July 14, 1931. M. PARKER 1,814,959

SCISSORS

Filed March 7, 1927 2 Sheets-Sheet 1

Fig. 1,

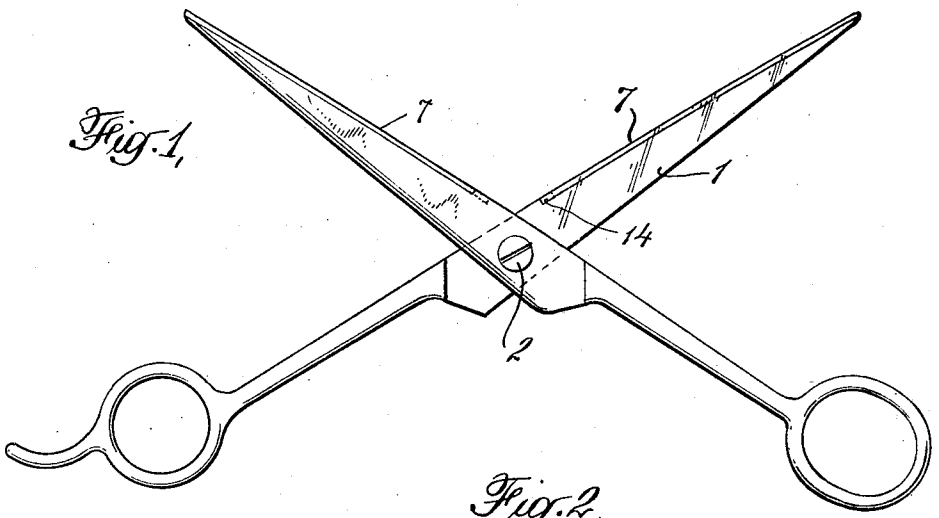


Fig. 2,

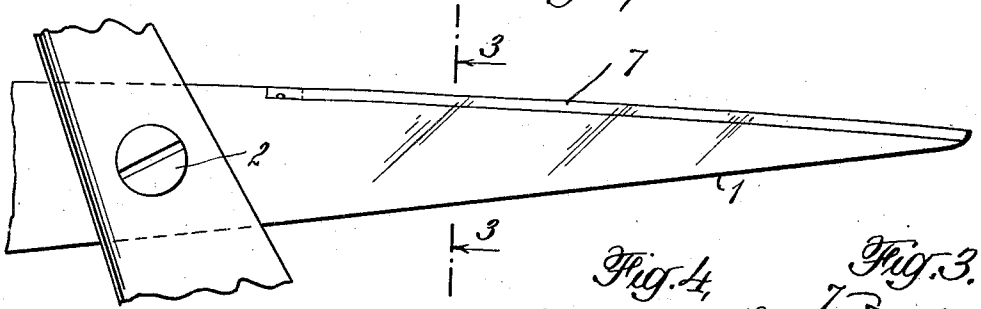


Fig. 4,

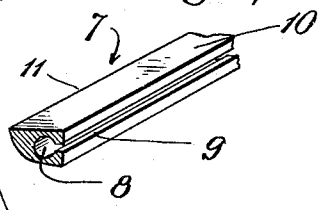


Fig. 3.

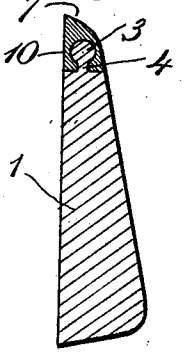


Fig. 5,

Fig. 6,

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Morgan Parker
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his ATTORNEYS

