

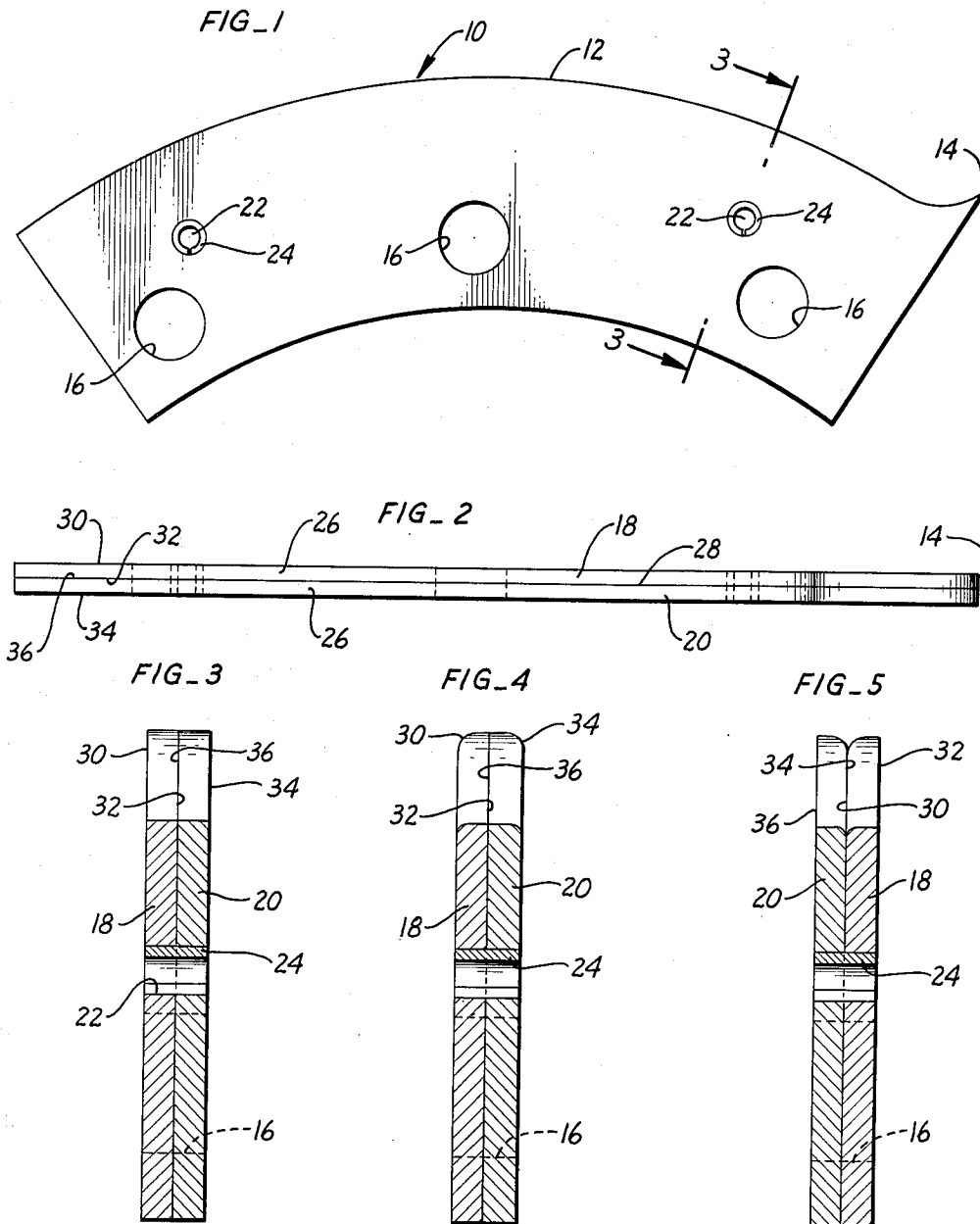
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SLITTER KNIFE

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3,237,501

SLITTER KNIFE

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This invention relates to paperboard box making apparatus and more particularly to a slitter knife for cutting slits in corrugated paperboard blanks from which boxes are made.

In the preparation of paperboard blanks for the manufacture of boxes and the like, it is customary to remove portions of the box blank with knives which make a pair of cuts in the box blank for removing the material between the cuts. Typical apparatus employed for this purpose is illustrated in United States Patent No. 3,036,486 to Wilcox.

It is an object of this invention to provide a new slitter knife for apparatus of the type shown in the Wilcox patent where the knife will have a substantially longer life than such knives used heretofore.

