Feb. 22, 1927. 1,618,791

W. P. WITHEROW

KNIFE BLANK AND METHOD OF MAKING THE SAME

Filed April 7, 1922 2 Sheets-Sheet 1

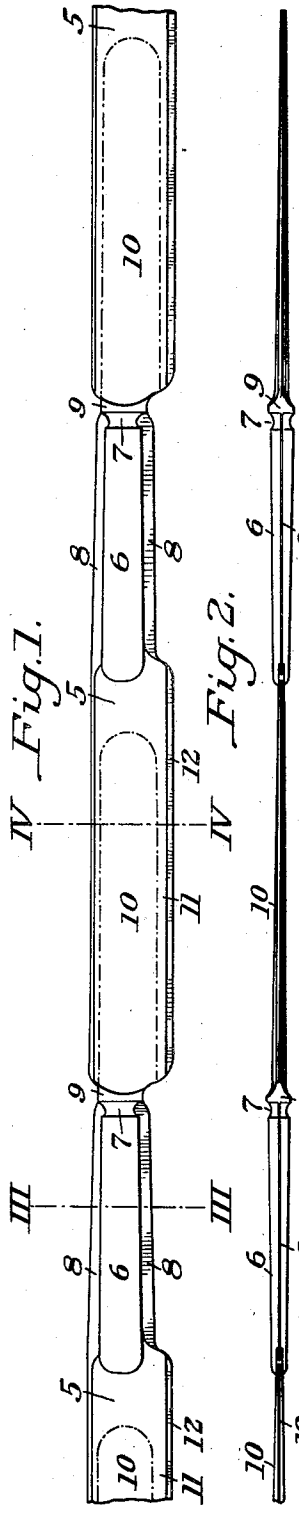


Fig. 1.

Fig. 2.



Fig. 3.

Fig. 4.

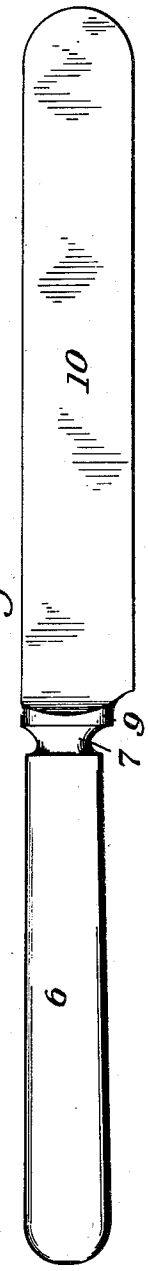


Fig. 5.

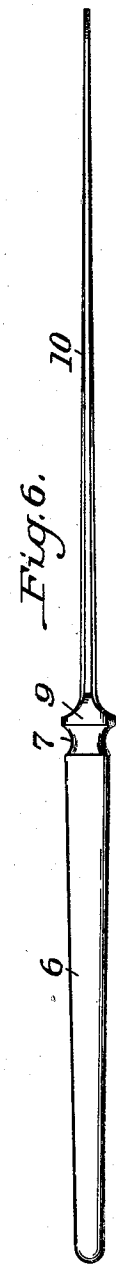


Fig. 6.

