

PATENT SPECIFICATION



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COMPLETE SPECIFICATION.

Improvements in and relating to Scissors, Shears, and the like.

I, JAMES HENRY CARTNER BOYD, of "St. Margarets", Bath Road, Salt Hill, Slough, in the County of Buckingham, England, Engineer, of British nationality, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in and relating to scissors, shears and the like, and has for its main object to provide improved cutting tools of this kind in which the blade portion of same is formed as a readily separable part from the blade carrier or blank, thus permitting each blade to be replaced very expeditiously and thus avoiding the necessity of grinding away the blunted edge, which operation has for effect to render the tool useless after a number of sharpening operations as is the case when the cutting edge is formed, as is the more usual practice on the carrier or blank.

Numerous attempts have been made to provide scissors, shears and similar cutting tools with detachable cutting edges or blades, and the present invention is designed on the one hand to provide a construction obviating the disadvantages of the previously proposed designs and on the other hand to provide a construction enabling the manufacture to be carried out in such a manner that absolute interchangeability of parts is obtained.

In certain of the constructions hitherto proposed, each of the blade carriers has been provided with a backing strip undercut for the reception of the blade which is slipped beneath said undercut portion and is held in position by means of a tapering pin or tapering pins adapted to engage in a correspondingly tapered obliquely arranged slot or perforation on the blade, or where the backing strip is dispensed with each blade is provided with a plurality of obliquely arranged slots, so shaped as to conform with the heads on the pins secured to the carriers.

These forms of construction I find are difficult and expensive to manufacture owing to the necessity for undercutting the backing strip and the shaping of the

blade to fit thereunder, and also owing to the working and fitting of the taper pin or pins and the slots in which they engage.

In certain other proposed constructions the thin steel blades are formed with a projecting tongue inclined transversely to the blade and adapted to engage beneath a correspondingly inclined recess or recesses in the blade carrier, and with or without apertures adapted to engage over pins secured to the carrier. I have found that the recesses in the carriers are very difficult and costly to manufacture and the transversely inclined tongue or tongues on the blade are very liable to fracture and break off in use, owing to their being necessarily made of hardened and relatively brittle steel, and owing to the constant strain put upon them not only during the cutting operations, but also by reason of the fact that each blade is held in position by being strained into such position when inserted in the corresponding carrier.

According to the present invention I am able to construct cutting tools which are not only easy to manufacture but also more efficient in use than any of those hitherto proposed.

According to the present invention, each blade is provided with a single longitudinally inclined tongue near the point said tongue being drawn down into a corresponding slot in the carrier, and held in position by the pivot pin which passes through a hole in the blade which registers with a hole in the carrier when the blade is in operative position. On the side of the carrier away from the cutting edge a rib or backing is provided which protrudes above the surface of the carrier and against which the back of the blade rests when in position. This rib or backing is of a height equal to or slightly less than the thickness of the blade and serves to take the strain on the blade during cutting operations so that the tongue does not have to bear this strain. In this manner I ensure that the blade is held in perfectly firm and rigid connection with the carrier, its position being determined in one direction by the

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inclined longitudinal tongue and corresponding slot and by the aperture through which the pivot pin passes, and in the other direction by the rib or backing on the carrier.

The longitudinal tongue on the blade is inclined slightly outwardly from the plane of the blade and whilst the corresponding slot in the carrier is formed with a correspondingly inclined surface the angle of inclination of such surface being approximately the same as the angle of inclination of the tongue to the blade. The width of the slot at right angles to the plane of the blade is preferably slightly greater than the width of the tongue. The slot and tongue are preferably so arranged and proportioned that when the blade is placed on the carrier and the tongue is in position in the slot the aperture in the blade through which the pivot pin is to pass registers with the corresponding apertures in the carrier.

When the pivot pin is inserted the blade is held securely in position and the tongue is retained in its corresponding slot.

The following features may also be applied to the scissors constructed in accordance with my invention;

(a) The provision on the shoulder of the pivot screw of a slightly chamfered entry edge, the effect of which is to draw the parts into operative position when these are being assembled together.

