

D. N. PRIME.
DIE FOR CUTTING SHEET MATERIAL.
APPLICATION FILED JUNE 24, 1909.

1,018,520.

Patented Feb. 27, 1912.

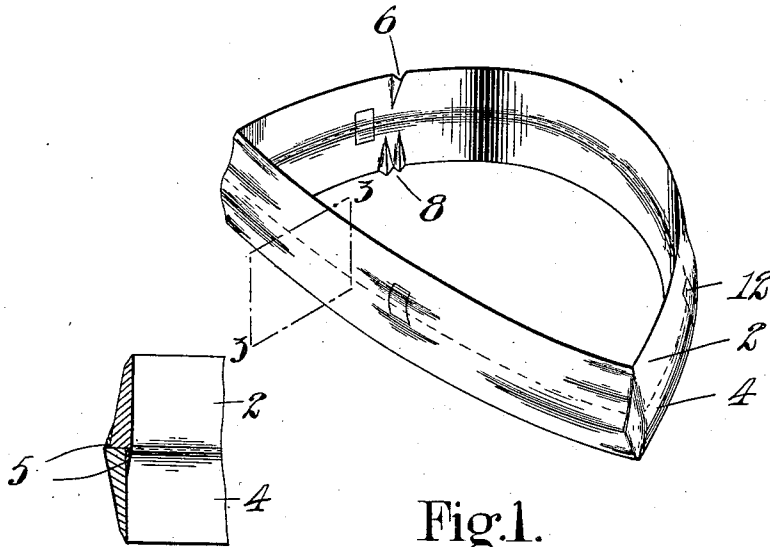


Fig. 1.

Fig. 3.

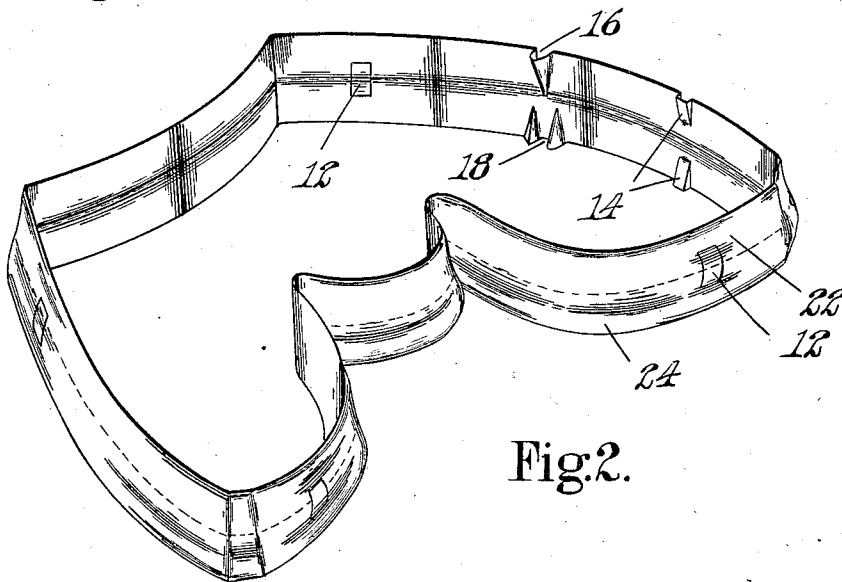


Fig. 2.

WITNESSES.

Elizabeth C. Cope
Hubert W. Kenney

INVENTOR.

Daniel N. Prime
By his Attorney,
Wesley M. Howard

UNITED STATES PATENT OFFICE.

DANIEL N. PRIME, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

DIE FOR CUTTING SHEET MATERIAL.

1,018,520.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed June 24, 1909. Serial No. 504,130.

To all whom it may concern:

Be it known that I, DANIEL N. PRIME, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain Improvements in Dies for Cutting Sheet Material, 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 for cutting or dying out blanks from sheet material such as leather, fiber-board, cloth or the like, and particularly relates to dies of the type used with a clicking press for cutting sheet material such as upper leather for boots and shoes.

