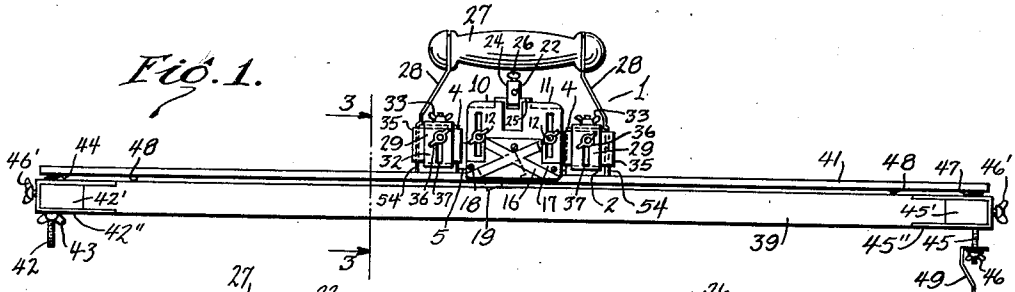
Dec. 29, 1936. S. H. SMITH 2,065,761

CUTTING AND BEVELING TOOL

Filed June 14, 1933

Fig. 1.



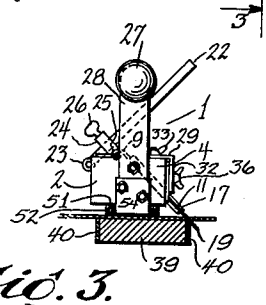


Fig. 3.

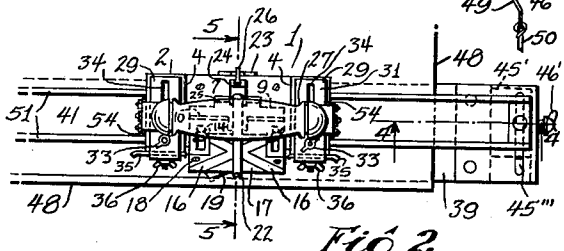


Fig. 2.

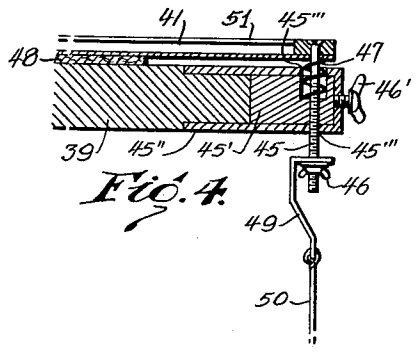


Fig. 4.

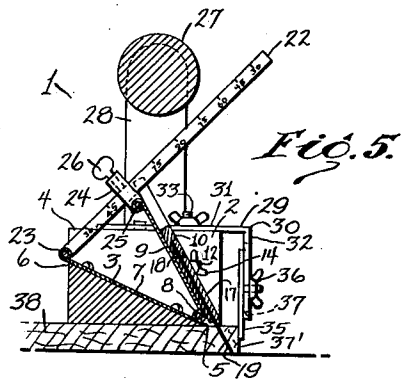


Fig. 5.

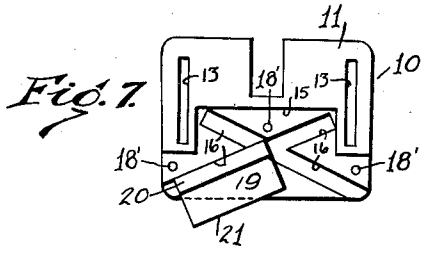


Fig. 7.

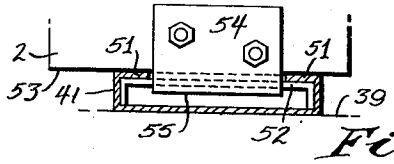


Fig. 6.

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CUTTING AND BEVELING TOOL

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Application June 14, 1933, Serial No. 675,865

3 Claims. (Cl. 164—83)

The present invention relates to improvements in a cutting and beveling tool, and its principal object is to provide a tool whereby fibrous material such as cardboard and other materials of similar character may be conveniently cut either at right angles to the plane of the sheet, or at any bevel that may be desired.

A further object of the invention is to provide in combination with a tool of this character suitable adjusting means which allow the depth of the cut to be changed to suit conditions.

A further object of the invention is to provide a tool of the character described which is adapted for operation as a right-hand tool and as a left-hand tool.

A further object of the invention is to provide in combination with the cutting and beveling tool suitable guide means engageable with the edge of the sheet to be cut so that the cut made runs exactly parallel to the said edge.

A further object of the invention is to provide in combination with the cutting and beveling tool clamping means for holding the sheet to be cut to a platform and to incorporate in the clamping means a suitable guide means for giving definite direction to the tool while the cut is being made.

A further object of the invention is to provide convenient handling and manipulating means for the cutting and beveling tool.

Further objects and advantages of the invention will appear as the specification proceeds.