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SCISSORS

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Fig. 7,

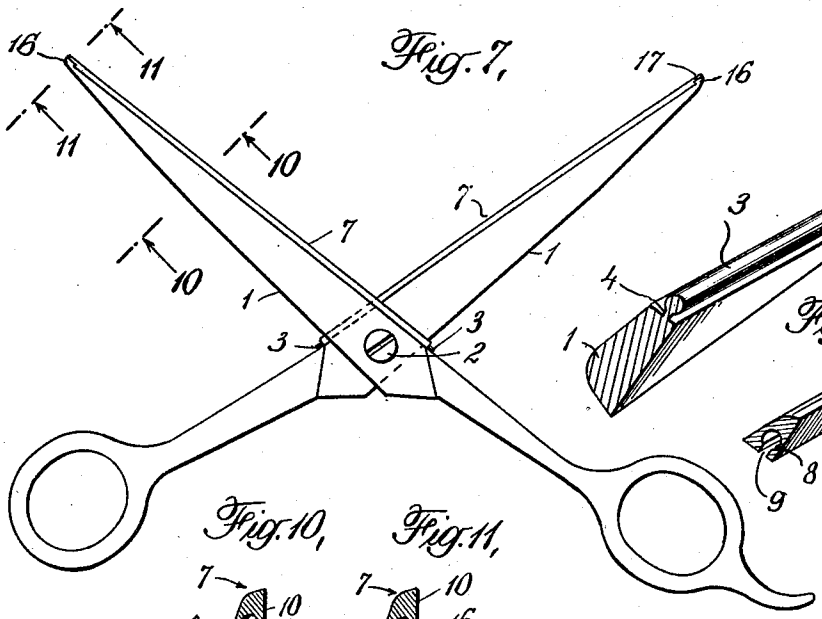


Fig. 8,

Fig. 9,

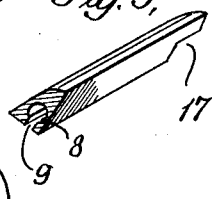


Fig. 10,

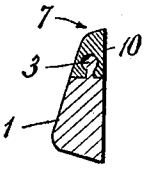


Fig. 11,

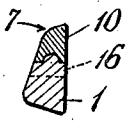


Fig. 20.



Fig. 12,

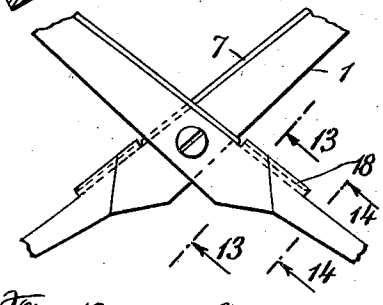


Fig. 17

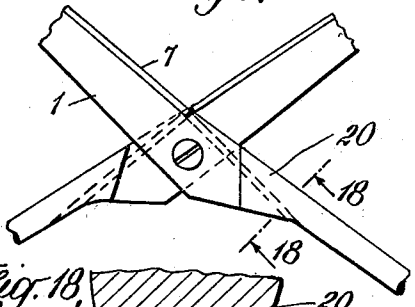


Fig. 18,

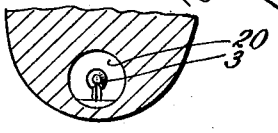


Fig. 13,

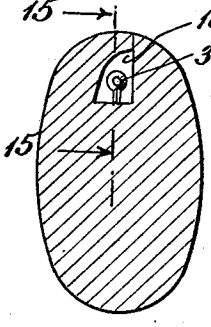


Fig. 14

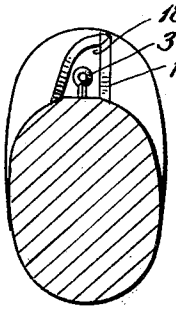


Fig. 15,

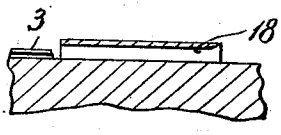


Fig. 19,

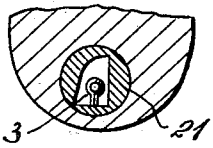
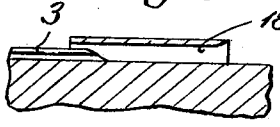


Fig. 16



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Patented July 14, 1931 1,814,959

UNITED STATES PATENT OFFICE

MORGAN PARKER, OF NEW YORK, N. Y.

