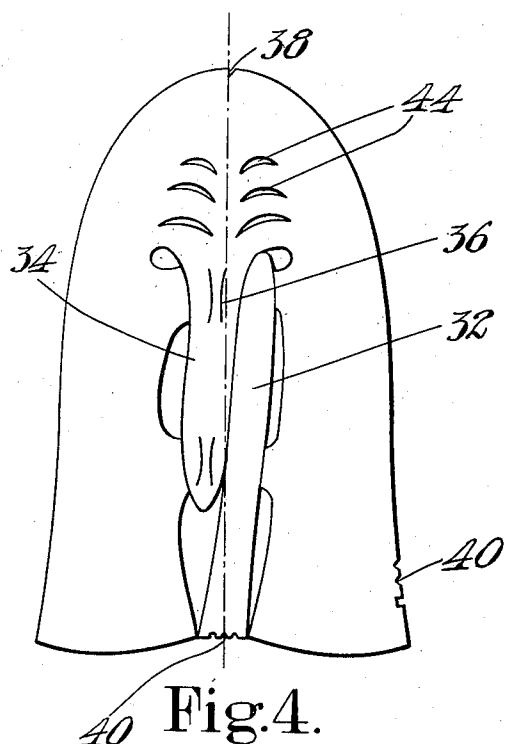
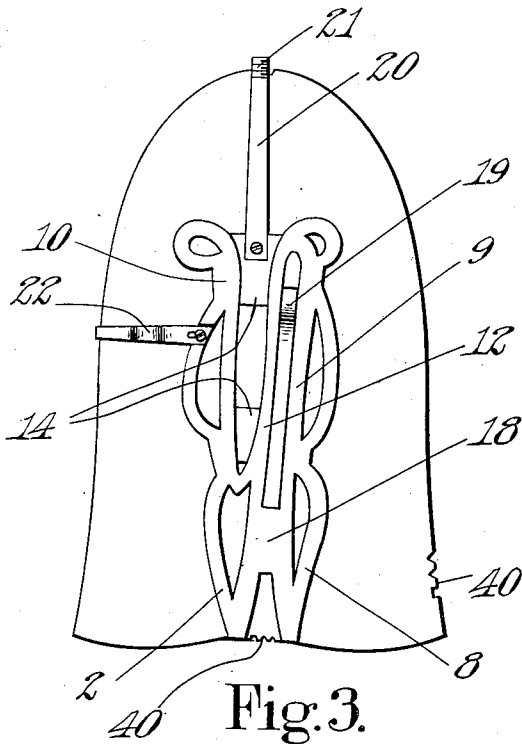
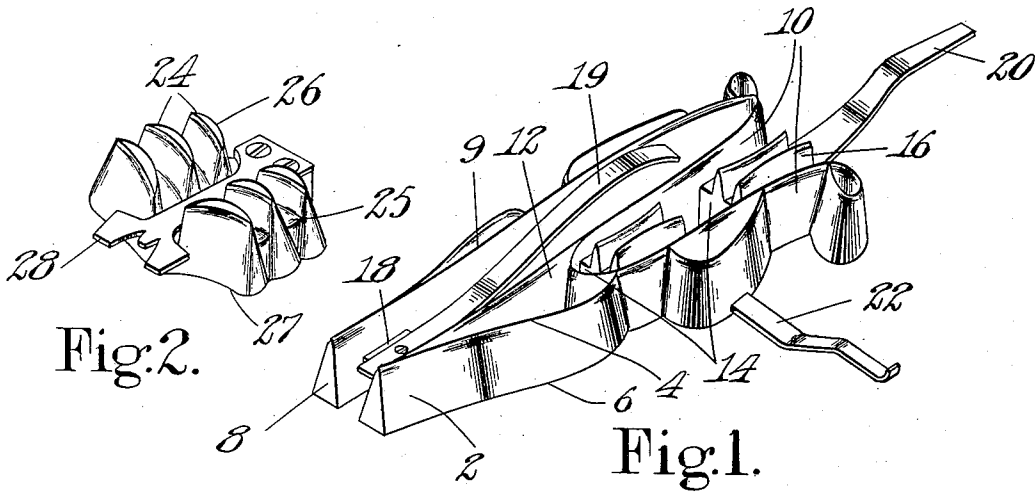


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1,055,623.

