Aug. 25, 1953 J. W. COLE ET AL 2,649,911

CUTTING BLOCK

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Fig. 1.

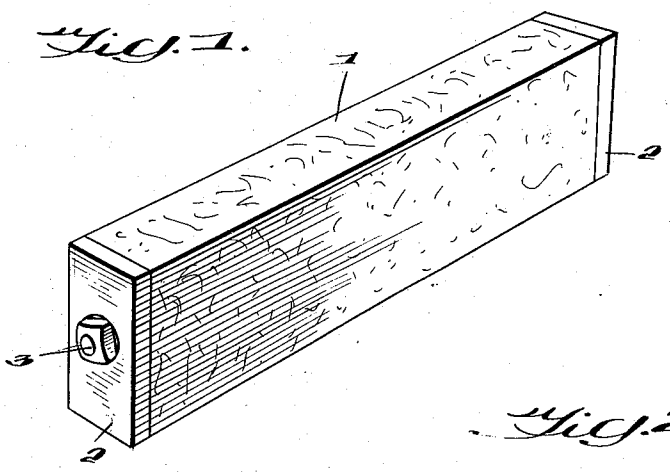


Fig. 2.

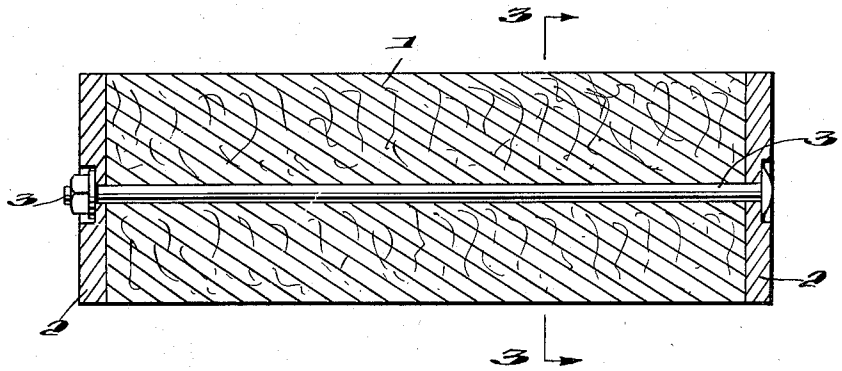
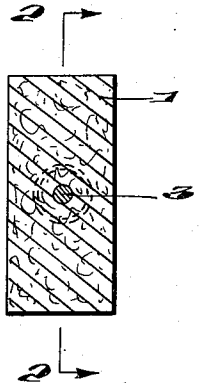


Fig. 3.



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CUTTING BLOCK

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4 Claims. (Cl. 164—58)

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This invention relates to improvements in cutting blocks, adapted for use in cutting out portions of sheet material, such as paper, rubber, cork, cloth, felt, and particularly leather, by means of dies or knives adapted for this purpose.

It is customary in cutting out blanks of shoe soles and other parts of shoes from sheets of leather to use a cutting block as a support for the sheet material during the cutting operation. It is desirable that the cutting block offer sufficient resistance to a cutting knife or die so the latter may make a clean cut through the material operated upon the forming a blank, without leaving frayed edges on the blank which would be injurious to the quality of the product and would depreciate its value. Wood, paper and other substances have been used ordinarily as block materials. These have been subject to many objections, but particularly because they do not maintain their shape and disintegrate rapidly. The wood blocks splinter; fiber and paper blocks disintegrate, causing permanent troughs or valleys after a few thousand cuts. These depressions result in raw edges or strings on the blanks or shoe soles and thereby prevent a clean cut, resulting in depreciation in the value of the product.

The object of this invention is to improve the construction of a cutting block for this purpose, to provide a longer life for the block without requiring frequent resurfacing thereof, to prevent the formation of troughs or valleys in the surface of the block during the use thereof, and to maintain the sharpened condition of the cutting knives or dies.

Another object of this invention is to provide a cutting block which absorbs the blows from the cutting knives and thereby reduces the wear on the cutting machine proper, as well as reduces noise from the operation thereof.

These objects are accomplished according to a preferred embodiment of this invention by utilizing torn or ground shreds of hair-like consistency formed of leather which are bonded securely by a suitable binder and compressed under hydraulic pressure to a substantial homogeneous solid block.