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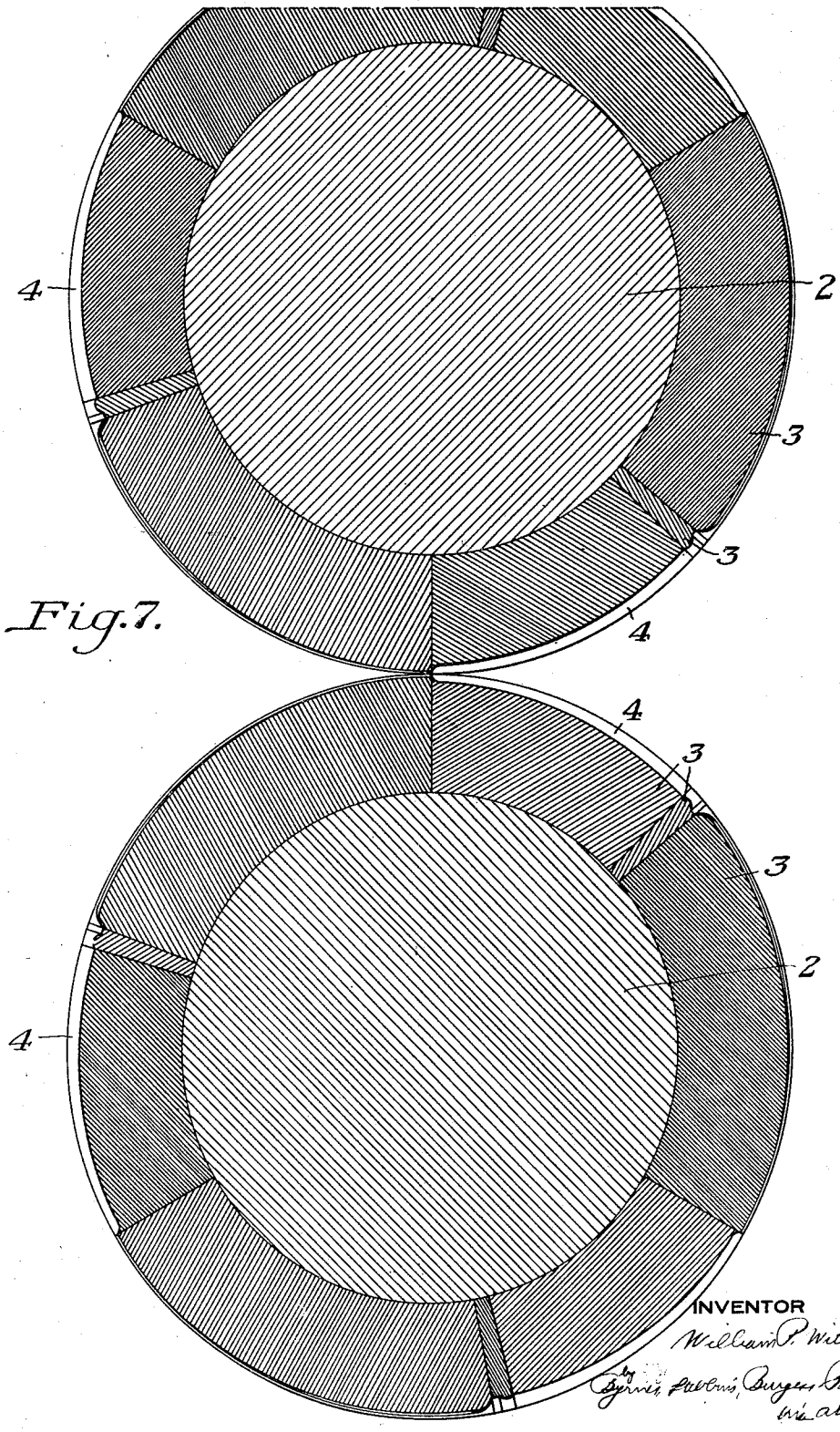


Fig. 7.

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UNITED STATES PATENT OFFICE.

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KNIFE BLANK AND METHOD OF MAKING THE SAME.

Application filed April 7, 1922. Serial No. 550,521.

The present invention relates to knife blanks and to a method for making the same whereby uniformity of product, together with increased production, is made possible.

This application relates specifically to knife blanks. It is a part of my broad invention described and claimed in my Patent 1,572,343 of Feb. 4, 1926, which patent eventuated on patent application Serial No. 527,202, filed Jan. 5, 1922.

In the accompanying drawings there is illustrated one form of knife blank produced in accordance with the present invention, and a form of die rolls by means of which this blank may be produced. It will be understood, however, that the drawings are illustrative only and that changes may be made in the construction and operation of the various parts illustrated without departing from the spirit of the invention or scope of my broader claims.

In the drawings,

Figure 1 is a side elevation of a series of knife blanks as they come from the die rolls;

Figure 2 is an edge view of the series of blanks illustrated in Figure 1;

Figure 3 is a sectional view on the line III—III of Figure 1;

Figure 4 is a sectional view on the line IV—IV of Figure 1;

Figure 5 is a side elevation of a finished knife produced from the blank illustrated;

Figure 6 is an edge view of the knife illustrated in Figure 5, and

Figure 7 is a sectional view through a portion of one form of rolls by means of which the illustrated blank may be produced.

It has heretofore been proposed, as pointed out in the application referred to, to produce cutlery blanks by die rolling. Due however, to the difficulties encountered, this method has heretofore never met with any commercial success, and cutlery blanks, such as knife blanks, are usually produced by forging. With the foregoing process, the production is limited, and absolute uniformity of product is extremely difficult. By the present invention I eliminate the forging entirely, and die roll a connected series of knife blanks having the desired dimensions. These series of blanks may then be easily cut as required to form individual blanks, which may then be trimmed to final shape. It will be understood that blanks produced in accordance with the present invention are particularly adapted to be used as bases upon which any desired coating may be later applied.

Referring more particularly to Figure 7 of the drawings, there are illustrated two coacting die rolls, each comprising a mandrel 2 carrying a series of shaping segments 3 having formed therein depressions 4 adapted to impart the desired shape to the blanks. Preferably the rolls are designed in such manner that each roll presents recurrent patterns whereby a plurality of knife blanks is produced for each revolution of the rolls. It will be understood, however, that the specific construction of the rolls and the arrangement of the segments may be varied as desired.

In carrying out the present invention, a suitable bar or billet is first heated to any desired temperature and is then fed between the die rolls. These rolls are adapted to produce a series of connected blanks as illustrated generally in Figures 1 and 2 of the drawings. The adjacent blanks are connected by an intermediate gating 5 providing for the easy separation of the blanks into individual units.

