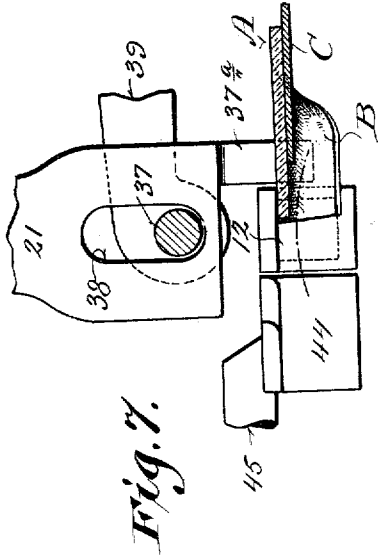


Fig. 7.

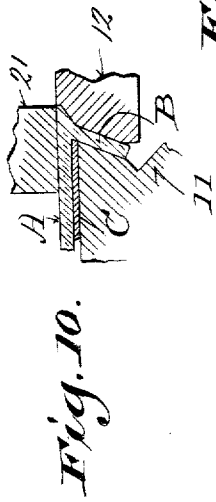


Fig. 10.

Fig. 9.

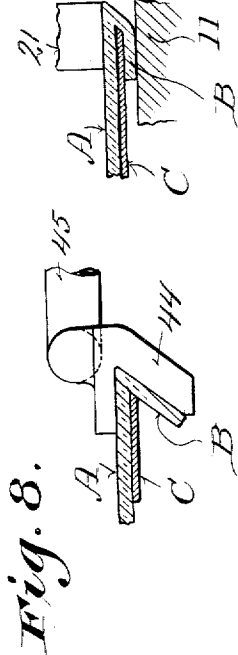


Fig. 8.

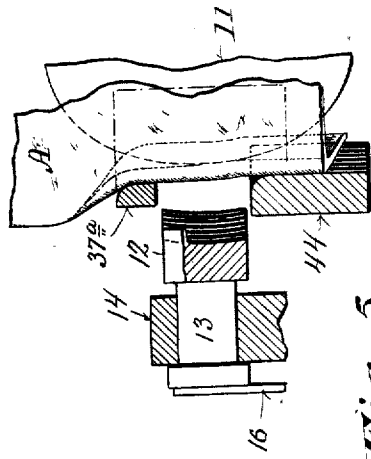


Fig. 5.

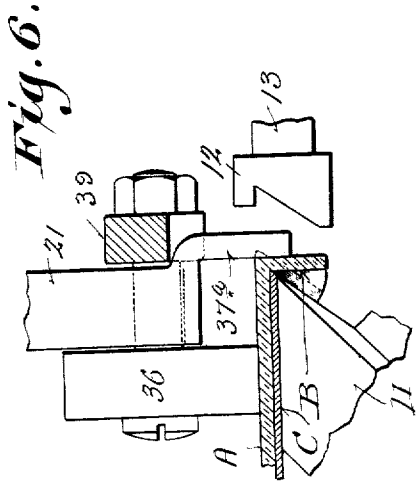


Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

MATHIAS WATRY, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO
S. PRESCOTT BRADLEY, OF MILWAUKEE, WISCONSIN.

INSOLE-MACHINE.

950,198.

Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed March 7, 1908. Serial No. 419,632.

To all whom it may concern:

Be it known that I, MATHIAS WATRY, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Insole-Machines; and I do hereby declare that the following is a clear, full, and exact description thereof.

10 The object of my invention is to provide a simple and effective machine for forming lips upon insole blanks, the lips constituting body-portions to which the shoe-upper and welt are stitched in the usual manner.
15 The lips are constructed with my machine are formed from an insole extension the full thickness of the stock from which said insole is cut, the extension being turned at an angle to the insole-body by suitable dies.
20 Heretofore lips have been obtained by splitting the sole leather in various ways, necessitating a heavy grade of material, in order to provide strength in the lip or between substance, which strength at best is inadequate and infrequently results in an imperfect article. The heavy insole thus employed also renders the finished shoe necessarily stiff and materially adds to the expense of manufacture. With my machine the
30 lip is formed by bodily turning the edge of the insole, which insole may be of the thinnest material, thus insuring strength, flexibility, and cheapness to the finished product, which product has all the essential features
35 of a hand-turned shoe.

The invention therefore consists in various novel structural features and combination of parts as hereinafter described with reference to the accompanying drawings and
40 subsequently claimed.

