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DIE STOCK AND DIE MADE THEREFROM

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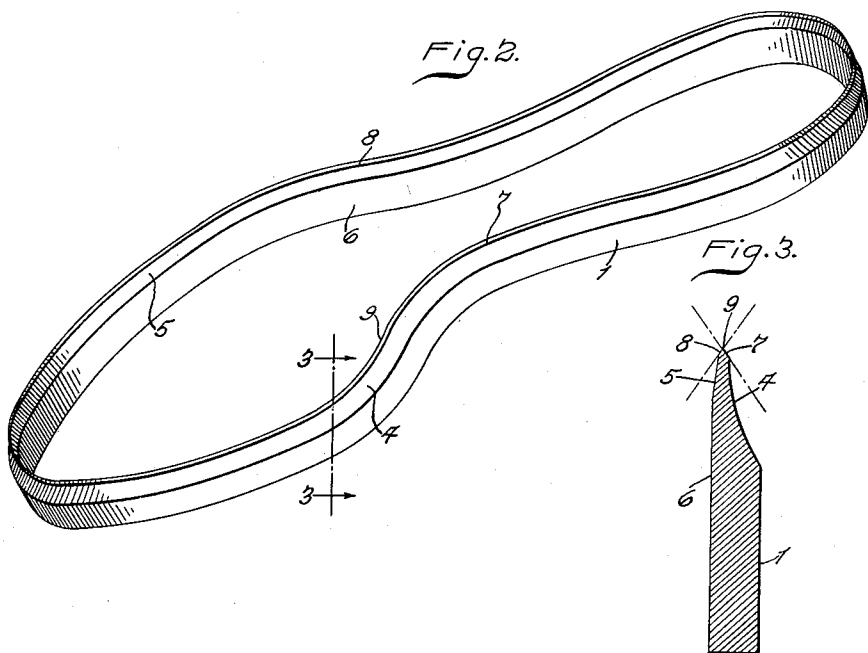
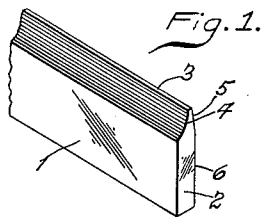
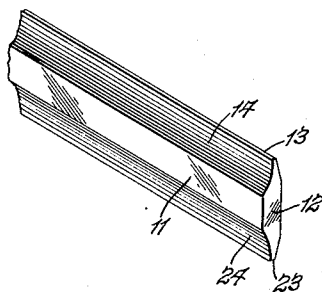


Fig. 4.



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DIE STOCK AND DIE MADE THEREFROM

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5 Claims. (Cl. 164—29)

This invention relates generally to cutting dies and especially to a novel character of die stock, particularly adaptable for the manufacture of dies of the clicker type.

Heretofore in the manufacture of cutting dies of the clicker type it has been the practice to provide die stock of suitable steel in the form of strips which might be bent to the desired configuration and then sharpened. A variety of sectional configurations of such die stock have heretofore been provided, but in no case has the die stock been of such cross sectional shape that the final grinding of the knife edge could be carried out with maximum facility in such portions of the die as were re-entrantly bent. Where re-entrant bends occur in dies formed of the stock heretofore provided, it has been necessary in practically all cases to so grind the edge upon the die that a long bevel, as distinguished from a more desirable short bevel, was necessary.

The object of the present invention, generally stated, is to provide a die stock of such cross sectional configuration that short beveled knife edges may be conveniently ground thereon.

Other objects will become apparent to those skilled in the art when the following description is read in connection with the accompanying drawing in which

Figure 1 is a perspective view of a single edge strip of die stock embodying the features of the present invention.

Figure 2 is a perspective view of a single edge clicker die formed from the stock shown in Figure 1.

Figure 3 is a sectional view taken along line 3—3 of Figure 2 showing the cross-section of the die in enlarged proportions.

Figure 4 is a perspective view of a strip of die stock constructed in accordance with the present invention as intended for the production of double edge dies.

In accordance with the present invention die stock is provided in the form of elongated strips having a concave bevel from a heavy body portion of the stock to the part whereat the cutting edge is intended to be produced. Such die stock may be formed of any suitable steel composition and may, in accordance with the general practice, be cold rolled to produce an attenuated edge part of relatively narrow width which may subsequently be ground to produce a knife edge. The characterizing feature of the die stock of the present invention, to wit; the concave bevel hereinbefore referred to, may obviously be employed both in die stock intended for the manufacture of

single edge dies and in die stock intended for the manufacture of double edge dies. In the latter instance the strip of die stock will be provided with two such concave beveled parts extending from a central body portion of the stock toward two edge parts.

