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M. H. STEINKE

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CUTTER HOLDER

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FIG. 1

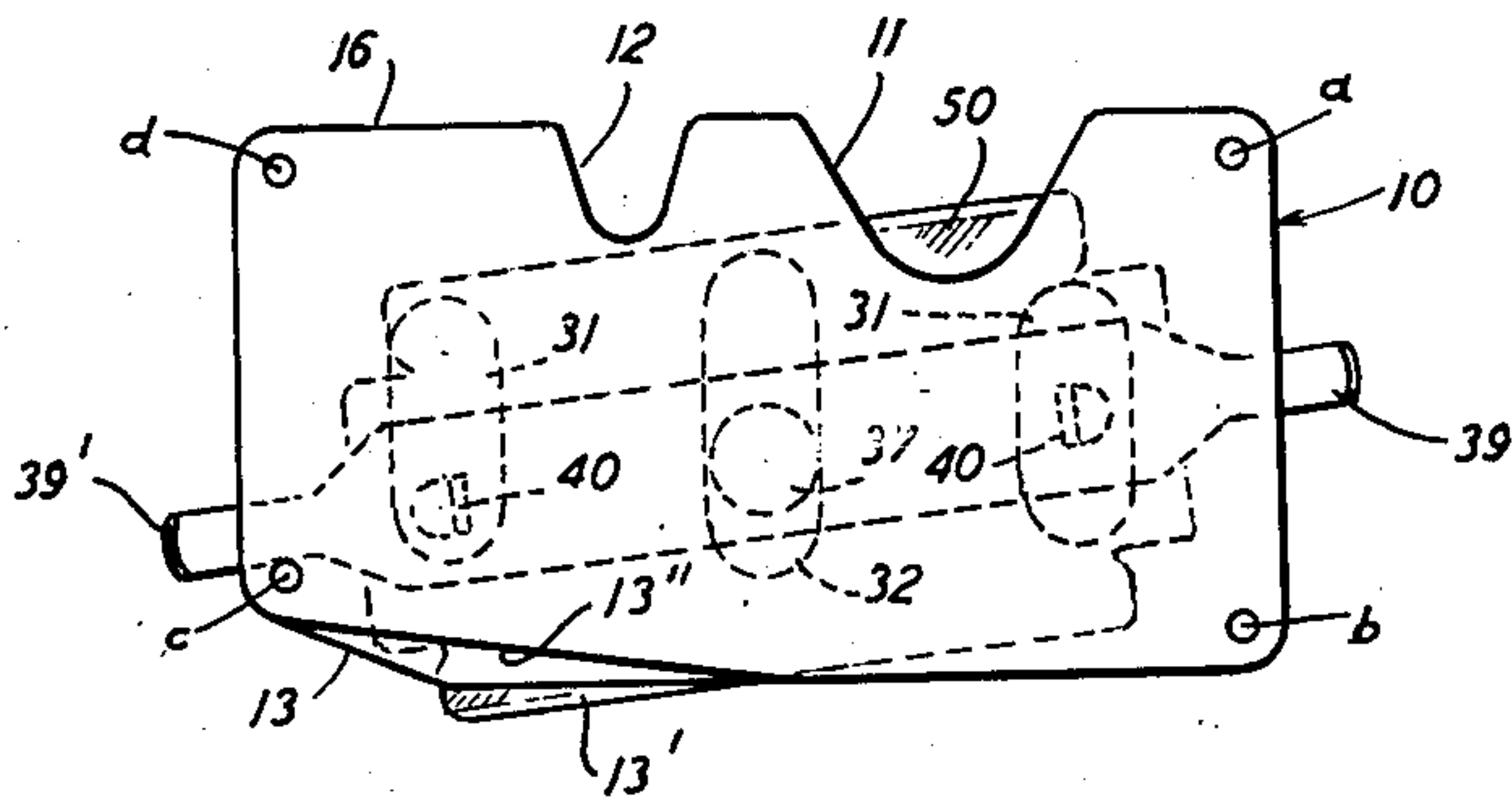


FIG. 2

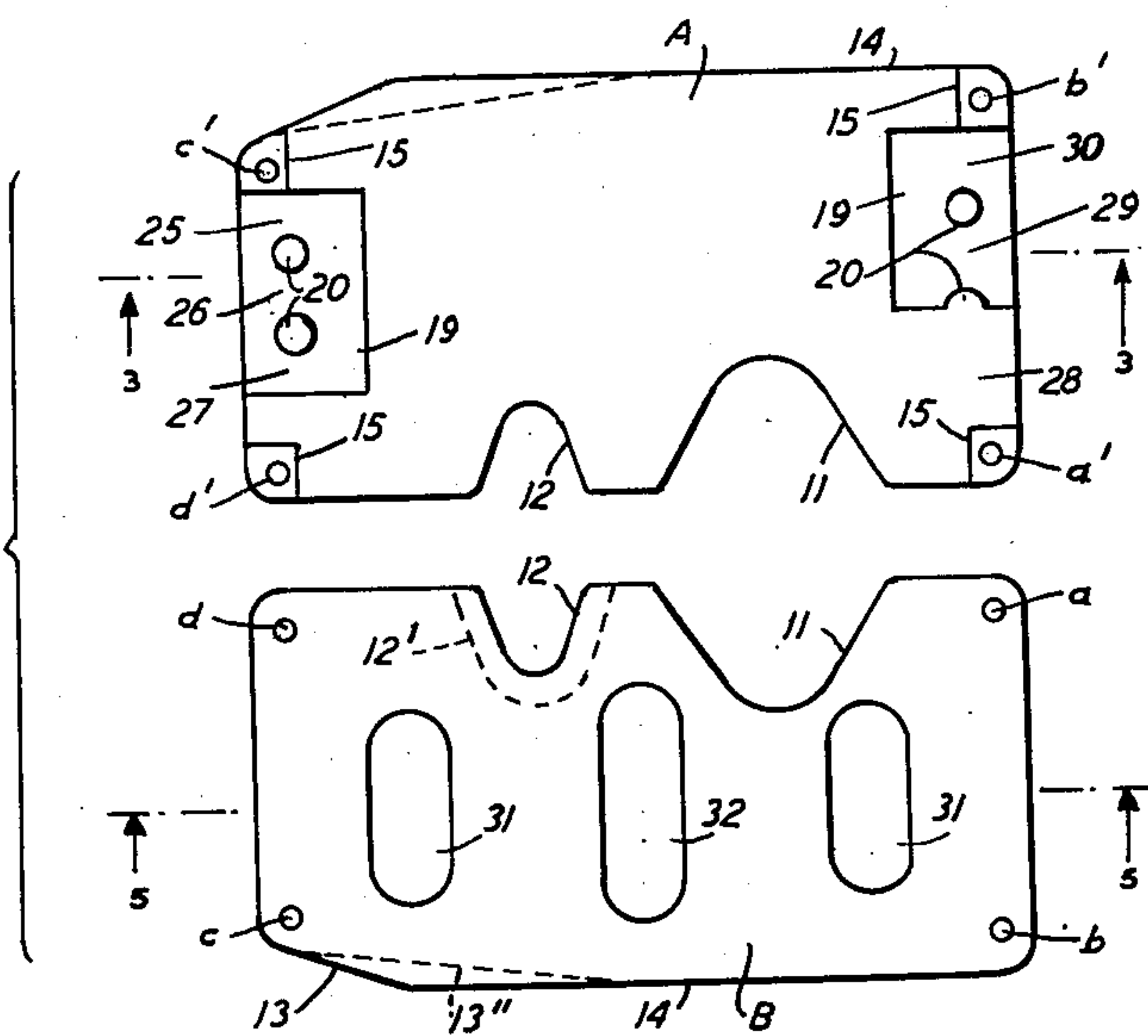


FIG. 3

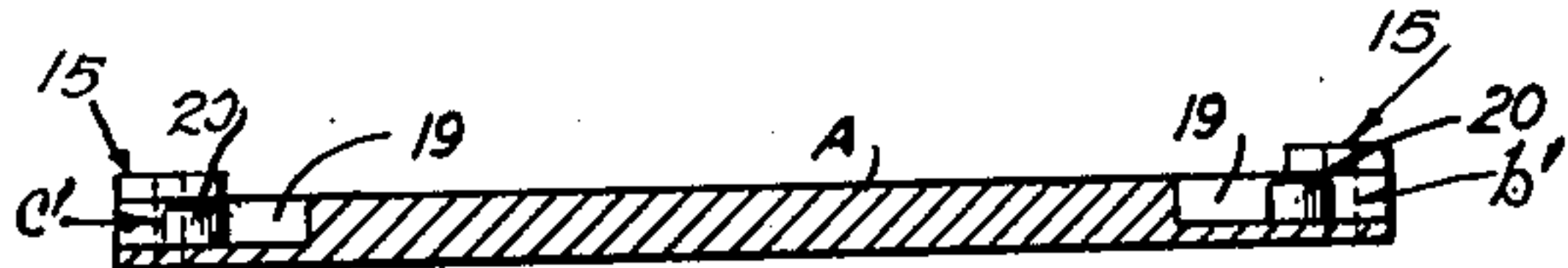


FIG. 5