(b) The special design and relative positioning of the backing strip and recess on the carrier in which the backing strip extends beyond that portion of the blank in which the recess has been formed, the effect of such backing strip being to support the blade at the point where the strength of same has been reduced by the stamping out of the tongue on the blade.

The invention will now be described by way of example only, with reference to the accompanying drawings, wherein Figure 1 is an elevation of a pair of scissors shewn in the open condition, whilst Figure 2 and Figure 3 (both of which are drawn to a scale larger than that of Figure 1) are respectively a cross section on line A—A, and a longitudinal section on line B—B both of Figure 1. Figure 4 and Figure 5 are respectively an end view and a side view of a cutting blade whilst Figure 6 (which is drawn to a still larger scale than that of Figures 2 and 3) illustrates in section the construction of a detachable combined assembly screw and pivot pin which may be used to secure the parts together.

Referring particularly to Figures 1 and

2 and 3, a pair of scissors comprises two blanks or blade carriers 12 and 13 respectively, secured together by a detachable pivot pin 14. 15 is a detachable blade on the blank 12 which is provided with a tongue 16 integral therewith, directed towards the pivot of the scissors and produced by pressing out same from the blade. 17 is an aperture formed in the blank 12 in any convenient manner as shewn particularly in Figure 3, such aperture including an inclined surface 18 directed towards the pivot of the scissors, the tongue 16 and the inclined surface 18 are so arranged and relatively positioned that when the tongue engages on the inclined surface 18 mutual engagement will result when the blade as a whole is slidden longitudinally of the blank in a direction towards the pivot pin 14, thus preventing disengagement of the parts when same are brought to their operative position. The parts are held in such operative position by the pivot pin 14 which is provided with a shoulder to engage in an aperture 19 in the blade 15. The axial distance between the centre of the aperture 17 and the centre of the aperture 19 is such that the blade cannot become disengaged so long as the shoulder on the pivot pin 14 engages in the aperture 19. 20 is a fin or rib shewn on the drawing as formed on the blank 12 and extending along that edge of same opposite to the cutting edge of the detachable blade and adapted to rest against the back edge 20a of the blade 15 (see Figure 5). It is to be understood that the carrier 13 is also provided with a similar blade 15a and rib or fin 20a which, however, cannot be seen on the drawing as it lies on the underside of the blank 13. The rib or fin which serves as a backing for the blade may extend throughout the length of each blank, but in the construction illustrated it extends from a point adjacent to the detachable pivot pin 14 and terminates at a short distance from the free end of the carrier, such point being substantially equidistant between the tongue on the blade and the free end of the carrier.

In the construction shewn in Figure 6 the pivot pin 21 is formed with a shoulder 22 provided with a slightly chamfered entry edge 23 and with two small projections or castellations 24, 24, which permit the screw to be readily tightened up by placing a coin, knife blade or similar thin article between the projections and then rotating same until the desired tightness is obtained.

If desired, a blank may be thickened up as in 25 to provide an additional thickness of metal for the screw threads

on the pivot pin 21, thus reducing the wear likely to take place at this point by reason of repeated dismantling of the scissors. To prevent the loosening of the
 5 pivot pin 21 relatively to the blade carrier 13, use is made of a spring lock washer 26 located in a recess 27, and engaging the underside of the shoulder 22 on the pivot pin 21.

10 A considerable advantage of the scissors made as above described is that the blades or cutting edges proper can be made of a very much higher grade of steel, tempered and finished to a very high
 15 degree of excellence, than is otherwise possible when the blade and the blade carrier or blanks are integral, as in scissors or shears as at present manufactured, with the result that an improved
 20 cutting edge is obtained and maintained.

If desired, the blades may be cut away in a similar manner to the form given to single piece scissors designed for button-
 25 holing or the blades may be shaped to any desired form, resulting in a severed edge of cut fabric, different from the usual straight cut obtained with ordinary scissors, the particular advantage of this being that a single pair of blade carriers
 30 may be used in combination or in conjunction with cutting edges specially shaped for various purposes.