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WITNESSES.

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To all whom it may concern:

Be it known that I, KARL ENGEL, a citizen of the United States, residing at Arlington, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Dies, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to dies such as are used for dying out sheet material and more particularly to dies of the type used with clicking presses in the production of blanks from upper leather for use in the manufacture of boots and shoes.

In certain styles of shoe, such as sandals, or in shoes having ornamental foxings, it is the custom to employ blanks having perforations or embossed markings formed therein for purposes of ornamentation or ventilation. In certain other blanks, such as vamps, it is necessary to cut out a throat portion and where such cut-out portion is of ornamental and extended contour, it is not always convenient to die out the complete blank at a single operation. In accordance with the present invention it is proposed to die out such portions as lie within the marginal contour of the blank by an operation performed after the blank has been died out of the stock.

It is, accordingly, an object of this invention to provide a die which may be employed advantageously in a clicking press for operating on a blank previously formed either by hand or by the use of a die.

By employing a separate die for cutting the portions of the blank within its marginal contour, several advantages are obtained. In the first place, the pressure required for this operation is much less than that which would be required to die out the blank and the interior portions simultaneously so that cleaner cutting and less strain on the clicking press result. Then, in case the cut out portion is non-symmetrical in shape, it is possible to utilize a single die for operating on both right and left blanks by reversing one of the blanks and locating the die on the wrong side, or to die out simultaneously the interior portions of a pair of right and left blanks by superposing them with flesh or grain sides adjacent and locating the die on the upper blank. Still

another advantage lies in the fact that a die of one size may be employed in operating on blanks of several sizes, thereby saving the expense of constructing a separate die for each size of blank.

The present invention may be embodied advantageously in a die for cutting out the throat and tongue of a vamp blank and in this connection an important feature of the invention consists in the provision of a die in which the tongue-cutting portion is located unsymmetrically with respect to the portions which cut the edges of the throat and a cutting portion is provided on that side from which the tongue-cutting portion is displaced for cutting out a strap or other small blank. It has been found that a slight displacement of the tongue in a vamp blank is unnoticeable in a lasted shoe and that such displacement permits cutting a small entire blank from the throat which may be utilized subsequently in other parts of the shoe. Heretofore the part removed from a vamp died out with an integral tongue has been cut into a number of small pieces none of which was of further service in itself. In accordance with the present invention, however, it is possible to produce a useful blank of the best material from a part of the main blank which formerly had a value only as scrap, thus obtaining better economy in cutting up the stock.

Another feature of the invention relates to means for properly locating or centering a die upon a previously cut out blank. Preferably a gage member may project from the die sufficiently to extend to or beyond the outline of the blank being operated upon, in order that the cutter may locate the die in the desired predetermined position on the blank with reference to some part of its configuration. A single centrally disposed gage member has proved sufficient for this purpose where a skilled cutter is employed but the invention contemplates also a cooperating gage member which shall extend at an angle to that first mentioned and serve to determine the position of the die with respect to another portion of the blank thus leaving nothing to the skill of the cutter.

Another feature of the invention consists in providing a scale on the gage member in order that the same die may be used with blanks of different sizes, the location of the die being shifted in accordance with the size

of the blank being operated upon. Where the invention is embodied in a die for cutting the throat and tongue of a vamp, the gage member on which the scale is placed may be utilized to locate the die longitudinally of the blank. In this embodiment of the invention, as well as in others, an additional gage member is contemplated for determining the lateral position of the die upon the blank and a feature of the invention consists in mounting such gage adjustably upon the die in order that it may be properly located in blanks of various sizes after a preliminary setting of the gage.

These and other features of the invention will be best understood and appreciated from the following description of the preferred embodiments thereof selected for purposes of illustration and shown in the accompanying drawings, in which,—

Figure 1 is a view in perspective of a die for operating on a sandal vamp shown in inverted position; Fig. 2 is a similar view of a die for cutting a double row of perforations in a blank; Fig. 3 is a plan view of the die shown in Fig. 1 in position upon a vamp blank; Fig. 4 shows a completed blank.