Each blank preferably comprises a handle portion 6 which is rolled to finished dimensions and which gradually tapers in thickness from the gating 5 to the depression 7. The surplus metal provided in the billet or leader from which the blank is rolled forms a flash 8 at opposite sides of the handle. In knives of this type, the maximum cross-sectional area is preferably represented by an enlargement 9 intermediate the depression 7 and the blade 10. I have found that by providing a billet or leader having a cross-sectional area which is at least equal to, and preferably exactly equal to the cross-sectional area of the finished blank at this point, very desirable results may be obtained. Due to this proportion of the leader to the finished blank, no reduction is required in forming this portion of the blank and the enlargement affords a good bite for the rolls whereby slipping of the rolls at the commencement of the blade shaping operation is prevented. Each of the blades 10 is formed with a double taper, the thickness of

the blade gradually decreasing from the enlargement 9 to the gate 5 and also gradually decreasing from the back to the front edge of the blade. By a series of experiments I have found that it is desirable to provide the segments 3 with depressions of such dimensions that they will form a relatively thin portion 11 slightly wider than the width of a finished blade. This insures the provision of sufficient metal in the blanks to permit the subsequent formation of a finished blade of the desired outline. The finished blade is produced by cutting along the chain lines indicated in Figures 1 and 4.

The provision of the portion 11 having dimensions in excess of the finished blade is also advantageous from another standpoint. Due to the reduction required in shaping the blade, there is apt to be a considerable roll spring. Where there is such a springing of the rolls, it will be apparent that it is not possible to produce an accurately rolled shape. I minimize this tendency by making the depressions which form the blade of sufficient width to accommodate a considerable portion of the surplus metal. In addition, they may be formed with a flash gutter, as set forth in my co-pending application to receive the flash 8 and the flash 12 projecting from the edges of the portion 11. However, where the dimensioning of the depressions in the rolls is of the character set forth herein, such a flash gutter need not necessarily be provided.

After a series of blanks as shown in Figures 1 and 2 is produced, the blanks may be separated into individual units in any desired manner. By reason of the fact that the handle portions 6 are initially rolled to the desired shape, or to finished dimensions, as set forth, such handle portions may be utilized for centering the blanks during the finishing operation. For this purpose, I have found trimming dies to be highly satisfactory. The individual blanks may be inserted in the dies with the handle portions in such position that they will be gripped and centered by the dies. This will automatically center the complete blank whereby continued movement of the dies will be effective for forming the finished knife base as illustrated in Figures 5 and 6.

The advantages of the present invention arise from the method herein set forth of expeditiously producing knife blanks on a quantity basis having uniform characteristics permitting the finished bases to be easily formed therefrom.

I claim:

1. In the method of forming knife blanks, the steps consisting of heating a leader, die-rolling the same to produce a series of knife blanks having a handle formed to the desired shape with the blade secured thereto, and subjecting each of the blanks to the operation of a trimming die which positions the blanks by engagement with the shaped handles and cuts the blades to the desired shape, substantially as described.

2. In the method of forming knife blanks, the steps consisting of heating a leader, die-rolling the same to produce a series of knife blanks having handle portions of the desired shape, separating the blanks into units, and trimming the blanks to the desired shape by centering the blanks through engagement with the shaped handle portions, substantially as described.

3. In the method of forming knife blanks, the steps consisting of producing a leader having a cross-sectional area greater than the area of a finished handle but substantially equal to the maximum cross-sectional area of the knife to be produced therefrom, and die-rolling the leader to form a connected series of knife blanks, substantially as described.

4. In the method of forming knife blanks, the steps consisting of producing a leader having a cross-sectional area substantially equal to the maximum cross-sectional area of the knife to be produced therefrom, and die-rolling the leader to form a connected series of knife blanks having a flash formed on both sides thereof, substantially as described.

5. In the method of forming knife blanks, the steps consisting of producing a leader, die-rolling the leader to form a connected series of knife blanks, confining the metal to form a blade portion of greater width than the finished blade, separating said blanks into units, and then trimming each of the units to form a knife therefrom, substantially as described.

6. In the method of forming knife blanks, the steps consisting in die-rolling a leader having a cross-sectional area substantially equal to the maximum cross-sectional area of the finished knife to be produced therefrom to produce a connected series of knife blanks having handle portions die rolled to substantially finished width, thickness and length, separating said knife blanks, and forming knives therefrom, substantially as described.

7. In the method of forming knife blanks, the steps consisting in die-rolling a leader to produce a blank comprising a handle portion of substantially finished dimensions and a blade forming portion having a width in excess of the finished blade, and then trimming the blank to form the desired product therefrom, substantially as described.

8. As an article of manufacture, a knife blank having a handle portion of substantially finished dimensions provided with a flash on both sides thereof, and a blade forming portion having a width in excess of the

width of the blade to be formed therefrom, said blade forming portion having a flash projecting from both sides thereof, substantially as described.

9. As an article of manufacture, a knife blank comprising a handle forming portion of substantially finished dimensions and a doubly tapered blade forming portion having dimensions in excess of the dimensions of the finished blade to be produced therefrom, substantially as described.

In testimony whereof I have hereunto set my hand.

WILLIAM P. WITHEROW.