H. K. BAYER & H. J. EPSTEIN.

ADJUSTABLE CUTTING TOOL.

APPLICATION FILED DEC. 14, 1917.

1,284,989. Patented Nov. 19, 1918.

Fig. 1

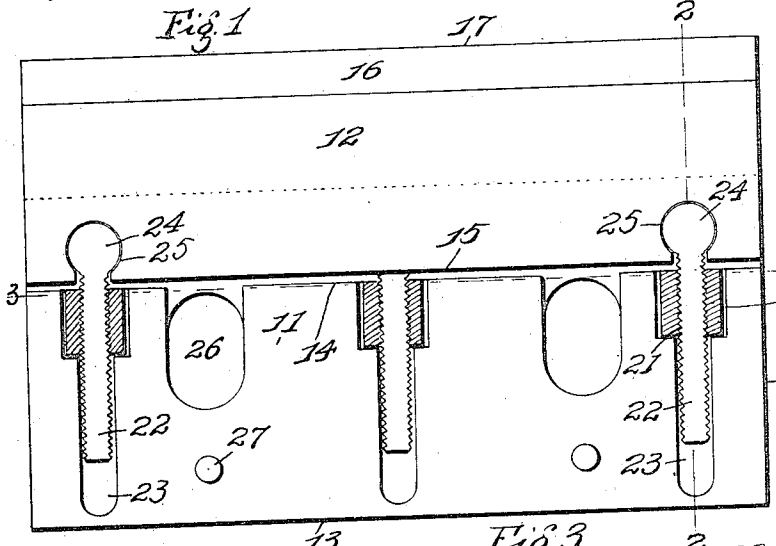


Fig. 2.

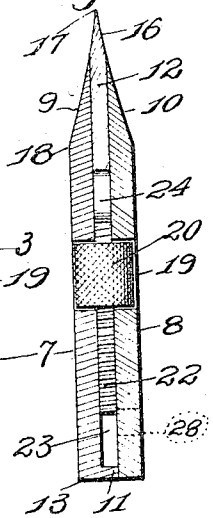


Fig. 3.

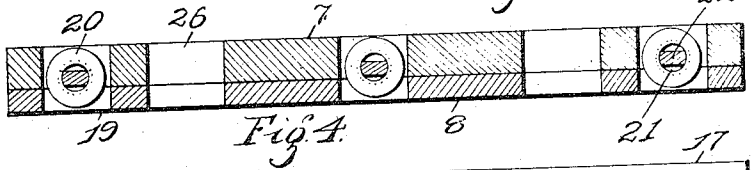
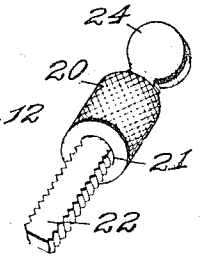


Fig. 4.

Fig. 6.



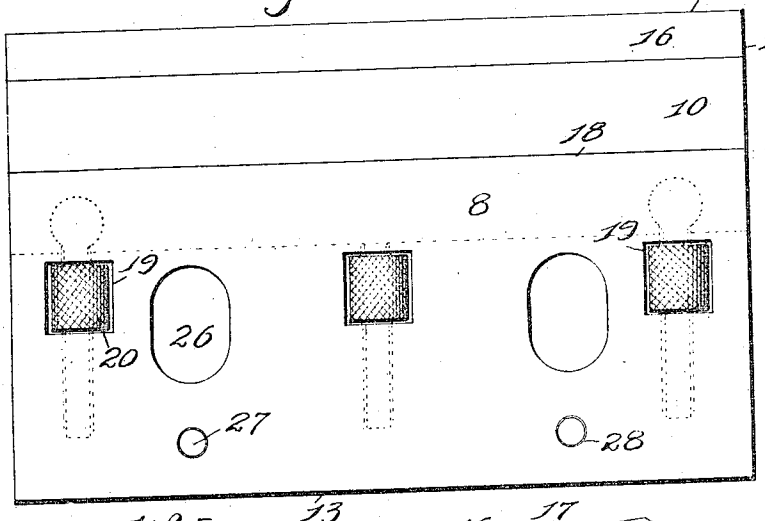
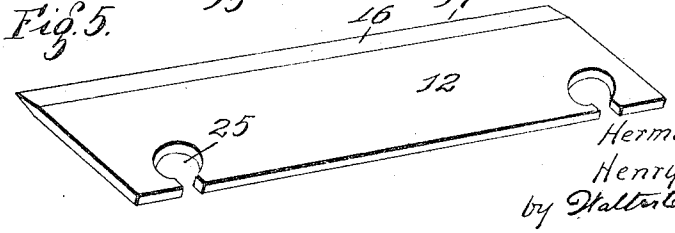


Fig. 5.