In Fig. 1 is illustrated a die for cutting out the throat and tongue portions of a sandal vamp. The die may be constructed of bar steel bent into the required shape and welded or it may be cut out of a solid block or plate. The sides of the die are sharpened on one edge 4 for cutting and provided with a flat oppositely disposed pressure-receiving edge 6. At the rear end of the die the two outer side portions 2 and 8 are spaced from each other a distance equal to the width desired in the throat of the vamp and are rigidly maintained in this relation by a spacing block 18. At their forward ends the portions 4 and 8 are connected by an elongated tongue-cutting portion 10 which extends toward the rear end of the die. A part of one side of the tongue-cutting portion is formed by the side portion 2 of the die. A continuous blade 9 extending at a slight inclination to the axis of the die is formed in proximity to the side 8 and merges with the side 8 at several points in its length. A blade 12 is disposed in parallel relation with the blade 9 forming a loop-shaped portion which extends on the opposite side of the axis of the die from the tongue-cutting portion 10. This portion will act to cut out an integral strap 32, as shown in Fig. 4, while the tongue-cutting portion serves to cut the marginal edges of the tongue 34. In the tongue-cutting portion 10 are secured two blocks 14 on each of which is arranged a pair of slitting blades 16 which will form pairs of slits 36 in the tongue of the vamp through which straps may be inserted.

To the spacing block or bridge portion 18 inserted between the rear ends of the

blades 2 and 8 is secured an ejecting spring 19 normally projecting beyond the plane of the cutting edge of the die and serving to eject the strap 32 from the die when the latter is lifted from the cutting block. To the upper side of the forward block 14 is secured a gage 20 bent downwardly so as to lie close to the toe edge of the vamp and formed on the upper surface thereof is a scale 21. By the use of this gage the position of the die longitudinally of the blank may be determined. Preferably, in cutting out the blank, a center-locating notch 38 will be formed in the outline of the toe portion and this notch will be of assistance in determining the transverse position of the die on the blank. If desired, the size-indicating notches 40 may be formed at two places in the contour of the blank, one of these points being at the center of the rear edge of the vamp at the place where the rear edge of the strap 32 will fall. These centrally located notches are of assistance in locating the rear end of the die transversely of the blank and also indicate on each strap the size of the shoe with which it is to be used. It will be noted that the strap 32 is cut out from the center of the vamp blank and, as it is the custom to cut vamps from the best portion of a skin, a strap is secured of better material than is usually employed for such a blank. Ordinarily, no other means will be needed in determining the transverse position of the die; but, if desired, a transverse gage 22 may be mounted on one side of the die. Preferably the outer end of this gage is hook-shaped for engaging the edge of the blank and the gage may be adjustably mounted by means of a slot and pin connection with the die, as in this way adjustment for varying sizes of blanks may be effected conveniently.

In Fig. 2 is illustrated a small supplementary die for forming the perforations 44 in the toe of a vamp. This die may preferably be cut out from a solid plate and comprises a plurality of small perforating dies 24 connected by bridge portions 25, having cutting edges 26 and the pressure receiving edges 27. A gage 28 is secured to the under side of the die and by being located on the blank properly with reference to the slits 36 will determine the proper position for the die. If it is desired to use this die simultaneously with the die shown in Fig. 1 it may be placed upon a blank at the same time and located by the gage 28 with reference to a slitting blade 16.

The perforating die and the throating die are herein illustrated as independent dies adapted for use either separately or simultaneously though it should be understood that it is within the scope of the invention to connect both dies or form them integrally.

It will be seen that the tongue 34 is dis-

placed toward one side of the vamp. In the example illustrated, the blank is a right vamp and when the left margin is lasted the material is pulled away from the tongue so that the non-symmetrical arrangement thereof is not noticeable in the finished shoe. The throat and tongue of a left vamp may be died out in similar fashion by inverting the blank and placing the die on the flesh side thereof or if preferred a right and left blank may be superposed and the center portion of both died out at a single operation.