The preferred form of the invention is illustrated in the accompanying drawing, in which—

Figure 1 shows my cutting and beveling tool in side elevation, and in combination with a clamping and guiding means;

Figure 2 a plan view of the assembly shown in Figure 1, the cutting tool being slightly shifted and only part of the clamping means being shown;

Figure 3 a vertical section taken along line 3—3 of Figure 1;

Figure 4 a vertical section taken along line 4—4 of Figure 2;

Figure 5 a vertical section taken along line 5—5 of Figure 2;

Figure 6 an enlarged detail view in cross-section of the guide means for the tool; and

Figure 7 a detail view of a blade holder with a portion removed to show the interior construction of the same.

While I have shown only the preferred form of my invention I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of the invention.

Referring to the invention in detail, my cutting and beveling tool 1 comprises a rectangular block 2 preferably made of wood, or any non-metallic composition, having a large recess cut into an intermediate portion thereof, to form a beveled side 3, while two shoulders 4 are left on opposite sides of the recess. The beveled side 3 extends substantially from the bottom edge 5 on one side of the block to a higher elevation 6 on the other side of the block. The beveled side has one strap 7 of a hinge 8 secured thereto, the other strap 9 of the hinge being free to swing about the lower edge of the beveled side and the latter strap has a blade holder 10 adjustably secured thereto. The blade holder is illustrated in detail in Figure 7 and comprises a plate 11 substantially coextensive in length and width with the strap 9, and adapted to be secured to the latter by means of screws 12 extending from the strap through slots 13 in the blade holder, which latter is clamped upon the strap by means of wing nuts 14. The blade holder is made in two pieces and the portion 11 of the blade holder is formed with a recess 15 having two diagonal grooves 16 in the surface thereof. A complementary piece 17 is adapted to fit in the recess and is provided with registering grooves 16 so that when the piece 17 is secured in the recess by means of screws 18, a blade 19 may be clamped between the two pieces, a conventional blade clamp 20 being received in one of the grooves 16 so as to hold the blade in proper position with one corner of the blade projecting from the blade holder. It will be noted that the blade may be readily adjusted relative to the blade holder, for adjusting the depth of penetration of the blade into an object to be cut, and that the blade may also be shifted from one diagonal groove to the other for exposing a different corner of the blade, and for changing the position of the cutting edge 21, to become active on forward movement in one direction or the other. It is apparent that any other type of safety razor blade may be clamped between the plate 11 and the piece 17, and that the use of the grooves may be dispensed with if desired.

When the blade holder is secured to the hinge strap 9 the projecting blade 19 is made to project beyond the edge of the beveled side of the block for cutting into an object on which the block is made to ride. The strap 9 and the blade holder may be freely swung about the hinge

at the lower edge of the bevel to assume any angular position desired, and the strap is held in adjusted position by means of a rod 22 pivoted to the upper edge of the bevel as shown at 23, and slidably receiving a member 24 pivoted to the free end of the strap 9 as at 25, and secured to the rod by means of a set screw 26. The rod is suitably marked to indicate the angularity of the blade holder in any adjusted position, the rod indicating an angle of 90 degrees midway of its length, and indicating angularities of less degrees in both directions so as to allow the blade holder to be adjusted to any desired angle smaller or larger than a right angle.

The block itself is manipulated by a handle 27 arranged like the handle of an iron and connected to the block by means of metal straps 28.

While the device thus far described may be used for cutting straight or beveled edges free-hand in any sheet of cardboard or similar material, I preferably provide suitable guide means for cutting along straight lines.

One of the said guide means is illustrated particularly well in Figure 5, and comprises two strips of metal 29 bent at right angles as at 30, and having one arm 31 secured on top of the two shoulders of the block, while the other arms 32 project downwardly in parallel relation to the front face of the block. The horizontal arms 31 are adjustably secured to the shoulders of the block by means of screws and wing nuts shown at 33, the screws passing through slots 34 in the strips. The vertical arms 32 are slightly shorter than the depth of the block, but have extension members 35 adjustably secured thereto by means of screws and wing nuts 36 engageable with slots 37, the extension members being adapted for projection beyond the bottom of the block so as to lie against an edge 37' of the sheet 38 to be worked on, and to guide the blade relative to said edge.

A further and additional guide means is illustrated in Figures 1 to 4, and Figure 6, and shows the guide means in connection with clamping means for holding a sheet of material to a supporting surface. The supporting surface is shown as a platform 39 having preferably tempered steel cutting edges as at 40, and having a channel 41 superimposed thereon. The channel is adjustably and yieldingly supported relative to the platform so as to accommodate different thicknesses of material to be cut. One end of the channel is held to the platform by means of a screw 42 and a wing nut 43, while a spring 44 urges this end upwardly. By proper manipulation of the wing nut 43 the spacing between this end of the channel and the platform may be definitely adjusted. The other end of the channel is held to the platform by means of a screw 45 and a wing nut 46, a spring 47 serving to urge this end away from the platform. While in practice the first end of the channel is adjusted so that its spacing from the platform corresponds substantially to the thickness of the sheet of material to be cut, which latter is indicated at 48, the other end of the channel is adjusted to provide ample play for the insertion of the sheet of material and is clamped down upon the material after insertion by means of a foot pedal or other suitable means acting on the wing nut 46 through a clip 49, and a cord 50.

