

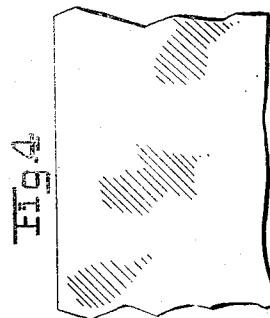
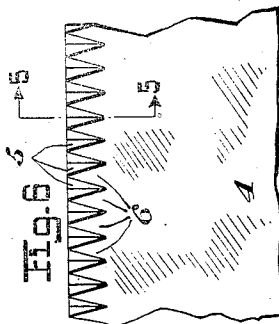
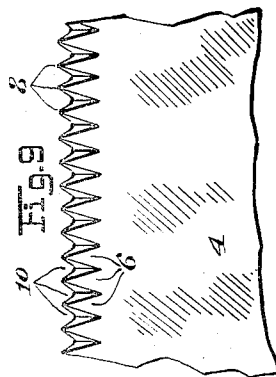
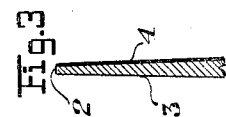
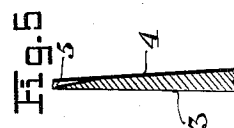
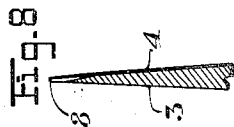
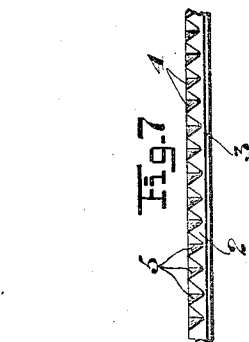
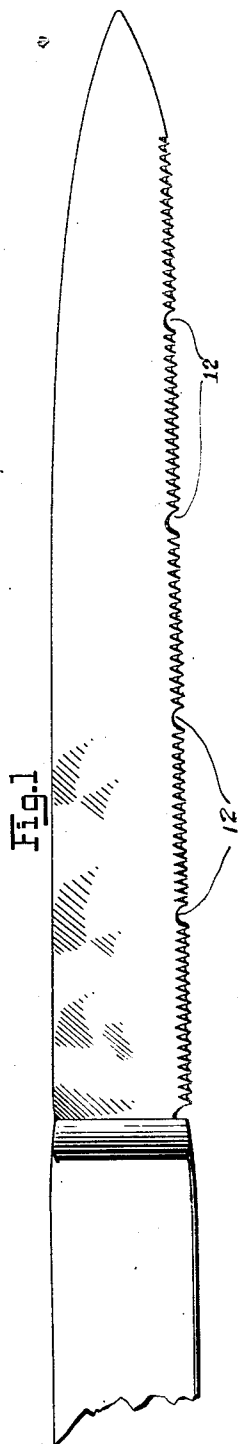
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W. G. SHELTON

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METHOD OF PRODUCING SERRATED EDGES

Filed June 3, 1931



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METHOD OF PRODUCING SERRATED EDGES

Application filed June 3, 1931. Serial No. 541,794.

This invention relates to the manufacture of cutting implements comprising serrated edges, such as various types of knives, and sections for grain cutting sickles. The edges of these implements comprise a number of comparatively fine, regularly spaced, projecting teeth, such teeth having in the past been formed by chiseling or by grinding spaced grooves in the edge of an otherwise finished blade.

The present invention contemplates an improved method of manufacture in accordance with which indentations, separated by ridges which are to form the teeth, are made upon the article forming blank and the blank is subsequently finished and the teeth formed in a flat grinding operation.

In the drawings:

Fig. 1 is a side elevation of a knife made in accordance with the present invention.

Fig. 2 is an enlarged fragmentary transverse section of a blank from which the knife blade is formed.

Fig. 3 is an enlarged fragmentary transverse section of said blank after a grinding operation upon one side thereof.

Fig. 4 is an enlarged fragmentary side elevation of the blank shown in section in Fig. 3.

Fig. 5 is an enlarged fragmentary transverse section of the blank after a series of grooves or indentations have been formed therein near one edge. The section is on a line between teeth, such as line 5—5 of Fig. 6.

Fig. 6 is an enlarged fragmentary side elevation of the blank shown in Fig. 5.

Fig. 7 is an enlarged fragmentary top plan view of the blank shown in Figs. 5 and 6.

Fig. 8 is an enlarged fragmentary transverse section of the finished blade.

Fig. 9 is an enlarged fragmentary side elevation of the finished blade shown in Fig. 8.

The blank from which the blade is to be formed, as shown in Fig. 2, is of substantially rectangular cross-section. In the first operation, one face of this blank is flat ground to substantially final shape. The

blank is now bounded transversely by an upper face 2 (Fig. 3) of substantial width, an unground face 3 substantially perpendicular to the upper face 2, and a ground face 4 which is inclined to the upper narrow face 2. In the next operation, a series of indentations or grooves 5 (Figs. 5, 6 and 7) are formed in the ground face 4 adjacent to and extending through the face 2, and deepening and widening towards such face. These grooves are separated by substantially triangular ridges 6, and it is to be noted that while the grooves 5 approach the edge between faces 2 and 3 this edge remains unbroken, as clearly shown in Figs. 6 and 7. While the grooves or indentations 5 may be formed in any desired manner, the preferred method comprises grinding them by the use of a grinding wheel comprising a number of ridges spaced in accordance with the desired spacing or pitch of the serrations on the edge of the finished blade.

After the grooves 5 have been formed, the face 3 of the blade is flat ground until the flat upper face of the ridges 6 are entirely removed, and there remain the pointed teeth 8 (Figs. 8 and 9), separated by spaces 10 which were the upper portions of the indentations 5, and have been cut through the blade by the flat grinding of the face 3. The blade is now ready for finishing by cleaning and polishing operations. The teeth are preferably formed in groups, separated by gaps 12 (Fig. 1).

The above-described method of forming a serrated edge by first forming indentations in one side of a blank and subsequently grinding through the opposite side of the blank into such indentations in a flat grinding operation has been found distinctly superior to the method of first grinding both sides of the blade to bring it to an edge and subsequently forming serrations by grinding or cutting teeth on such edge. This latter method inevitably results in burred and irregular teeth. In the method of the present invention the grooved grinding wheel is used upon a surface which is backed by solid metal, and a clean grinding operation leaving rigid teeth of unstrained metal results.

The application of a grooved wheel to the thin edge of a blade results not only in burrs upon the teeth but in damage to the teeth themselves due to cutting through the thin metal at closely spaced points. These disadvantages and injuries are eliminated when the indentations between the teeth are formed while the blank is still of sufficient thickness to provide a backing of solid metal, which metal is subsequently removed in a simple flat grinding operation in which there is no strain upon the teeth. Further, the present method permits deeper serrations to be made, thus increasing the efficiency and prolonging the life of the blade.

What I claim is:

1. In the manufacture of knife blades the method which comprises grinding flat one face of a blank, grinding in said flat face and adjacent one edge thereof a plurality of groups of indentations deepening and widening toward said edge and extending toward but not breaking the edge of the opposite face, and subsequently grinding said opposite face to expose said indentations, thereby forming an edge comprising groups of serrations.

2. In the manufacture of edged tools, the method of producing a serrated edge which comprises grinding one face of a blank, forming in said ground face adjacent one edge thereof a plurality of regularly spaced indentations deepening and widening toward said edge and having substantially V-shaped ridges between them, and subsequently grinding the opposite face of said blank to expose said indentations whereby said ridges form a serrated edge.

WILLIAM G. SHELTON.