Other objects and advantages of the invention will become apparent from the following description read in conjunction with the attached drawings in which:

FIG. 1 is a side view of a slitter knife constructed in accordance with the principles of this invention;

FIG. 2 is an edge view of the knife of FIG. 1;

FIG. 3 is a sectional view, on an enlarged scale of the knife of FIG. 1 taken along the plane indicated at 3-3 in FIG. 1 with FIG. 3 illustrating the condition of the knife when it is new;

FIG. 4 is a sectional view similar to FIG. 3 but showing the knife after it has been used so extensively that its cutting edges have become dull; and

FIG. 5 is a sectional view similar to FIG. 3 and FIG. 4 showing the knife of FIG. 4 rearranged to rejuvenate its cutting edges.

Referring now in detail to the drawings, the slitter knife as illustrated in FIG. 1 includes a body portion 10 having a cutting edge 12 thereon with a cutting point 14 at one end of the cutting edge 12 to facilitate initial puncture of paperboard material by the knife. The knife body 10 has a plurality of apertures 16 therein which facilitate the attachment of the knife to other machinery in conventional manner.

In accordance with this invention, the knife body 10 is made of a plurality of laminates 18 and 20 having aligned apertures 22 therein which receive spring dowels 24. Each laminate has an edge surface 26, and the dowels 24 support the two laminates together in a position where the two edge surfaces 26 are perpendicular to the median plane 28 between the laminates and where the two edge surfaces 26 define the single surface 12 of the knife body.

The face 26 of the laminate 18 intersects the opposite faces of the laminate 18 at exterior and interior cutting edges 30 and 32 respectively, and the face 26 of laminate 20 intersects the opposite faces of the laminate 20 at exterior and interior cutting edges 34 and 36 respectively. As can be best seen in FIG. 3, the two laminates 18 and 20 are supported together when the knife is new with the interior cutting edges 32 and 36 thereof engaging each other and preventing each other from being effective in cutting the material on which the knife is employed. When the knife is in this condition, the knife is effective for cutting with only the exterior cutting edges 30 and 34, and after the knife has been used for substantial pe-

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riod of time, the exterior cutting edges 30 and 34 will have become worn as indicated in FIG. 4.

When the knife has been used for sufficient period of time that the exterior edges 30 and 34 become worn as shown in FIG. 4, the knife may be rejuvenated to provide new cutting edges by removing the dowels 24 and repositioning the two laminates 18 and 20 together with their previously exterior sides contacting each other as shown in FIG. 5. In this rejuvenated condition, the previously interior edges 32 and 36 become the exterior edges of the knife and are effective in providing sharp knife edges on the knife for substantially as long as the previously exterior edges 30 and 34 were effective.

Obviously, in this manner, the slitter knife of this invention may be rejuvenated to provide sharp cutting edges for substantially twice as long as would normally be possible by knives employed heretofore, and this doubling of the life of the knife edges is accomplished without any change in the geometry of the exterior surface of the knife. Accordingly, the knives constructed in accordance with this invention remain sharp and accurate in shape for substantially twice as long as knives used heretofore, and where the particular machinery in which the knives are used permit the knives to be sharpened by grinding away portions of the periphery thereof, the knives of this invention can be used for twice as long between the times when they are sharpened than could knives employed heretofore.

While one particular embodiment of this invention has been illustrated and described in detail herein, it is obvious that many modifications thereof may be made without departing from the spirit and scope of the invention.

I claim:

1. A slitter knife for cutting slits in paper and the like which comprises a pair of substantially identical metal plates each of which has generally parallel right and left faces and an end face extending generally perpendicular to said right and left faces and defining therewith right and left cutting edges respectively, and adjustable mounting means interconnecting said plates for supporting said plates in two alternative positions where the end faces of said plates define a single face of said knife, said plates in the first of said positions having the right face of one plate contacting the left face of the other plate, and said plates in the second of said positions having the left face of said one plate contacting the right face of said other plate.

2. The slitter knife of claim 1 in which said mounting means comprises at least one pair of aligned apertures extending through said plates and a dowel removably positioned in said apertures.

References Cited by the Examiner

UNITED STATES PATENTS

369,669	9/1887	Vermeulen	83-501
1,139,355	5/1915	Feeley	83-498
1,529,971	3/1925	Vance	83-698
2,808,106	10/1957	Belton	83-675
3,036,486	5/1962	Wilcox	83-671
3,039,344	6/1962	Hercik	83-699
3,081,661	3/1963	MacPherson	83-698

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