

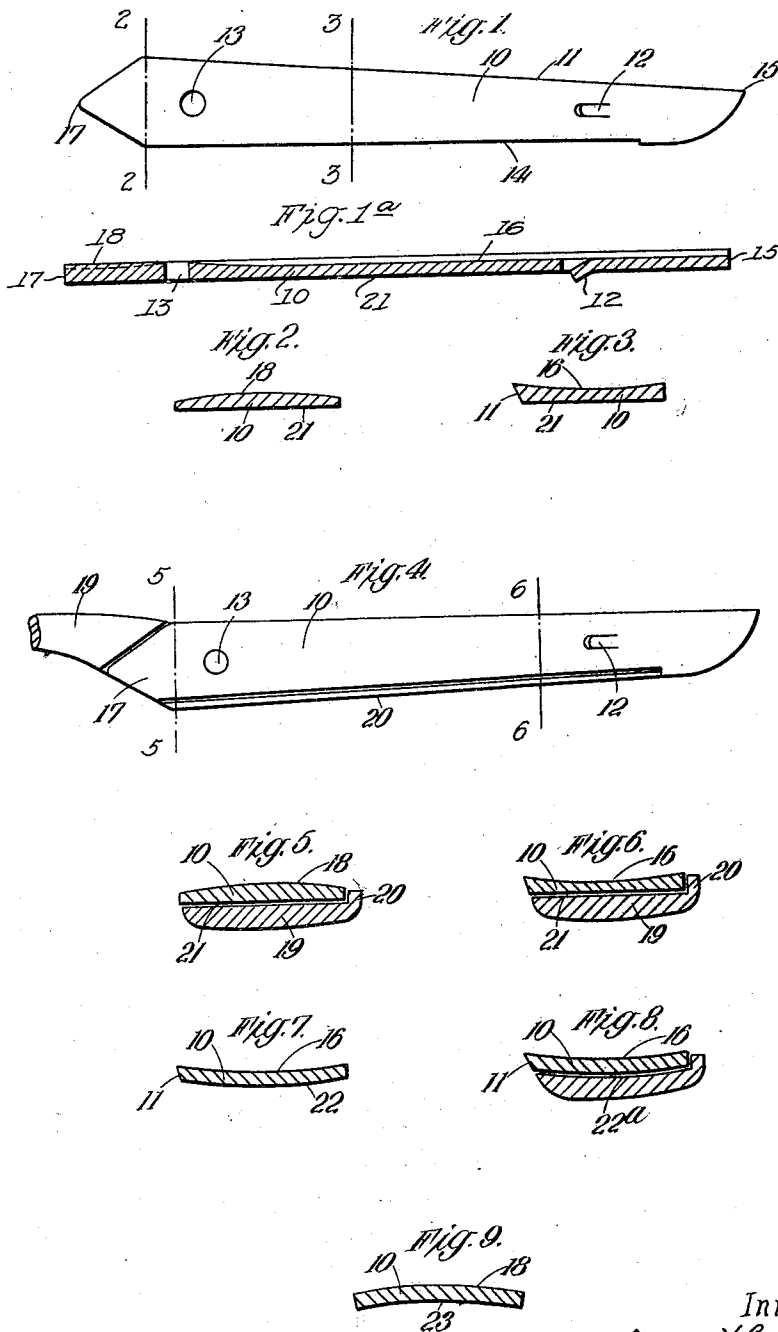
Feb. 25, 1930.

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1,748,701

SCISSORS, SHEARS, AND THE LIKE

Filed June 12, 1928



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SCISSORS, SHEARS, AND THE LIKE

Application filed June 12, 1928. Serial No. 284,771.

This invention relates to scissors, shears and the like provided with detachable cutting blades, and more particularly to such tools as are described in the specifications of my previous United States Patent No. 1,671,569.

The object of the present invention is to provide on the one hand a detachable blade so designed as to have a cutting efficiency greater than that of the detachable blades previously proposed, and on the other hand to provide a design such that the manufacture of the blade is reduced to very simple operations.

To these ends, and in accordance with the present invention, a blade which consists of a thin metal plate formed with an inclined tongue and a cut-away portion as described in my said prior patent is formed also with a substantially concave surface transversely of the blade and extending from about the pivot to the tip of the blade, whilst that portion of the blade extending from about said pivot to the heel end of the blade is formed with a substantially convex surface transversely thereof.

The concave and convex surfaces above referred to may be produced in any convenient manner as by grinding, stamping, pressing, rolling, or any other convenient manner.

The invention will be described with reference to the annexed drawings, wherein Figure 1 is a face view of a blade in accordance with the present invention. Figure 1^a is a central longitudinal section thereof, the thickness being shown to an exaggerated scale for the sake of clearness. Figures 2 and 3 are respectively enlarged sections on the lines 2—2 and 3—3, Figure 1. Figure 4 is a similar view to Figure 1, showing the blade as fitted to one carrier of a pair of detachable blade scissors. Figures 5 and 6 are respectively, enlarged sections on the lines 5—5 and 6—6, Figure 4. Figure 7 is a section of a blade portion of substantially concavo-convex form in cross section whilst Figure 8 is a similar view showing such a blade in position on a carrier, and Figure 9 is a cross section of the heel portion of a blade of substantially concavo-convex form reversely similar to that shown in Figure 7, it being understood when

the terms concavo and convex are used in this specification, that such denomination is given with respect to a plane extending normal to that of the material during the cutting operation.