It is an object of the present invention to provide a die of such character that it may be utilized for cutting blanks of more than one size or shape whereby the number and initial cost of the set of dies necessary to produce the different styles, shapes and sizes of blanks for the uppers manufactured in a single factory may be substantially reduced. It is advantageous, from an economical standpoint, to employ double edged dies, and if the contours of the two cutting edges of a double edged die can be so formed as to cut blanks of different sizes or shapes, or blanks of different sizes and shapes, the expense of two separate dies is avoided.

With this end in view, it is an object of the present invention to provide a double edged die capable of producing blanks different in outline by its opposite cutting edges.

By making the proper difference between the contours of the two cutting edges of a die, a difference in the size of the blanks may be secured which amounts to one size or a half size, or the difference may be even less, if desired, whereby one edge of the die may be employed when dealing with a fine grained non-stretching leather and the other edge, if of slightly smaller contour may be employed when dealing with a soft or stretching leather. With a die of this character the manufacturer can save stock by cutting blanks slightly smaller than the pattern from a leather which is likely to stretch, the nature of the material allowing the difference to be made up in the lasting operation by the stretching of the leather.

Double edged dies have been used heretofore for cutting out pieces having the same outline but reversely shaped, known as right and left blanks. Blanks of this character are required for the opposite sides of the same shoe and also for corresponding portions of the right and left shoes of a pair, in order to bring the grain side, or the finished side in the case of patent leather, upon the outside of the shoe. In double edged dies of this kind each cutting edge of the die has a distinct function, that is, one is employed in cutting a left blank and the other in cutting a right blank. There are blanks, however, such as tips, vamps, and foxings for certain styles of shoe which are symmetrical and therefore alike in shape for both shoes of a pair and these blanks are known as "straight" tips, vamps, etc., as the case may be. If a double edged die be constructed for cutting symmetrical blanks, it will be apparent that its two cutting edges will be of exactly the same contour and that the die will be useful only for cutting blanks of a single shape and size. From the standpoint of economy, therefore, the function of one cutting edge is wasted.

With these conditions in mind, it is an object of the present invention to provide a straight double edged die having cutting edges the contours of which differ in size or shape, whereby blanks of different characters may be produced and a distinct function for each cutting edge secured.

While straight dies for cutting blanks of different sizes but of the same shape may be utilized to the best advantage, it may be desirable, in some cases, to employ non-symmetrical dies for cutting blanks of different sizes, such blanks being also reversely shaped, that is, right and left blanks.

It is therefore a further object of the present invention to provide a non-symmetrical double edged die having cutting edges, the contours of which differ in size, whereby right and left blanks of different sizes may be produced.

Dies may be constructed in accordance with the present invention by any desired method, it being immaterial, so far as the invention is concerned, what method is employed. The best method now known to me consists in forming separately two component parts each one having a cutting edge of

the required contour, and subsequently uniting said parts to form the complete die. By employing this method the necessity of shaping and working upon stock having a cutting edge on each side and the obvious difficulties arising from such conditions are avoided and the accuracy of the finished die improved.

The advantages above set forth and others incident to the invention will be best understood and appreciated from the following description of several embodiments thereof selected for purposes of illustration and shown in the accompanying drawings, in which:—

Figure 1 is a perspective view of a straight tip die for cutting blanks of different sizes; Fig. 2 is a perspective view of a straight vamp die of a similar character, and Fig. 3 is an enlarged sectional view on the plane 3—3 of Fig. 1.