SCISSORS

Application filed March 7, 1927. Serial No. 173,528.

This invention relates to scissors having replaceable blades or cutting edges. Scissors and shears which are in constant use must be continually resharpened. This is not only expensive and time-consuming, especially if the blades are ground to a properly serrated cutting edge, as for barbers' shears, but after a time the grinding wears the blades to such a condition that the scissors must be discarded. In some instances too it may be difficult to secure the services of a skillful grinder, so that the scissors must either be poorly ground or be used when too dull for efficient cutting. Furthermore, the blades of the common type of scissors should be made of high grade cutlery steel throughout if they are to present and retain a keen cutting edge after each grinding. This is expensive and involves drop-forging difficulties.

It was early recognized that a two-part blade would solve some of these difficulties. A tool steel cutting blade welded or mechanically attached to a softer metal shank simplifies the drop-forging problem and makes a cheaper instrument, but the resharpening problem still persists. Such blades when mechanically secured to the shank, are comparatively heavy, are ground to shape like any scissor blade, and are too costly to be discarded rather than resharpened. The welded blade becomes, of course, an integral part of the shank, and the completed instrument therefore presents no advantages over scissors having blades of tool steel throughout. The practical utility of inventions of this class requires that the scissors shanks and blades be of such design and construction as to permit of a low initial cost of production; the cost of replacement blades to the user should be considerably lower than the expense of grinding; the blade should be readily and securely attachable to the shank and conveniently detachable therefrom, without the use of tools and by persons unskilled in mechanical matters; and this attachment should be possible without taking the shanks apart or removing the king-pin.

The cutting edges of scissors commonly define a helical or three dimensional curve, the curvature depending upon the type of scissors and the work for which they are designed. To grind this curve into each blade would involve a prohibitive expense where the blade is to be discarded after the first dulling, and I therefore make my blade straight, but so flexible as to be conformable to any curve or twist normally defined by the permanent shank on which the blade is mounted. To mount this blade in cutting position each shank is provided with a longitudinal bead or undercut rail extending along its operative edge and conforming to its curvature, and each blade is provided with a corresponding longitudinal slotted recess. The blade can therefore be slid lengthwise over the bead, and because of its universal flexibility, conforms perfectly to the curvature. This sliding movement may be either inward from the tip toward the handle, or outward from the handle toward the tip. If the former, then I have provided when necessary means for positively holding the blade against longitudinal displacement, but if the latter the provision of a stop at the tip is sufficient to prevent displacement because there is no endward thrust and no tendency for the blade to creep toward the handle.

In my copending Patent No. 1,620,225 I have described scissors having removable blades rolled into position on the shanks by a transverse rolling motion. Such scissors are satisfactory for many uses; I have discovered, however, that when using them to cut heavy material there is a tendency for the shanks to spread permitting the blades to roll or tilt out of place. In the scissors of the present invention any such lateral displacement of the blades is impossible.

The blade of the present invention, in order that it may possess the universal flexibility so important if it is to conform to the curvature of the shank, is of small transverse dimensions—thus a blade for barbers' scissors of average size is about 5/64 of an inch high and about 1/32 of an inch wide. Such a blade is indeed a specially shaped steel wire.

In the accompanying drawings I have illustrated a number of embodiments of my in-

vention, showing the manner in which the blade is mounted upon the shank.