My novel die may be employed with particular advantage in the manufacture of shoes or sandals of that style in which the perforations are intended primarily for purposes of ventilation and extend completely through the blank and lining. Heretofore the lining has been cut out to correspond with perforations previously formed in the blank and this has necessitated a separate operation or has been effected during the operation of stitching through the blank and lining around the margin of the perforations. By employing a die constructed in accordance with the present invention, however, the lining and upper blank may be died out, pasted or otherwise attached and then the perforations or ornamental design may be formed simultaneously in both. This mode of operation results in a cleaner cutting of the design and more accurate alinement of the perforations in the blank and lining than has been possible heretofore, and also reduces the expense of producing the completed lined and perforated blank.

While I have illustrated my invention as embodied in dies for operating on previously formed blanks, that feature of the invention which consists in arranging a portion of the die unsymmetrically for better economy in cutting is not necessarily limited to this embodiment but may be exemplified in a die for cutting the marginal edges and center of a blank at a single operation.

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

1. A die for cutting out portions from a previously formed blank, having a cutting edge of ornamental outline and an oppositely disposed pressure receiving edge, portions of said die being unconnected and extending in rigid spaced relation at one end, a spacing block between said ends and a curved portion connecting the other ends.

2. A die for cutting out portions from a previously formed blank, having a cutting edge of ornamental outline and an oppositely disposed pressure receiving edge, portions of said die being unconnected and extending in spaced relation at one end and merging into a connecting portion at the other end, said connecting portion comprising

an elongated loop-shaped blade extending toward the unconnected ends above mentioned.

3. A die for cutting out portions from a previously formed blank, having a cutting edge of ornamental outline and an oppositely disposed pressure receiving edge, portions of said die being unconnected and extending in spaced relation at one end and merging into a connecting portion at the other end, said connecting portion comprising an elongated loop-shaped blade extending toward the unconnected ends of the die and being unsymmetrically disposed with respect to the longitudinal axis of the die.

4. A die for cutting out portions from a previously formed blank, having a cutting edge and an oppositely disposed pressure receiving edge, portions of said cutting edge extending in spaced relation each portion merging at one of its ends into a connecting portion including an elongated loop-shaped blade centrally disposed with respect to said spaced portions at one end and lying nearer to one portion than the other portion at its opposite end.

5. A die for cutting out portions from a blank, having a cutting edge and an oppositely disposed pressure receiving edge, portions of said die extending in spaced relation and a connecting portion including an elongated loop-shaped blade spaced from one of said portions, lying adjacent to the other portion and merging at each end into one of said portions.

6. A die for cutting out portions from a previously formed blank, having a cutting edge and an oppositely disposed pressure receiving edge, portions of said cutting edge being arranged upon opposite sides of the longitudinal axis of the die and being adapted to intersect one edge of the blank in spaced relation, and an elongated loop-shaped cutting blade disposed with its axis extending in the general direction of the axis of the die but at an inclination thereto, thereby leaving a space at one side into which a portion of the blank may project.

7. A die for cutting out parts of a shoe upper, consisting of a cutter having the outline of a throat and tongue, and a strap die lying substantially within the compass of the die but external to the tongue die and formed partly of the same and partly of an attached supplemental cutting edge.

8. A die for cutting the throat and tongue of a vamp comprising outer cutting portions, an intermediate loop-shaped cutting portion for cutting a tongue connected to said outer cutting portions and a complementary loop-shaped portion oppositely arranged from said tongue-cutting portion and formed in part by said tongue cutting portion.

9. A die for cutting out portions from a

previously formed blank in combination with a gage mounted in said die for determining the location thereof with respect to the blank.

- 5 10. A die for cutting out the throat portion of a vamp in combination with a gage mounted on said die for determining the location of said die with respect to the toe portion of the vamp.
- 10 11. A die for cutting out the throat portions of a vamp, in combination with a gage mounted on one end of said die for determining the location of said die longitudinally of the vamp, said gage having a scale
- 15 formed thereon.

12. A die for cutting out portions of a previously formed blank, in combination with a relatively fixed gage mounted there-

on and an adjustably mounted gage disposed at an angle thereto. 20

13. A die for cutting upper leather having a pressure receiving edge and a cutting edge, in combination with a gage comprising an elongated strip secured to said die adjacent to its pressure receiving edge, extending thence downwardly toward the plane of its cutting edge and outwardly substantially in said plane. 25

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 30

KARL ENGEL.

Witnesses:

HERBERT W. KENWAY,
FREDERICK L. EDMANDS.