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UNITED STATES PATENT OFFICE.

HERMAN K. BAYER AND HENRY J. EPSTEIN, OF ST. LOUIS, MISSOURI.

ADJUSTABLE CUTTING-TOOL.

1,284,989. Specification of Letters Patent. Patented Nov. 19, 1918.

Application filed December 14, 1917. Serial No. 207,046.

To all whom it may concern:

Be it known that we, HERMAN K. BAYER and HENRY J. EPSTEIN, citizens of the United States, and residents of St. Louis, Missouri, have invented certain new and useful Improvements in Adjustable Cutting-Tools, of which the following is a specification.

This invention relates to cutting tools and particularly to tools which are required to have a sharp edge and which are subjected to considerable wear, necessitating repeated regrinding.

If such a tool is made of one piece, the continual regrinding which is necessary to maintain the cutting edge, constantly shortens the tool, and eventually the tool becomes too short to use, that is to say, it is too short to be held in the tool holder or clamp, and must be discarded. This results in considerable waste of material.

The general object of our invention is to produce a cutting tool which can be constantly reground but which will maintain a substantially constant exterior form and size. In accomplishing this object we also reduce the amount of waste of material to a minimum.

Further objects of the invention will appear hereinafter.

The invention consists in the general combination of parts, and in the features to be particularly described hereinafter all of which contribute to produce a simple and efficient cutting tool.

A preferred embodiment of our invention will be particularly described in the following specification while the broad scope of our invention will be pointed out in the appended claims.

In the drawing:

Figure 1 is a side elevation of the tool a portion of which is removed, other parts being shown in section.

Fig. 2 is a vertical cross-sectional view of the same taken on the line 2—2 of Fig. 1.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a side elevation of the complete tool.

Fig. 5 is a detail perspective view of the cutter blade.

Fig. 6 is a detail perspective view of one of the adjusting bolts and nuts made use of.

This tool which will now be described in detail is largely used in conjunction with shoe machinery by which leather is cut or split, and the same is usually clamped in position in the machine so as to perform its proper function. We provide a housing constructed of two members comprising a body plate 7 and a cover plate 8. The forward or free ends of the plates 7 and 8 are preferably ground down to a bevel as indicated by the numerals 9 and 10. The plate 7 is provided with a projecting portion 11 which is formed by increasing the thickness of the butt end 13 of the plate, this projection being sufficient to provide a guiding space corresponding to the thickness of the cutting blade 12. This projecting portion extends from the butt 13 to the horizontal line indicated by the numeral 14, where a shoulder is formed behind the rear edge 15 of the blade.

The blade 12 has its forward end ground to a double bevel 16 and terminating in the cutting edge 17, the bevels 16 being continuations of the bevels 9 and 10 of the plates, thereby making a free and absolutely uninterrupted bevel surface from the point or cutting edge 17 to the point 18 on the housing at the base of the bevels.

We provide suitable adjusting mechanism, for which purpose the plates 7 and 8, at suitable intervals are formed with rectangular openings 19, in which are located adjusting nuts 20, the outer surface of the nuts being knurled so that the same may be freely rotated by hand, the threaded bore 21 of each nut meshing with the screw threads of its corresponding adjusting bolt 22. These bolts as will be observed are flat, the threads being on the two edges. And these bolts are supported in elongated channels or recesses 23 formed in the body portion of the plate 7. These bolts are detachable from the cutting blade 12, for which purpose the outer end of these bolts are provided with flattened heads 24. These heads are supported in circular sockets or recesses 25, of the same

shape formed in the blade 12, and the purpose of these heads is to hold the blade in its proper adjusted position so as to properly adjust the tip and cutting edge 17, which project from the housing. The center adjusting screw is of similar construction to the adjusting bolts with the exception that it is devoid of a head and that its outer end is intended to be adjusted up tight against the base or back edge 15 of the blade, so as to coöperate with the screws 22 to properly lock the blade when once placed in its adjusted and set position.