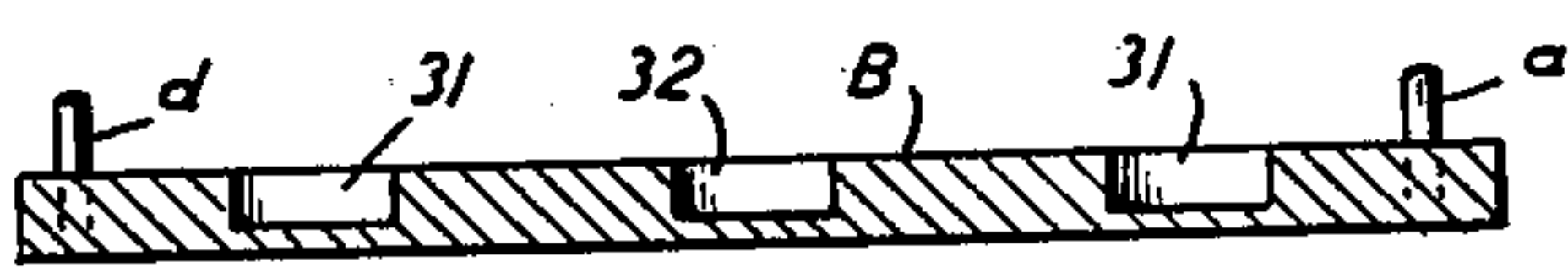


FIG. 6

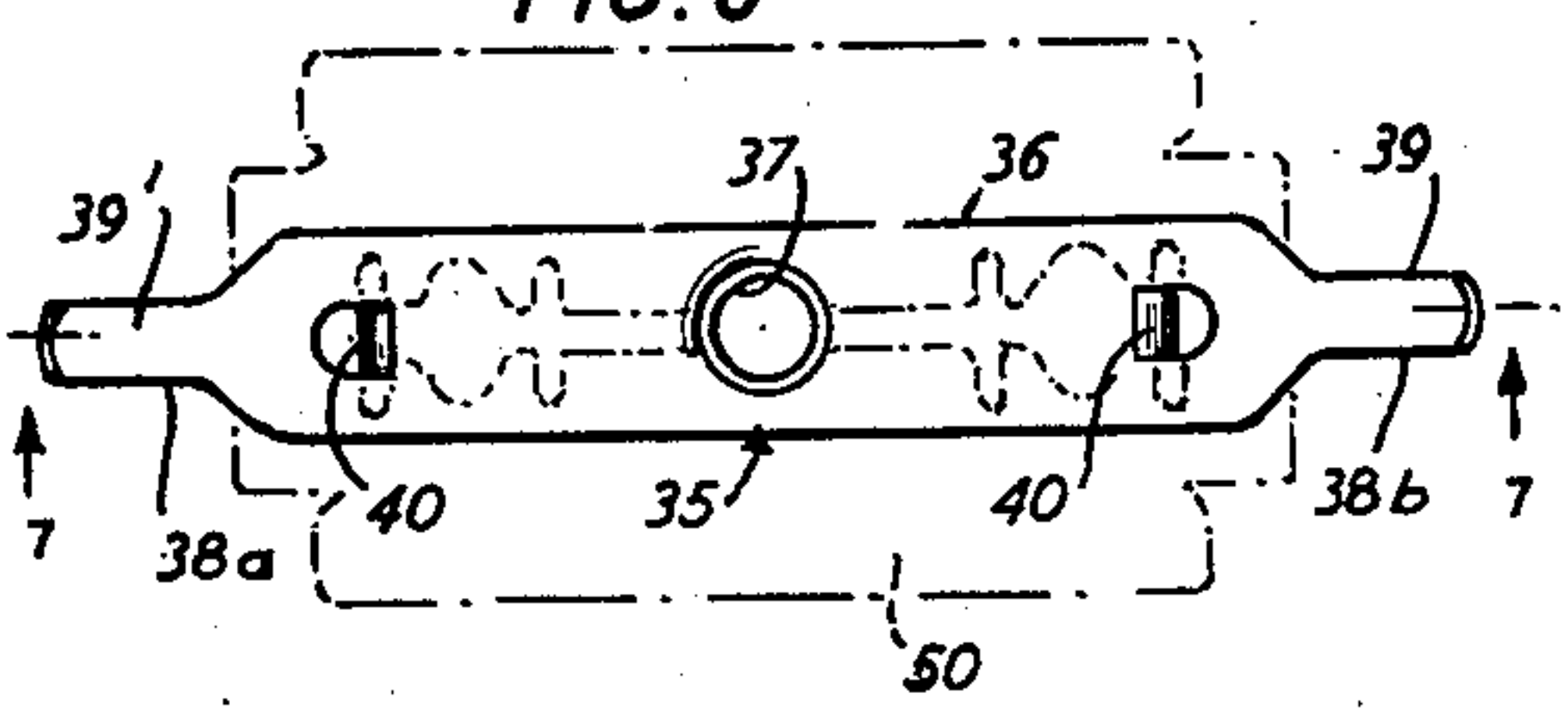


FIG. 7

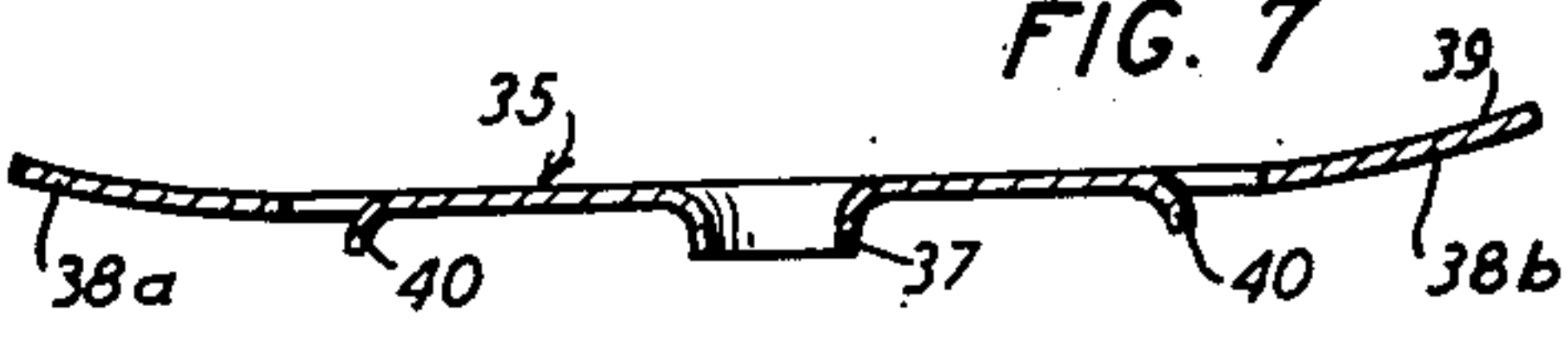
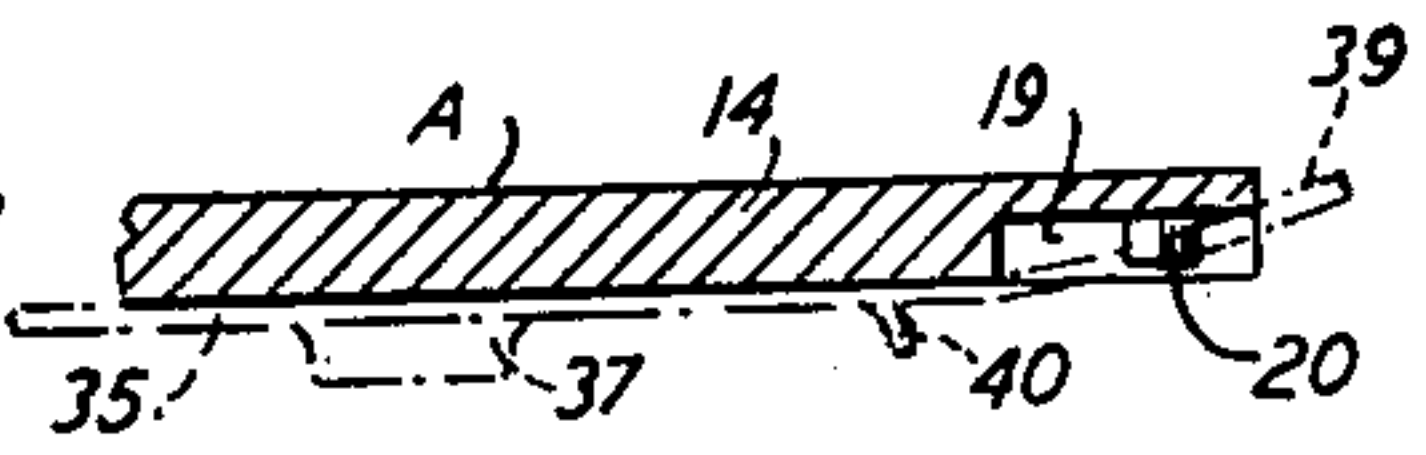


FIG. 4



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## UNITED STATES PATENT OFFICE

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## CUTTER HOLDER

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3 Claims. (Cl. 30—320)

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The present invention relates to improvements in holders for thin cutting blades. It is particularly adapted to holders for double edged razor blades of the Gillette type, although it is not necessarily limited to this particular form of cutter. A holder embodying the improvements of the invention provides with such a blade a manually operated tool that can be readily adjusted to perform, optionally, any of several cutting operations.

The principal object of the invention is to provide an enclosure for at least the major portion of a thin cutting blade and means associated with the enclosure for selectively locating at least one portion of the blade outside the enclosure in a manner adapted to particular cutting operations.

An important object of the invention is to provide a locating member in fixed association with the cutting blade which permits controlled movement of the blade within the casing by manipulating portions of the locating member which extend outside the casing.