In these drawings, Figure 1 is an elevation of a pair of scissors equipped with removable blades in accordance with this invention; Figure 2 is a similar view, on an enlarged scale, of a part of one of the shanks; Figure 3 is a transverse section on a still larger scale taken along line 3—3 of Figure 2; Figure 4 is a perspective of a section of one of the blades, on the scale of Figure 3; Figure 5 is a perspective, on a very much enlarged scale, of a portion of a shank showing the inner end of the bead and the means for locking the blade against longitudinal displacement; Figure 6 is a perspective, on the scale of Figure 5, of the inner end of a blade shaped to be mounted on the shank of Figure 5; Figure 7 is a perspective similar to Figure 1, but showing scissors on which the blades are intended to be slid onto the shanks from the inner end; Figure 8 is a perspective, on an enlarged scale of the outer or tip end of one of the shanks illustrated in Figure 7; Figure 9 is a perspective, on the scale of Figure 8, of the outer end of a blade shaped to be mounted on the shank of Figure 8; Figure 10 is a transverse section, on an enlarged scale, taken along line 10—10 of Figure 7; Figure 11 is a transverse section on a very much enlarged scale taken along line 11—11 of Figure 7; Figure 12 is a fragmentary elevation of a pair of scissors similar to those of Figure 7, but showing means for guiding the forward end of the blade over the bead; Figure 13 is a transverse section on an enlarged scale taken along line 13—13 of Figure 12; Figure 14 is a transverse section also on an enlarged scale taken along line 14—14 of Figure 12, Figure 15 is a longitudinal section taken along line 15—15 of Figure 13; Figure 16 is a view similar to Figure 15 but illustrating a modified form of construction; Figure 17 is a view similar to Figure 12, but illustrating a modified form of guide means; Figure 18 is a transverse section, on an enlarged scale, taken along line 18—18 of Figure 17; Figure 19 is a view similar to Figure 18, but illustrates a modified form of construction; and Figure 20 is an enlarged section of a modified form of blade embodying the invention.

The scissors shown in Figure 1 comprise shanks 1, pivoted together by means of the ordinary king-pin 2. The shanks are formed to the compound curve common in scissors—a convexity in the shear face between the king pin and tip, illustrated in Figures 1 and 2, and a concavity in a plane 90° to the shear face, not shown. Each of the shanks is provided on its operative edge with a longitudinal bead or undercut rail 3, extending from the tip of the shank to a point adjacent that part defined by the companion shank when the scissors are in their wide-open position. The form of this bead or rail is such as to leave an enlarged portion connected to the shank by a neck portion 4. Beyond the inner end of the bead, the inner face of the shank is formed with a depression 5 to receive an extension on the blade as will be presently explained. A bevel-faced stud 6 extends outward from the bottom of the depression 5.

The blade 7 comprises a strip of drawn steel of roughly quadrant cross sectional outline. Formed in this blade and extending longitudinally therethrough is a recess 8, communicating with a slot 9 extending along the bottom of the blade, the recess and slot being shaped to embrace the bead 3 and neck 4 so as to prevent lifting or tilting of the blade. The face 10 of the blade terminates in a cutting edge 11. At its inner end the arcuate portion of the blade is cut away for a short distance at 12, as best illustrated in Figure 6, leaving a thin plate-like extension 13 which is notched at 14 to engage the stud 6, thereby locking the blade to the shank against longitudinal displacement.

The blade is attached to the shank in the following manner: The scissors ase opened, and the tip end of the bulbous portion of the bead or rail 3 is inserted in the recess 8 of the blade element, which is so positioned with reference to the shank that the cut-away part of the blade is on the outer side of the shank. In this position, the neck 4 of the bead or rail enters the slot 9 of the blade, the sides of the slot exerting a slight spring pressure against the thereby embraced neck, thus taking up any possible slack and avoiding the necessity for accurate fitting. This spring tension may, in fact, hold the blade so firmly in place as to obviate the necessity for special locking means in some instances. The blade is then pushed along the bead or rail 3 until the extension 13 enters the depression 5 and the notch 14 snaps into engagement with the stud 6.

The blade, either of the type illustrated in Figure 4 or in Figure 20 embraces portions of the face and back of the shank and is thus held against lateral displacement either by lifting or tilting.