The plates are likewise provided with elongated openings 26 through which are placed the bolts of the machine by which the entire tool is properly clamped in position, and in order to hold the cover plate 8 in its proper position to register with the body plate 7, there is provided on the plate 7 projecting pins or dowels 27 which pass through openings 28 formed in the plate 8. These dowel pins and openings act merely as a guide for properly positioning the cover plate with the rest of the housing.

One of the essential advantages of our invention is that it prevents waste of cutting tools by dispensing with the relatively great mass of material from which such a blade is ordinarily constructed, and instead of using a solid blade and grinding its cutting edge upon it, the housing of our invention takes the place of the body portion of the blade, and in this housing we insert a thin cutting blade which is constructed of much less material. When this blade becomes dull and is again resharpened the same amount of wear is then taken up by means of the adjustment, and in this manner the regular size of the entire cutting tool is never varied.

Another feature is that in the sharpening of the tool it requires much less time to sharpen the thin blade than it would to sharpen a blade of the ordinary kind which was of a thickness equaling that of the combined blade and housing; thus the re-forming of the bevel on the housing is dispensed with after the first grinding of the tool.

The tool may be of any length desired depending upon the material to be cut and the only part of the tool which becomes worn during the operation is the inserted blade and this wear is taken up by the adjustment of the adjusting screws.

In practical use our improvement effects a considerable saving. This is evident because if the tool is in a single solid piece it will eventually become too short to be secured properly at the slots or openings 26. For it is evident that, as the tool becomes reground these openings move forward relatively to the cutting edge. After a certain time the tool must be discarded. With our improvement on the other hand, the tool maintains substantially the same size and exterior appearance throughout the whole period of its use. As the cutting edge 17 is repeatedly reground, of course the blade 12 must be gradually advanced or adjusted outwardly in the housing and when the blade 12 has been adjusted outwardly as far as the adjusting screws 22 will permit, then it can be discarded with a relatively small waste of material.

Having fully described our invention what we claim is:

1. A self-contained cutting tool comprising a housing of plate form with an interior guide space, a cutting blade held within said guide space, with its tip projecting beyond said housing, and mechanism carried by the housing for adjusting the blade outwardly therein, the device, as a whole, constituting a portable blade capable of removable connection with a cutting machine.

2. A self-contained tool of the class described comprising a housing consisting of a plate portion and a detachable cover plate, a cutting blade supported between and engaged by said plates, and an adjusting mechanism supported between and lying wholly within the surfaces of the plates, for adjusting the cutting blade, the device, as a whole, constituting a portable blade capable of removable connection with a cutting machine.

3. A self-contained tool of the class described, comprising a housing consisting of two plates, the front edges of said plates being beveled, a flat cutting blade located between the plates and beveled on both sides to form substantial continuations of the bevels of the plates, which bevels of the blade terminate in a cutting edge, and adjusting screws supported in the housing and operatively connected with the blade for regulating the position of said blade in the housing, the device, as a whole, constituting a portable blade capable of removable connection with a cutting machine.

4. In a tool of the character described, the combination of a housing having side walls with openings therethrough, a plurality of adjusting screws located therein, adjusting nuts supported on the screws and adapted to be operated through said openings, and a cutting blade located in the housing and controlled by the adjusting screws.

5. An adjustable self-contained cutting tool comprising a housing of plate form consisting of a body plate and a cover plate forming a guiding space therebetween, a cutting blade engaging the said plates and movable outwardly in said guide space, the outer sides of said plates having beveled faces at the forward end of the tool, said

blade having beveled faces constituting substantial continuations of said first named beveled faces and terminating in the cutting edge, and means carried by the housing for adjusting said blade therein, the device, as a whole, constituting a portable blade capable of removable connection with a cutting machine.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses.

HERMAN K. BAYER.
HENRY J. EPSTEIN.

Witnesses:
ALFRED A. EICKS,
WALTER C. STEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."