The blade, shown in Figure 1, consists of a thin steel plate 10 formed with a bevelled cutting edge 11, a locating tongue 12, and a pivot hole 13, and cut-away at the back as at 14, all as described in my said prior patent.

The surface of that portion of the blade extending between the pivot hole 13 and the tip 15 of the blade is brought in any convenient manner to concave form as shown at 16 in Figures 1^a and 3, the effect of such concavity being to facilitate greatly the cutting operation by preventing contact between the whole of the adjacent surfaces of a pair of blades during the cutting operation, as in the present case the friction is reduced because contact between the blades is limited to a relatively small area adjacent to the cutting edge.

That portion of the blade extending from the pivot hole 13 to the heel portion 17 is formed with a substantially convex surface 18 as shown, particularly in Figures 1^a and 2, the convexity of such heel portion being of a height greater than the thickness of the blade between the pivot hole 13 and the tip 15, and having for effect, when the blades are brought together during the cutting operation, and provided there is sufficient play for such motion between the pivot hole 13 and the pivot itself (not shown) as will cause the convex portion 18 on one blade to ride on, or co-act with, the corresponding convex portion on the other blade, in such a manner that relative tilt of the blades will result, which will throw the cutting edge of one blade against the cutting edge of the other and disengage the trailing edges of such blades, thus assisting considerably in the cutting operation by reducing the great amount of friction which would arise were the blades flat or were they of a shape such that friction would be liable to take place throughout the width of the blade.

In Figure 4 the blade 10 is shown on one carrier 19 of a pair of scissors, such carrier being provided with a backing 20 adapted to

engage the blade where it is cut-away as at 14 and with a slot (not shown) for the engagement of the tongue 12 on the blade, both of such features being fully described in my said prior patent.

It is to be understood that the shape of the heel portion 17, which is shown as convergent, may be varied, as such shape depends to a large extent on the configuration of the carrier 19 at such point, but whatever be the particular shape adopted, it is essential—for the purpose above described—that the surface of this portion should be convex, Figure 5 illustrating the relative positioning of the blade 10, carrier 19, and backing wall 20, on the line 5—5, Figure 4, whilst Figure 6 shows the relative positioning of the parts on the line 6—6, Figure 4.

In Figures 1 to 6 the blade is shown as consisting of a strip of steel formed with a flat under-surface 21, adapted to lie against a similar flat surface on the corresponding carrier.

The concave and convex surfaces may be formed on such strip in any convenient manner, for instance, by grinding away the material until the desired curvature has been obtained.

To reduce the amount of grinding necessary, the strip may be stamped, pressed, or rolled, until it is of a cross sectional configuration corresponding approximately with those shown in Figures 1 and 2, after which a very slight grinding operation only is necessary to bring the surfaces to the desired degree of finish to give the best cutting edge, it being understood that the actual chamfer on the cutting edge 11 would be produced in the ordinary manner.

Figures 7 and 8 illustrate a modified form of blade in which the flat under-surface 21 described with reference to Figure 3, (i. e. of the portion of the blade between the pivot hole 13 and the tip 15) is replaced by a convex curved surface 22, in which case the strip from which blades are to be made may be brought to such form by any one of the processes mentioned, and the flat surface on the carrier would be brought to a corresponding curvature as shown at 22A, Figure 8, during the manufacturing operation of the carrier, whilst the corresponding surface of that portion of the same blade extending from the pivot hole 13 to the tip of the heel 17, would be brought to concavo form, as shown at 23 in Figure 9.

I claim:—

1. A detachable blade for scissors, shears and the like, consisting of a thin metal blade formed at its opposite ends with a tip and with a heel and near said heel with a pivot hole, and provided with a cutting edge extending substantially from the pivot hole to the tip along one edge of and coincident with the upper surface of the blade, said

upper surface of the blade being concave substantially from said pivot hole to the tip and convex substantially from the pivot hole to the heel, for the purpose described.

2. A detachable blade for scissors, shears and the like, consisting of a thin metal blade formed at its opposite ends with a tip and with a heel and near said heel with a pivot hole, the cross-sectional configuration of said blade varying progressively in area and shape from the tip to the heel, one side of all such cross-sections from the tip to about the pivot hole being concave and the corresponding side of all such cross-sections from the heel to about the pivot hole being convex, the blade presenting at that part thereof, which will be contiguous with the corresponding part of another blade when the complete scissors are assembled, a substantially concave surface merging into a substantially convex surface, the point of mergence being substantially at said pivot hole, substantially as described.

3. A detachable blade for scissors, shears and the like, as claimed in claim 1, wherein the concave and convex surfaces are formed on a strip formed with convex and concave undersurfaces corresponding respectively with the concave and convex upper surfaces, substantially as described.

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