Referring now to Figure 1 for an illustrative embodiment of the invention, a strip of die stock adapted for the formation of single edge dies is shown. The die stock 1 is formed so as to provide a heavy body section 2. From the body section 2 toward an edge part 3 the stock is formed with a concave bevel 4, it being understood that the concavity extends to and intersects edge part 3. On the opposite face of stock 1 from the concave bevel 4, the die stock may be formed with a bevel 5 if desired, it being understood, however, that the stock may be formed without bevel 5, in which case it is desirable that the concave bevel 4 intersect edge part 3 in a line nearer the plane of back surface 6 of the die stock than as shown in the drawing. It will be understood, of course, that the die stock may be formed by any suitable process of manufacture as, for example, by cold rolling so as to secure relatively uniform dimensions throughout the length of the strip of stock. In the case of die stock having a height of about $\frac{3}{4}$ " the concave bevel 4 and the opposite bevel 5 may be formed so as to intersect and form an edge part 3, having a width of about $\frac{1}{2}$ " of an inch or less.

From a strip of die stock, such as 1, dies of any suitable configuration may be formed by bending a strip of the stock to the desired shape and with the concave bevel 4 on the exterior as shown in Fig. 2. Thereupon the ends may be welded together in accordance with the usual practice. Thereafter the cutting edge may be formed upon the die by grinding edge surface 3 to a knife edge. This grinding operation may be performed from one or both surfaces of the die as desired. In the embodiment shown the principal grinding is performed from the exterior so as to produce a bevel 7 as shown in Figure 3, and thereafter the interior may be merely dressed so as to form a slight bevel 8. The bevels 7 and 8 intersect to form a knife edge 9.

When such a die is provided with the concave bevel 4 it is possible to secure the knife edge 9 with a relatively short, that is, to say steep bevel 7 which is desirable from the standpoint of producing a die which will hold an edge.

The arrangement of the concave bevel 4 permits the grinding of the die with a relatively short bevel 7 regardless of the curvature of the

stock in the finished die. Consequently a uniformly ground edge is obtainable in a die formed of stock provided with the concave bevel 4 in accordance with the present invention.

5 Similarly a strip of die stock 11, as shown in Figure 4, may be provided with opposite edge parts 13 and 23 which parallel each other as shown in Figure 4. As in the case of the previous embodiment, the strip of stock 11 is provided with
10 concave bevels 14 and 24 extending from the central body portion 12 to the opposite edge parts 13 and 23.

In the manufacture of dies from die stock, such as 11, in order to produce double edge dies, the
15 manufacturing procedure hereinbefore described in connection with the die shown in Figure 2 is followed, the operations being duplicated, however, for the oppositely directed cutting edges.

From the foregoing description it should be
20 apparent that the novel configuration of the die stock as described herein facilitates the grinding of the die, so as to produce not only a uniform edge throughout, but to produce an edge ground in such manner that regardless of the curvature
25 of the die, a short steep bevel is provided so that longevity of the edge is obtained.

While in the foregoing description two illustrative embodiments of the die stock have been described, and a typical die formed therefrom
30 shown in the drawing, it is to be distinctly understood that the invention is not limited to the specific details of construction hereinbefore referred to or shown in the accompanying drawing for the purpose of illustration. On the contrary, it is to be understood that the die stock
35 characterized by the concave bevel formed in the process of rolling the die stock is adaptable for the manufacture of dies of any desired shape and size. Such modifications and adaptations of the features of this invention as present themselves
40 to those skilled in the art, without departing from

the spirit of this invention, are, although not specifically described herein, contemplated by and within the scope of the appended claims.

Having thus described the invention, what is claimed is:

1. Cutting die stock in the form of a rolled
5 strip having an edge part arranged to be sharpened, said strip having a concave surface extending lengthwise thereof and intersecting said edge part throughout its length at a plane disposed
10 interiorly of the strip.

2. Cutting die stock in the form of a rolled strip having opposite edges arranged to be sharpened, said strip having two concave surfaces extending lengthwise thereof, said concave surfaces
15 respectively intersecting said edge parts throughout their length.

3. Cutting die stock in the form of a rolled strip having an edge part arranged to be sharpened, said strip having a concave surface extending lengthwise thereof and intersecting said edge
20 part throughout its length, and a plane beveled surface opposite said concave surface and intersecting said edge part throughout its length.

4. A cutting die comprising, a continuous band
25 of die stock having a body portion and a cutting edge, the stock having a concavely beveled surface on the exterior of the die, said concavely beveled surface extending to and intersecting the edge at a plane disposed interiorly of the body
30 portion.

5. A cutting die comprising, a continuous band of die stock having a body portion and a cutting edge, the stock having a concavely beveled surface on the exterior of the die, said concavely beveled
35 surface extending to and intersecting the edge at a plane disposed interiorly of the body portion, said stock being slightly beveled on the inside of the die.

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