Formed in each of the scissors shanks adjacent stud 6 is an arcuate slot 15. When a blade has become dulled, pressure applied with the thumb-nail from the outer side of the shank through the slot 15 springs the inner end of the blade out of engagement with stud 6, thus permitting the blade to be pulled lengthwise along the bead or rail until disengaged from the shank.

In the form of scissors illustrated in Figures 1, 2, 3, 4, 5 and 6 the blade is slid onto the bead 3 from the tip inward. In Figures 7 to 19 I have shown how the blade can be slid from the inner end of the bead outward toward the tip.

In the form shown in Figure 7 the bead

3 is extended beyond the king-pin and terminates in an open end. At the tip the shank is provided with a stop 16 which extends half way up the bead, as shown most clearly in Figure 8, and the outer end of the blade is cut away along its lower side at 17 to receive this stop. The blade is mounted on the shank by slipping it outward along the bead. The stop 16 prevents movement beyond the end of the shank, but the cutaway 17 permits the cutting edge to extend to the very tip. No means are provided for holding the blade against inward displacement because the normal thrust is outward.

In Figure 12 I have illustrated the scissors of Figure 7 equipped with guideways 18 alined with the beads 3 for facilitating the mounting of the blades. These guideways are preferably made quadrantal in cross section as shown in Figure 13. The bead may extend just up to the adjacent end of the guideway, as illustrated most clearly in Figure 15, or it may enter the guideway as shown in Figure 16. In either case the outer end of the guideway is provided with a flaring bell mouth 19 for more readily receiving the blade.

In Figure 17 I have illustrated another form of guideway. Here the bead terminates on the near side of the king-pin and an alined guideway 20 continues on a gentle curve back through the body of the shank opening at the other end on the inner side of the handle. This guideway is circular in transverse section but may terminate in a bushing 21 shaped more nearly to the configuration of the blade.

The blades described above are made from the best tool steel, rolled, planished and tempered in a manner to be hereinafter described. They are very flexible and will spring at right angles to the cutting edge, or longitudinally in any direction, either laterally or edgewise, through 360°, also helically, so that they are conformable to whatever curve the shank may have. Thus, the blades can be made in straight wire form, hardened, tempered and ground to a straight cutting edge while in length, and cut off to size, without specially grinding them to the shape and twist of the shank. No particular mechanical skill is required to easily and quickly place them in position upon their shanks—nor are any tools necessary for effecting the attachment or detachment of the elements.

It will be evident from an examination of the drawings that the design and construction of the blade and shank are such as to insure very secure operative attachment therebetween. It will further be apparent that the locking connection between the elements, and the direction of the cutting thrust when the scissors are in use, are such as to minimize the likelihood of lint, hair or other material becoming lodged in the joints between the blade and the shank. The bead or rail being set back from the operative face of the shank, it can not be damaged by the blade of the opposing shank should one of the blades be inadvertently omitted.

Whereas, with scissors of the conventional type, material is progressively ground away until the scissors eventually become useless, the shank portions of the scissors made in accordance with this invention merely perform the function of supporting the blades, and will therefore last indefinitely. Moreover, as these shanks do not require to be made of hardened and tempered tool steel, the initial cost of material and labor is markedly reduced.

The method for making the blade of the present invention is illustrated, described and claimed in my Patent No. 1,814,182 issued July 14, 1931.

I claim:

1. Scissors comprising the combination of a shank having a curved operative edge, and a blade normally straight flexible transversely in any direction mounted thereon and slidable longitudinally onto and off the shank and cooperating means on said blade and shank for preventing lifting or tilting of the blade.

2. Scissors comprising the combination of a shank having a curved operative edge, an undercut bead extending along said edge and conforming to its curvature, and a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank, whereby the blade may be mounted upon and removed from the shank by a longitudinal sliding movement and held against lateral displacement.

3. Scissors comprising the combination of a shank having a curved operative edge, an undercut bead extending along said edge and conforming to its curvature, and a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank, whereby lateral displacement is prevented and means for locking the blade against longitudinal displacement.