Having now particularly described and ascertained the nature of my said
 35 invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Scissors, shears and the like, of the kind hereinbefore referred to having cutting blades each of which is provided
 40 with a single small longitudinally inclined tongue formed integral therewith and adapted to engage a corresponding slot in the carrier so shaped as to correspond substantially with the inclination
 45 of the tongue on the corresponding blade and with a projecting rib or backing on the carrier against which the blade bears and having a pivot pin with a shoulder adapted to engage corresponding
 50 apertures in the cutting blades and carriers, substantially as described.

2. Scissors, shears and the like as claimed in Claim 1 and wherein the shoulder on the pivot pin is formed with
 55 a slightly chamfered entry edge, substantially as described and for the purpose set forth.

3. Scissors, shears and the like as claimed in Claim 1 or in Claim 2 and
 60 wherein the backing rib for the blade extends from a point adjacent to the pivot pin and terminates at a point intermediate between the tongue on the blade and the free end of the corresponding carrier,
 65 substantially as described.

4. Scissors, shears and the like, constructed, arranged and adapted for use
 70 substantially as herein described with reference to the accompanying drawings.

Dated this 9th day of November, 1926.

JAMES HENRY CARTNER BOYD.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1

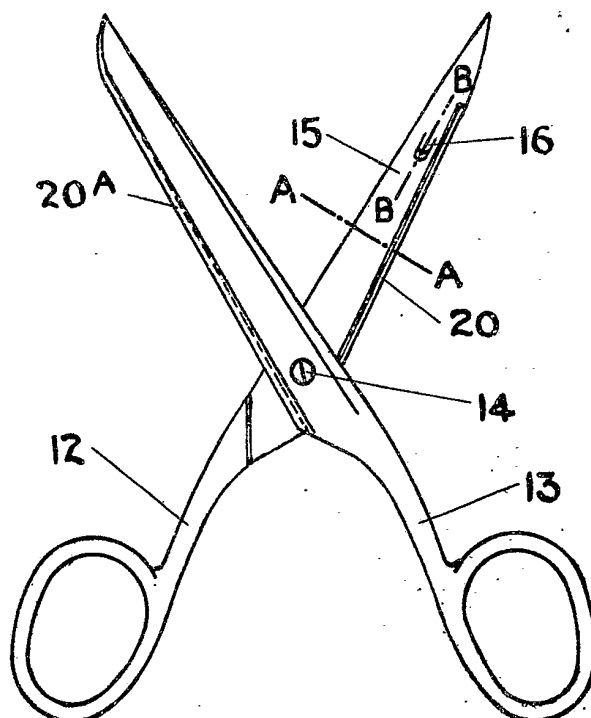


Fig. 2.

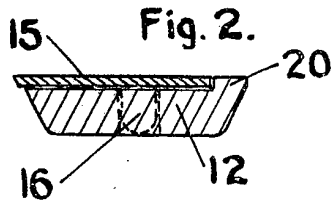


Fig. 3.

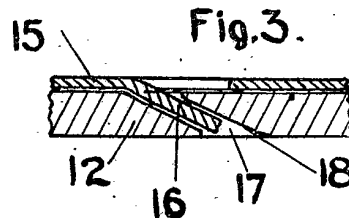


Fig. 4.

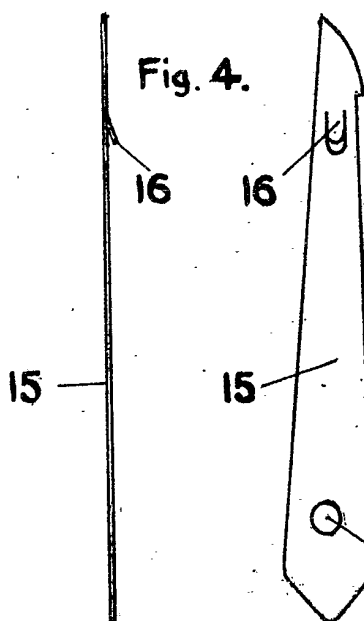


Fig. 5.

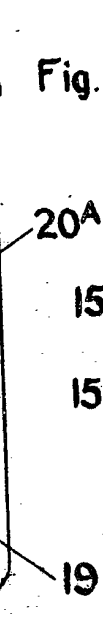


Fig. 6.