Referring to Fig. 1 of the drawings, the tip die therein illustrated, comprises two rigidly connected, shallow, open frames 2 and 4 each sharpened on one edge for cutting and having opposite flat surfaces whereby the two frames may be conveniently connected. The contours of the cutting edges of the two component frames differ in size by the desired amount, in this case by one size. The two frames are approximately vertical on their inner surfaces and beveled for sharpening on their outer surfaces, which prevents the blanks cut out from being wedged inside the die and also facilitates regrinding. The two frames are attached, to make a double edged die, preferably by being held back to back and soldered or brazed together. Slots or keyways may be cut in adjacent portions of the flat surfaces of each frame and keys 12 sweated in place, thus making the union between the two components additionally secure.

In Fig. 3 reference character 5 indicates the solder for attaching the two component frames, the solder being smoothed to cover the projecting shoulder which would otherwise occur on the sides of the finished die.

It will be seen that the cutting edges of the die illustrated in Fig. 1, instead of being located one vertically over the other, as in the case of the ordinary double-edged die, are offset laterally with respect to each other, or to express it differently, the projections of the cutting edges on a plane do not coincide.

Indentations for forming size indicating notches in the outlines of the blanks are formed in both cutting edges of the die in the usual manner. According to a code in common use, the indentations 6 and 8 will form notches in the outlines of the blanks cut by the respective edges of the die indicating that the sizes are 6 and 6½, respectively.

Fig. 2 illustrates a straight vamp die for cutting different sizes of vamps by its opposite cutting edges, the construction being similar to that of the die above described. The vamp die comprises two rigidly connected frames 22 and 24 which are separately constructed and shaped to conform in the contour of their cutting edges with the outline of the required blanks. In this case the blanks to be cut are of the same width but vary in length by one half size. Size-indicating indentations 16 and 18 and width-indicating indentations 14 formed in the cutting edges of the frames 22 and 24 will cut notches in the outlines of the blanks produced by the die indicating, according to the code above mentioned, that the blanks cut by the upper edge of the die are size 3, width C, and that the blanks cut by the lower edge are size 3½, width C. A union is formed between the component frames by attaching them back to back by the keys 12 and soldering the backs together.

While I have illustrated only dies made in two parts, it should be understood that the invention is not limited to this form of construction, which is described as being the best now known to me, but that the invention includes within its scope double edged dies for cutting blanks of different characters irrespective of their specific structure or the manner of their manufacture.

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

1. A double edged die for cutting blanks from upper leather, having cutting edges of different contours, said die comprising a pair of rigid open frames each having a cutting edge and a flat oppositely disposed surface, said frames being secured together by a continuous and direct union of said flat surfaces.

2. A double edged die for cutting upper leather, having opposite cutting edges of different contours, said die comprising a pair of rigid frames beveled on their outer surfaces to form a cutting edge and having straight inner surfaces and contiguous flat surfaces, the frames being rigidly connected by a continuous and direct union of said flat surfaces.

3. A double edged die comprising two frames of different sizes with cutting edges of different contours and contiguous flat surfaces held in direct engagement but offset laterally, and filling material disposed in the peripheral channel formed by the offset surface of the larger frame and the outer surface of the smaller frame.

4. A double edged die, having an open center, a continuous inner surface comprising two vertical portions offset relatively to each other and an intermediate inclined portion into which merge both of the vertical

portions, one cutting edge of the die being formed at the outer edge of each vertical portion and being disposed in the respective plane of the vertical portion in which it is formed.

5 5. A cutting die comprising two connected portions, each having a sharpened cutting edge, a substantially unobstructed center and an opposite surface so shaped as to facilitate connecting said portions, the cutting edges of the two portions being different in contour, and said surfaces of the two portions being directly attached to each other.

10 6. A cutting die comprising two shallow open frames different in contour, said frames being sharpened on one edge for cutting and flattened on the other edge whereby they

may be attached to each other, and means for attaching said frames to each other.

7. A cutting die comprising two continuous metallic frames each having a cutting edge and a flattened surface, keyways formed in adjacent portions of the flattened surfaces and keys for holding said frames rigidly together with their flat surfaces overlapping.

20 25 In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL N. PRIME.

Witnesses:

HERBERT W. KENWAY,
ARTHUR L. RUSSELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."