4. Scissors comprising the combination of a shank, a blade slidable longitudinally outward toward the top of the shank, interlocking means on the shank and the blade for mounting the latter upon the former, and a guideway at the inner end of the shank for guiding the blade into position on the shank.

5. Scissors comprising the combination of a shank having a curved operative edge, a bead extending along said edge and conforming to its curvature, a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank, and a stop at the tip of the shank preventing outward longitudinal displacement of the blade, the inner end of the bead being unobstructed so that the blade can be

slid outward upon the shank and toward the tip.

6. Scissors comprising the combination of a shank having a curved operative edge, a bead extending along said edge and conforming to its curvature, a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank, a stop at the tip of the shank preventing outward longitudinal displacement of the blade, the inner end of the bead being unobstructed so that the blade can be slid outward upon the shank and toward the tip, and a guideway at the inner end of the shank and alined with the bead for guiding the blade onto the bead.

7. Scissors comprising the combination of a shank having a curved operative edge, a bead extending along said edge and conforming to its curvature, a stop at the tip of the shank along the lower part of the bead, a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead and a cut-away portion at its outer end shaped to embrace the stop, thus permitting the cutting edge to extend to the tip of the shank, the inner end of the bead being unobstructed so that the blade can be slid outward upon the shank and toward the tip.

8. Scissors comprising the combination of a shank having a curved operative edge and a detachable universally flexible blade mounted on said edge and held against lateral displacement by embracing portions of the face and back of the shank.

9. Scissors comprising the combination of a shank, an undercut bead extending along the operative edge of said shank and a blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank, whereby lateral displacement of the blade is prevented.

10. Scissors comprising the combination of a shank and a blade longitudinally mountable thereon and flexible transversely in any direction to conform thereto and cooperating means on the blade and shank for preventing lifting or tilting of the blade.

11. Scissors comprising the combination of a shank, a blade mounted thereon flexible transversely in any direction to conform thereto and slidable longitudinally onto and off the shank, and means for positively holding the blade in contact with the shank throughout substantially the entire length of the blade and preventing lateral displacement of the blade in any direction.

12. Scissors comprising the combination of a shank, and a blade flexible transversely in any direction to conform to the shank and mounted thereon by a longitudinal sliding interlock preventing lateral displacement of the blade and held positively in place by means of a spring tension.

13. Scissors comprising the combination of a shank having a curved operative edge, an undercut bead extending along said edge and conforming to its curvature and a spring steel blade flexible transversely in any direction having a longitudinal recess shaped to embrace the bead on the shank with a spring tension, whereby the blade may be mounted upon and removed from the shank by a longitudinal sliding movement, maintained positively in position on the shank and held against lateral displacement.

14. Scissors comprising the combination of a shank, a blade flexible transversely in any direction mounted on said shank, and cooperating means on said blade and shank for preventing lateral displacement of the blade in any direction.

15. Scissors comprising the combination of a shank, a blade flexible transversely in any direction mounted on said shank and cooperating means on said blade and shank for preventing lifting and tilting of the blade relative to the shank.

16. Scissors comprising the combination of a shank, a blade flexible transversely in any direction mounted on said shank, and cooperating means on said blade and shank for preventing lateral displacement of the blade, said means comprising a longitudinally extending undercut bead on one of said members and a recess on the other shaped to embrace the bead.

17. A detachable blade for scissors transversely flexible in any direction to conform to any conformation of the scissors shank and provided with means cooperating with the shank for preventing lifting or tilting of the blade.

18. A detachable blade for scissors, made of spring steel, transversely flexible in any direction to conform to any conformation of the scissors shank and provided with a longitudinal recess shaped to embrace a bead on the shank with a spring tension and hold the blade against lateral displacement.

In testimony whereof I affix my signature.

MORGAN PARKER.