In the drawings: Figure 1 represents a plan view of a machine embodying the features of my invention, with parts broken away and parts in section to better illustrate the details, the machine being shown with an insole adjusted thereto in course of completion; Fig. 2, a sectional elevation of the same, as indicated by line 2—2 of Fig. 1; Fig. 3, a front elevation of the machine
50 with portions broken and in section; Fig. 4, a detail rear sectional view, as indicated by line 4—4 of Fig. 2, showing a face view of the actuating cam-wheel; Fig. 5, an enlarged sectional plan view of the lip-forming die members in their open position, the

section being indicated by line 5—5 of Fig. 2; Fig. 6, a detail elevation of the same with parts broken away and parts in section, as indicated by line 6—6 of Fig. 3; Fig. 7, a detail front elevation of said lip forming die members, with portions broken away and portions in section, as indicated by line 7—7 of Fig. 2; Fig. 8, a detail elevation of the lip-gage, over the face of which the completed lip of the insole passes
60 after leaving the forming dies, a portion of said lip-gage being shown in position against the gage; Fig. 9, a sectional view of a portion of insole-lip, illustrating a method of laying the same back upon the body of the insole, by passing said lip between the presser-roller and anvil, and Fig. 10, a detail sectional elevation of portions of lip-forming dies with an insole therebetween, the die-members in this case being shaped
70 to produce a feather extension upon the lip.

Referring by characters to the drawings, 1 indicates a metallic frame comprising a base-portion and standard, which standard is provided with a horizontal bearing for a
80 drive-shaft 2, there being a bracket 3 extending rearward from the standard for the support of a second bearing 4, in which bearing the shaft is mounted. Fixed on the rear end of the shaft is a drive-pulley 5, and between the standard and bracket aforesaid there is secured to said shaft a cam-wheel 6, which wheel imparts motion to suitable die-members to be hereinafter described.

The front end of shaft 2 has secured
90 thereto a bevel-pinion 7 that is meshed with a bevel-wheel 8 carried by an oblique arbor 9, the arbor being revolvably mounted in a sleeve 10 forming part of the frame-standard. The said arbor is preferably set at an
95 approximate angle of 45° and carries a rotatory anvil 11, the anvil constitutes a cone frustum and serves as a male forming wall for the insole lip when the latter is pressed in shape, said anvil being so positioned as
100 to present a horizontal upper surface, upon which surface the insole blank rests. The base of the cone frustum also serves as a male forming wall for the insole lip, against which the latter is pressed in shape by a
105 suitable horizontally reciprocative female die-member 12, provided for this purpose. The die-member 12 is vertically alined with the axis of the anvil and comprises a block having a suitable die-face and squared shank 110

13, which projects through a squared aperture in the end of an L-shaped plunger 14, the rear portion thereof being guided in a box 15 of the frame standard. Resting against a head of the die-shank 13 is a leaf-spring 16, which spring is secured to the plunger 14 and is adjustable as to tension by means of a set-screw 17 engaging said spring, the set-screw being in threaded connection with a lug 18 of said plunger. The spring-tension thus obtained, permits yielding pressure of the die against the insole, independent of the fixed reciprocative stroke imparted to the plunger 14, which stroke is obtained by means of a roller 19 carried by said plunger and engaging a fluted channel 20 in the periphery of the cam-wheel.

Aligned with the horizontal die-member, and directly over the anvil, is a vertically reciprocative female die-member 21, provided with a shank 22, which shank is fitted into a housing 23 and has a reduced stem 24, the stem being guided in a cap 25, that is in screw-threaded engagement with the upper end of the housing. A coil-spring 26 surrounds the stem and is under adjustable compression between the cap and die-shank, the latter being held against rotation in the housing by a pin 27, which pin projects from said shank into a slot 28 of said housing. The pin 27, which plays in the slot, also limits downward motion of the die-member caused through pressure of the coil-spring, when said die-member has been raised clear of the anvil. The housing 23 constitutes a portion of a rock-arm 29, that is secured a shaft 30, the shaft being mounted in a bearing 31 of the frame-standard. The rear end of shaft 30 carries another rock-arm 32, which is slotted at its ends for adjustably connecting thereto the pintle 33 of a roller 34, the roller being fitted into a fluted channel 35 in the face of the cam-wheel. The above construction is provided for imparting positive reciprocation to the vertically disposed die-member, which member also has a slight yield, owing to its spring-pressure, independent of its down-stroke, when said die-member is pressed upon the insole against the resistance of the anvil thereunder.