To allow the channel 41 to be adjusted relative to the cutting edge 40 the screws 42 and 45 are made to extend through movable end sections 42' and 45' of the platform, the end sections being slidably received in end caps 42'' and 45'' which latter are slotted above and below the end sections as shown at 45''' to allow the screws to move with the end sections. The latter are held in adjusted position by means of set screws 46'.

The channel itself is shown in cross-section in Figure 6, and has in-turned flanges as shown at 51 to slidably receive an inverted channel 52, which may be held to the bottom 53 of the block 2 by means of removable clips 54 projecting downwardly from the ends of the block, and having flanges 55 extending underneath the inverted channel. Where this arrangement is used the block is made to follow the path of the channel and the blade is arranged, as shown particularly well in Figure 3, to coact with the cutting edge of the platform in producing a smooth cut through the material.

The manner of using my device will be readily understood from the foregoing description. For inserting the blade the front piece 17 of the blade holder is removed or merely loosened, and the blade is inserted in one of the two diagonal grooves whereupon the front piece is re-attached or re-fastened by means of the screws 18 threaded into screw holes 13' (see Figure 7). It usually is not necessary to remove the entire front piece, and adjustments may be made by slightly loosening the screws and tightening them afterwards. For securing the proper angularity of the blade holder the wing nut 26 is loosened, and the member 24 is made to slide on the rod 22 until the desired point has been reached, whereupon the wing nut 26 is tightened. After the desired angularity has been obtained, the blade holder should be adjusted relative to its supporting strap to cause the bottom edge of the blade holder to be level with the bottom of the block, so that the blade holder rides on the work while the blade cuts through the same.

If the tool is to be used free-hand, the extensions 35 of the guide straps 29 are fastened in inactive position and the guide members are adjusted on the top faces of the shoulders so as to bring the front arms close up against the front face of the block. If these guide members are to be used in the manner indicated in Figure 5, they are adjusted to project forwardly and the extensions 35 are adjusted downwardly so as to lie against the edge of the sheet of material to be worked on. For certain work, as for cutting linoleum, the front and rear faces of the block may serve as guides, the blade, when in vertical position being spaced from the face $\frac{1}{16}$ inch and from the other face, say 2 inches or whatever spacing seems most desirable.

If the tool is to be used in the manner illustrated in Figures 1 to 4 and Figure 6, the sheet of material is first clamped to the platform 39 in the manner previously described. The inverted channel 52 is secured to the bottom of the block by means of clips 54 and the inverted channel is inserted endwise into the channel guide 41. The blade being suitably adjusted either beforehand, or after taking its place in the guide, the operation of cutting against the steel cutting edge of the platform may now be proceeded with.

It should be observed that the number of different cuts that may be made by means of this tool is practically unlimited. Aside from making cuts transversely to the plane of the sheet of paper, either rectangularly or at any bevel desired, the device may also be adjusted so as to bring the blade holder into a plane running

parallel to the bottom face of the block for horizontally slitting the edge of the sheet of material to be worked on. When the blade is to be used in horizontal position it may be necessary for the purpose of securing proper spacing relative to the bottom to introduce washers of suitable thickness between the blade holder and the hinge strap 9.

The blade may be set to cut through the entire thickness of the material, or to any depth desired, and may for instance be used to bevel the edge of a piece of material from the opposite sides to provide a V-shaped edge, and it may also be used to provide an edge with a V-shaped groove to fit the former edge. It may be used for cutting ledges into the edge of a piece of material by cutting into the material vertically to a certain depth, and horizontally to meet the vertical cut, and it may also be used to cut V-shaped grooves in the face of the material.

I claim:

1. In a cutting and beveling tool, a block having a beveled side and horizontal shoulders on opposite ends thereof, a blade holder hinged to the bottom edge of the side and means for securing the blade holder in adjusted position, the block having spacing members projecting from the shoulders for spacing the said bottom edge horizontally relative to a straight edge.

2. A cutting and beveling tool comprising a body, a strap hinged to the bottom of the body and being swingable into various angular positions, means for securing the strap in adjusted position, a blade holder adjustably carried by the strap and being extendible, after the strap has been secured in the desired angular position, so that the holder just clears the work, and a blade adjustable in the blade holder and being extendible below the bottom of the holder, the portion of the blade projecting below the holder being equal to the depth of the desired cut.

3. A cutting and beveling tool comprising a block freely movable over the material to be cut, a hinge plate secured to the block and being pivotally connected adjacent to the under surface of the block, a blade holder adjustably carried by the hinge plate, and a blade adjustably carried by the blade holder, said hinge plate being swingable about its pivot to either side from a vertical position, and said blade holder being adjustable on said hinge plate to just clear the surface of the material being cut regardless of the cutting angle, said blade projecting beyond the holder the desired distance to cut the material to the required depth of cut.

SANFORD H. SMITH.