Another object of the invention is to provide positioning and retaining means at opposite side or lateral ends of the enclosure whereby an optionally selected end of the locating member can be restrained and made to provide a pivot point about which the other end can be turned in manipulating the blade into desired positions.

Still another object of the invention is the provision of a slot extending transversely in one surface of the enclosure into which a protuberance associated with the locating member extends, and with which it makes a sliding fit. This relationship of transverse slot and protuberance permits the blade as a whole to be moved transversely of the enclosure, or the ends of the blades to be turned about the protuberance as a pivot point, but it limits movement of the blade longitudinally with respect to the length of the holder.

Another object of the invention is to provide a manually operated cutter of the type described which permits close adjustment of the depth of the cut.

A feature of the invention relates to the adaptability of the cutter holder to perform a variety of cutting operations merely by adjusting the position of the blade with respect to the casing members. This is accomplished by manual shifting of the central arm attached to the blade; the arm extending from opposite sides of the casing, whereby the blade is exposed along the cutting edges of the holder by movement of one

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or both ends of the arm in successive steps in cooperating locking positions in the plates, to accurately orient the cutter blade in various angular and lateral positions relative to the plates and rigidly hold the blade in the selected position without sideplay or vertical alteration in the designated position.

Another feature of the invention relates to the facility with which the holder may be assembled and taken apart to replace the cutter blade. This construction involves four components which are snapped together to form a compact blade holder, i. e.; the blade, a flexible arm having spaced projections to slip into the usual slot in the double-edge razor blade and two cover plates to enclose and protect the user from injury with the blade. The blade and arm are placed between the plates which are snapped together at the four corners to complete the assembly. The casing is readily opened by inserting a fingernail in one of the end ridges so that no tools are required to replace or adjust the cutter blade in the holder.

The manner of realizing the above-mentioned and other objects of the invention will be pointed out in the following description illustrated by appended drawings in which—

Fig. 1 is an enlarged front elevation of an assembled holder which comprises a preferred form of the invention;

Fig. 2 illustrates the two members which comprise the enclosure shown in Fig. 1 after they have been disengaged and their interior surfaces exposed for the reception of a cutting blade;

Fig. 3 is a section at 3—3 in Fig. 2;

Fig. 4 is a fragmentary sectional view enlarged to better illustrate a portion of the part shown in Fig. 3; with a part of the locating member 35 in dashed lines.

Fig. 5 is a section taken at 5—5 in Fig. 2;

Fig. 6 is a plan view of the locating member which is attached to the blade in the holder shown in Fig. 1; and

Fig. 7 is a side sectional view taken at 7—7 in Fig. 6.

Referring to Figs. 1 and 2, casing 10 serves the several purposes of a protective sheath, a grip for manual operation of the device, a supporter for the edges of the blade which is to be used for cutting, and a retention means in which the blade is fastened in desired positions. The casing comprises a pair of plate-like rectangular members A and B which are frictionally held together by releasable means comprising pins a, b, c and d, projecting from the inner surface of plate



B, which enter holes  $a'$ ,  $b'$ ,  $c'$  and  $d'$ , respectively in plate A, the pins having a length equal to the thickness of plate A and the holes therein being of a diameter to receive the pins. The plates A and B are, therefore, held in frictional engagement to lock the casing or holder for manual operation of the cutter, the plates being readily separated when it is desired to replace the blade. In the upper longitudinal edge of each plate are matched recesses 11, 11 and 12, 12 which serve as guides for objects which are to be cut or scraped by the edge of a blade which can be made to project into these recesses, as will be later described. Such a blade is represented in the drawing in dash lines and identified by numeral 50.

The top edges of the plates can contain recesses of various shapes useful in positioning selected articles which are to be cut by a blade held by the casing. In the holder illustrated in Figs. 1 and 2, this object of the invention is realized by recess 11 which is particularly shaped to guide the end of a cigar down upon a blade projecting into the bottom of the recess; and by recess 12 which is to guide the end of a pencil while it is being sharpened by being drawn over a cutting edge supported tightly in the recess. Recess 12 in plate B has a beveled edge 12' which permits a pencil to be supported at an acute angle with a blade in casing 10.