Directly forward of and alined with the die-members is an idle presser-roller 36, arranged to impinge upon the insole and hold the same in position upon the anvil, while said insole is being fed past the die-members. The pintle 37 of the roller passes through a slot 38 in the head of the die-member 21 and is suitably secured to one end of a lever 39, which lever is fulcrumed to the frame-standard, its opposite end being in link-connection with a foot-treadle, not shown. An apertured ear 40 extends from the lever, through which ear is loosely fitted a spindle 41, that is pivoted to the frame-

standard. The lower portion of the spindle is surrounded by a coil-spring 42 adapted to exert pressure upon the ear 40 in opposition to a hand-wheel 43, which wheel is in threaded engagement with said spindle. The above tension device controls the pressure of the presser-roller 36 upon the insole, the roller being lifted through the lever, either by hand or foot-power to insert or remove an insole from the anvil.

As best shown in Fig. 1 of the drawings, the insole-blank A is of such dimensions as to provide for a lip-stock B, which stock extends around the same parallel with the body-portion terminating at the heel in an abrupt angle. This lip-stock B is thereafter turned under by the die-members. In order to facilitate the operation of turning the stock B, a thin metallic templet C conforming to the contour of the insole proper is placed thereunder, before said insole is inserted in the machine. The operator lifts the presser-roller and places the heel of the insole and templet upon the anvil under said presser-roller, said insole together with the templet being then fed from right to left by the rotatory anvil. Before the lip-stock reaches the forming die-members, it is desirable to give said lip-stock an initial bend, which bend in this instance is produced by finger 37^a, that depends from the die-member 21, the insole being pressed against the finger by the operator. The rotatory anvil in the meantime feeds the insole forward, the finger 37^a, also serving to guide the work in its travel to the die-members. The vertical die-member 21, which is reciprocated by the cam-wheel is timed so that it engages the insole slightly in advance of the horizontal die-member 12, and thus holds said insole firmly for an instant, while said horizontal die-member strikes its blow, the blow being imparted thereto by the cam-wheel. The working-face of the die-member 12, in conjunction with the edge and base formation of the anvil, produces the desired formation of lip upon the insole, it being a matter of choice whether the lip is formed with an abrupt feather as shown in Fig. 10 of the drawings, tapered to a sharp edge, or folded back upon the body-portion, as illustrated by Fig. 9. In the latter case the fold may be obtained by a second operation of the machine, the insole being passed between the anvil and presser-roller, or other rollers may be attached to the machine for accomplishing this result. After the insole passes the forming guide, it is guided by a rear gage 44, which gage is adjustably secured to the frame-standard by a shank 45 fitted into a boss 46 of said standard and held therein by means of a set-screw 47 in threaded connection with the boss.

From the foregoing description it will be

readily understood that when motion is imparted to the drive-shaft 2, it will through its bevel-gear connection with the arbor cause rotation of the anvil, and thereby feed the insole forward, the die-members in the meantime are vibrated rapidly against the insole, as it travels over the horizontal surface of the anvil and thereby mold or press the lip into the desired formation, which formation is readily attained owing to the fact that the insole has been previously softened by moisture in the usual manner to facilitate the work.

The machine is timed and proportioned so that the horizontal anvil-face is of sufficient width so that its blows upon the insole lip slightly overlap each other as said insole is fed forward.

I claim:

1. A machine for forming lips upon insole-blanks, comprising an anvil having forming-walls upon which the insole-blank is adapted to rest, said blank being provided with a thin metallic separable templet conforming to the contour of the insole proper, means for holding the aforesaid insole-blank upon the anvil, means for feeding the insole-blank, and reciprocative die-members having faces conforming to the faces of the forming-walls of the anvil.

2. A machine for forming insole-lips, com-

prising a frame, a drive-shaft mounted therein, an arbor mounted in the frame at an angle to the drive-shaft, and in gear-connection therewith, a conical anvil carried by the arbor, a cam-wheel secured to said drive-shaft, a rock-arm in connection with the cam-wheel, a vertical die-member carried by the rock-arm, disposed above the conical anvil, a plunger in connection with said cam-wheel, a horizontal die-member carried by the plunger disposed to one side of said conical anvil, and a pressure roller adapted to contact with one face of the aforesaid anvil.

3. A machine for forming insole-lips, comprising a rotary conical anvil, the walls of which constitute male forming faces for the insole, a yielding insole clamping-roller disposed above the anvil, and reciprocative die-blocks having female forming faces conforming to the male forming-faces of said anvil.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

MATHIAS WATRY.

Witnesses:

GEORGE FELBER,
GEO. W. YOUNG.