This embodiment is illustrated in the accompanying drawings in which:

Fig. 1 is a perspective view of one form of cutting block embodying this invention:

Fig. 2 is a longitudinal section thereto on the line 2—2 in Fig. 3; and

Fig. 3 is a cross-section on the line 3—3 in Fig. 2.

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The invention may be applied to any suitable or desired form of cutting block such as for instance is illustrated in the drawings. The block shown is of a conventional construction in general, including a cutting block member 1 having a cutting surface on the upper side thereof adapted to receive the material to be cut and to form the working surface of the block. The member 1 is adapted to be confined in shape by end plates 2 which may be of wood, metal, or the like, which end plates 2 are connected together by a tie bolt 3, extending lengthwise through the block including the members 1 and 2. The size and shape of this cutting block may be varied as desired according to the material to be operated on and the characteristics of the knife or die to be used. One form is shown merely for purpose of illustration.

The surface member 1 forms the cutting surface. This member is formed from hair-like shreds of scrap leather bonded together by a suitable resinous adhesive and clamped into a solid impregnated block under hydraulic pressure, which may be formed in the shape desired or cut to the desired shape after formation.

It has been found that this cutting surface member may be prepared by using scrap sole leather, waste leather, etc., which is shredded as by an attrition mill to tear the leather scraps to very fine hair-like shreds, which may be from one-quarter inch to three-quarter inch in length or of varying lengths. These shreds are impregnated or sprayed or otherwise coated with a suitable type of binder. One form of binder that has been found to be quite satisfactory is a resinous adhesive such as that set forth in the patent to Flaherty, Re. No. 16,803, granted November 29, 1927. The shredded leather and binder are compacted in a mold under suitable hydraulic pressure such as of the nature of from 2000 to 5000 pounds per square inch, which compresses the shredded leather into a solid block where it is held under pressure until the adhesive sets securely binding the shreds together. Thereafter the pressure may be released and the block removed from the mold.

It is preferred that the shreds be substantially dust free when used, for which purpose they may be subjected to a blower or compressed air action or otherwise agitated in mixing the shreds in a mass before they are kneaded or otherwise coated with the adhesive.

Experience has shown that a block thus formed may be subjected to more than 50,000 cuts or stampings before requiring resurfacing as com-

pared with from 5,000 to 8,000 cuts made on maple wood or paper blocks generally in use heretofore. This material improvement is possible because the working surface of the block formed according to this invention does not become subjected to grooves or valleys therein during the cutting operation as usually results with a wood or paper block used heretofore. Consequently, it is not necessary to resurface the block nearly so frequently as has been required before. The surface of this block is maintained substantially free of indentations because of its substantially yieldable surface characteristics that provide the required rigidity of a clean cut by the knife without disintegration or splintering which would cause valleys or grooves to be formed in the surface.

After a suitable period of use, the block may be resurfaced, if desired, by removing the surface thereof with a saw or by other mechanical methods, after which it is capable of being reused as before.

It has been found that the block thus formed is waterproof and is not affected by temperature conditions, condensation, etc. Wood and paper blocks used heretofore are subject to swelling and spreading in the machine, making their removal difficult. Thus the blocks made according to this invention may be changed more quickly when required, although the life thereof is extended many times.

It has also been found from experience that the block does not have an appreciable dulling action on the knives or dies which latter do not require sharpening at frequent intervals as has been necessary heretofore.

While the invention has been illustrated and described in one embodiment, it is recognized that variations and changes may be made therein without departing from the invention except as specified in the claims.

We claim:

1. A cutting block consisting of a body portion formed of a relatively solid block consisting solely of hair-like shredded leather particles intermingled and secured together by a resinous adhesive under pressure in the form of a substantially solid block.

2. A cutting block comprising a body portion consisting of fine hair-like leather shreds adhesively secured together under substantial pressure and forming a solid block.

3. A cutting block consisting of a body portion formed of a relatively solid block consisting solely of substantially dust free hair-like shredded leather particles intermingled and secured together by a resinous adhesive under pressure in the form of a substantially solid block.

4. A cutting block comprising a body portion consisting solely of fine hair-like leather shreds, said shreds being substantially one-quarter to three-quarters of an inch in length, said shreds being adhesively secured together under a pressure of from 2,000 to 5,000 lbs. per square inch and forming a solid block.

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