One corner of each plate, A and B, has been cut away as shown at 13, and beveled on the outer side as indicated at 13'', so that close observation can be made of a corner of the blade when it is exposed at edge portion 13'. The adjacent longitudinal peripheral portion 14 of the holder or casing is left with the edge of full width, however, which permits pressure to be exerted on the cutting edge without the edge of the casing being impressed into the object being cut. Small metallic riser portions 15, are secured to plate A about holes  $a'$ ,  $b'$ ,  $c'$  and  $d'$ , are to hold the plates a distance apart, which will permit movement of the blade to various cutting positions. Separation of about  $\frac{1}{32}$  or  $\frac{1}{64}$  inch has been found satisfactory for a Gillette blade.

Figs. 2, 3 and 4 show shallow beveled rectangular recesses 19 cut into the inner surface of plate A at opposite lateral ends thereof. These recesses are preferably machined to reduce the thickness of the plate toward the lateral edges so that the cross section at these edges is reduced to a thin wall on the outer surface of the plate. A plurality of locating pins 20 are provided adjacent the edges within the rectangular recesses, the top surface of the pins being in the same plane as the central thick portion of the plate. These pins in linear spaced relation form locating alleys or positioning slots or grooves 25, 26 and 27 and 29 and 30 for positioning and retaining an operating arm or member 35. The slots between the pins provide various locking passageways in parallel and angularly related positions for accommodating the cutting blade and its fixed arm 35 and for adjusting the relation of the blade with respect to the plates of the casing. In addition, the portion of the end of plate A identified by number 28 has not been recessed and sliding contact between member 35 and surface portion 28 is relied upon here for positioning member 35 and the blade attached to it.

Plate B contains three elongated cavities 31, 31 and 32, which may be slots or depressions, and which are positioned transversely as shown in Figs. 2 and 5. Concavities 31, 31 are for re-

ceiving with an easy fit elements 40 which may be punched out ears or lugs or similar protrusions, projecting out from member 35. Concavity 32 receives and acts as a central guide for a formed protuberance 37 on member 35.

Blade locating member 35, as illustrated in Figs. 6 and 7 for use in casing 10 is made of a piece of thin resilient material (beryllium copper or steel f. e.) and is flat and of considerable width, say from  $\frac{1}{3}$  to  $\frac{2}{3}$  width of the blade where it is in contact with the blade. The end portions 38a and 38b are attenuated and curved or bent in a direction opposite to the projection of the central protuberance 37 in the arm, to extend beyond the casing as piloting elements 39 and 39'. Elements 39 and 39' may be upset or otherwise shaped so that they can be readily manipulated manually. At or near the center of member 35 an element is stamped out which provides a protuberance 37 on one side of the member. The parallel concavities 31 on opposite sides of the central cavity 32 form guiding slots for the ears 40 on the flexible blade arm 36, to permit controlled lateral sliding movement of the blade and arm across the width of the casing and together with the large diameter protuberance 37 on the arm 35 in the central guiding slot, which acts as a sliding fulcrum; the blade is manipulated to various positions within the casing. The plates of the casing, therefore, cooperate jointly with opposite flat sides of the arm 36 to adjust the position of the blade 50 in relation to the operating longitudinal edges of the casing. The ears 40 and protuberance 37 are spaced along the central portion of the arm to frictionally fit in to the usual configured slot in the razor blade. Since the central flat portion of the arm 36 is confined by the transverse internal slots 31 and 32 of plate B and the bent ends of the arm extend into and beyond the lateral guiding passageway or grooves in plate A, the cutting blade within the casing may be selectively adjusted to various positions without dismantling the casing because the adjustments are made by slightly pressing either or both bent ends of the arm which project from opposite ends of the casing in a direction toward plate B to lock the blade in a desired position.

The device is operated as follows.

The manner in which a cutting blade held within casing 10 can be projected outside the case at selected positions for performing various cutting operations will now be described. If the bent end portion 38a of retention member is positioned in alley 26, in plate A, and bent portion 38b is similarly retained in alley 29, a cutting edge of the blade is made available in recesses 11 and 12. If alleys 26 and 30 are used, a small portion of an edge is available for cutting at position 14; using alleys 25 and 29, the end or corner of a cutting edge is available at the beveled corner 13 of the casing. The small, sharp corner thus exposed is particularly well adapted for cutting basting threads, or the like, and for making cuts of uniform depth into material such as card board.

When it is desired that the extent of projection of the cutting corner at position 13 be closely controlled, bent portion 38a is left in alley 25 and bent end portion 38b is placed on flat friction surface 28. By moving bent end portion 38b along surface 28 in the direction away from alley 29 the projection of the cutting corner is decreased; and because of the considerable distance of bent end portion 38b from said corner and the



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leverage the distance provides, bent end portion 38b can be left at any position on surface 28—the friction caused by the resiliency and curvature of bent end portion 38b being sufficient to maintain it at the selected position while any ordinary cutting operation is executed with the cutting corner at position 13.

The same close cutting control can be exercised on the corner 16 by placing bent end portions 38a and 38b in alleys 29 and 27 where a very shallow cut of from one to several paper thicknesses can be attained by using alley 29 and flat 23 this thickness can be materially increased.

I claim:

1. A cutter holder including a casing comprising a pair of complementary rectangular plate members in juxtaposed facing relation and having cooperating recesses and bevelled corners on the corresponding longitudinal edges thereof, one of said plate members having transverse slots extending across the inner surface along the short dimension of said plate member, said other plate member having rectangular recesses parallel to said slots and extending along the inner surface and opening toward the short edges thereof, a plurality of pins mounted in said rectangular recesses and forming positioning grooves therebetween, said pins being shorter than the height of said recesses, an apertured cutter blade between said plate members, and a resilient metallic arm member having a plurality of protuberances engaging said apertures for location in said transverse slots, said arm member having opposite bent end portions adapted for selective location in said positioning grooves by slidable movement of said arm member to expose various portions of said blade in said first mentioned recesses and corners and beyond the longitudinal edges of said plate members.

2. A cutter holder including a casing comprising a pair of complementary rectangular plate members mounted in frictional locking engagement, one of said plate members having a central elongated guiding slot on the inner surface thereof, the other plate member having shallow rectangular recessed portions on the inner surface extending along opposite short edges thereof and open along said edges, spaced pins adjacent said edges and projecting from said recessed portions to form positioning grooves transverse to said guiding slot, a cutter blade having a central opening therein mounted between said plate members

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with the cutting edges of the blade parallel to the long dimension of said casing, and a yieldable metallic arm connected to said blade and manually adjustable between said plate members, said arm having a projection entering said blade opening and slidable in said guiding slot and bent end portions adapted to be adjusted to different locations in said positioning grooves along the open edges of said casing.

3. A cutter holder including a casing comprising a pair of rectangular plate members in juxtaposed facing relation having cooperating pins and apertures for frictional locking engagement thereof, said plate members also having recessed openings along corresponding boundaries for various cutting operations, one of said plate members having an elongated slot extending across the central inner surface thereof and a parallel slot on each side of said elongated slot, said other plate member having rectangular shallow recesses on the inner surface and extending to the short edges thereof, upstanding pins adjacent the edges in spaced relation in said recesses to form locating grooves therebetween, a resilient metallic strip arm having projections on one side to fit into the slots in one plate member and end portions bent in reverse relation to said projections for reception in said locating grooves in said other plate member and a cutter blade in rigid contact with said arm and movable in different positions in said locating grooves in relation to said casing.

MAX H. STEINKE.

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