Jan. 16, 1968 L. E. SAUER 3,363,496

SLOTTING ANVIL

Original Filed Sept. 17, 1962

Fig. 2.

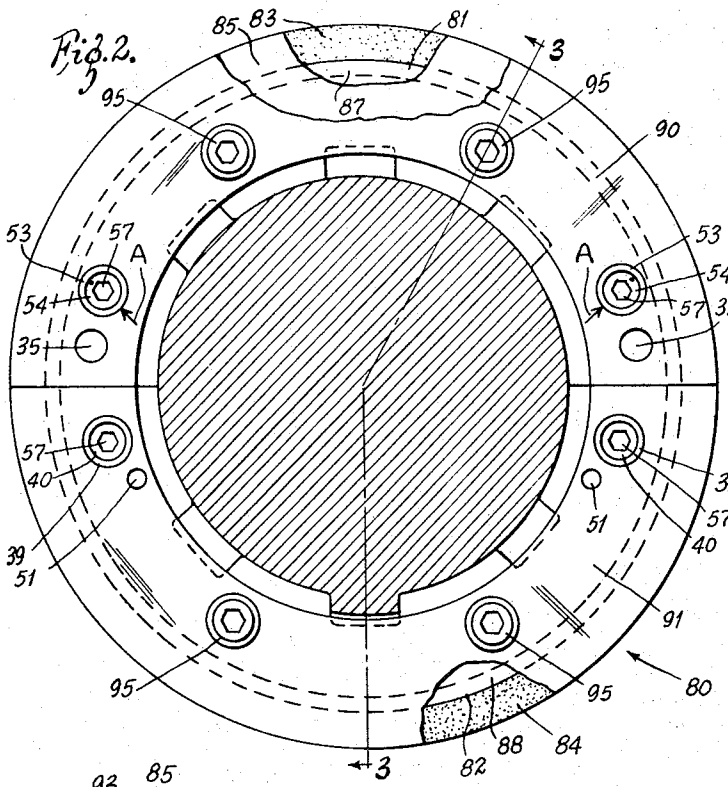
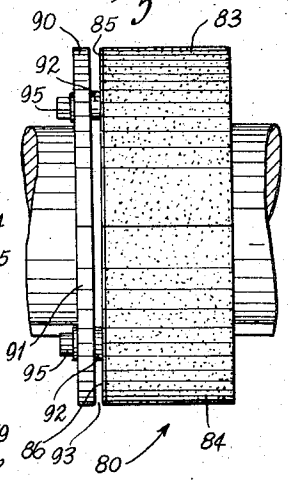


Fig. 1.



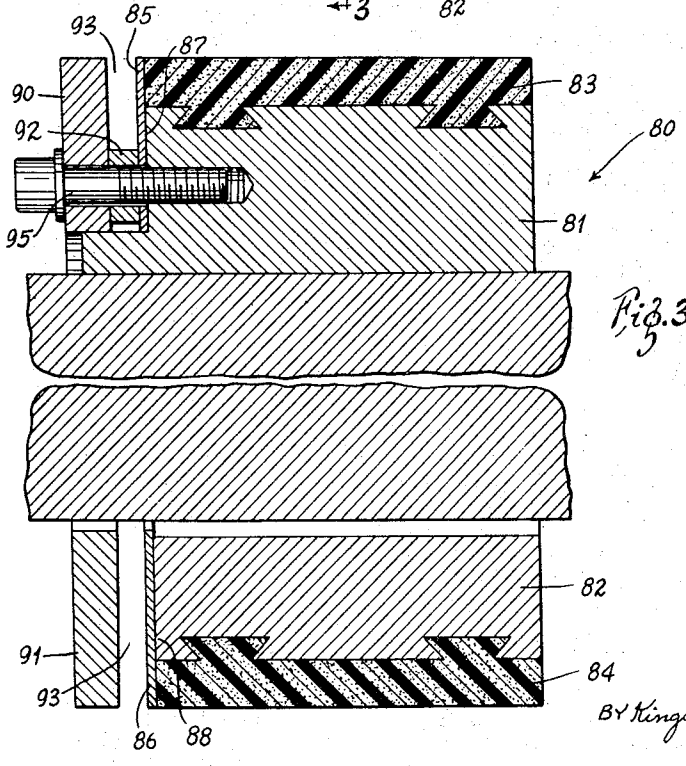


Fig. 3.

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SLOTTING ANVIL

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Original application Sept. 17, 1962, Ser. No. 224,003, now Patent No. 3,285,642, dated Nov. 15, 1966. Divided and this application Nov. 8, 1966, Ser. No. 592,851

2 Claims. (Cl. 83—659)

ABSTRACT OF THE DISCLOSURE

A rotary lower slotting anvil for rotary die cutting including an annular base member on which is removably mounted a polyurethane cover, a thin inner annular tool steel blade secured against one end of the base and cover against which the outer edge segment of an axially extending cutting knife strikes thereby eliminating excessive pounding and permitting full speed operation of the machine, and an outer annular tool steel blade secured to the base in spaced relation to the inner blade defining therewith an annular groove which receives the male slotter knife mounted on the rotary head.

The present application is a division of my copending application Ser. No. 224,003, filed Sept. 17, 1962, for Split Rotary Anvil, Head, and the Like, now United States Patent No. 3,285,642, granted Nov. 15, 1966.

The present invention relates generally to rotary stitch flap cutting, and more particularly to a novel slotting anvil including construction reducing pounding to a minimum.

There has long existed in the corrugated box industry the need for improvements in the operation of cutting stitch flaps and extended glue flaps on corrugated boxes. Solid tool steel anvils have long caused undue pounding of the equipment due to metal to metal cutting with resulting damage to anvils, cutting blades, gearing, and the concerned machinery in general. In addition, production has been limited due to the destructive excessive pounding that results when printer slotters are run at high speeds. Many efforts to solve these existing problems have failed, resulting in withdrawal of machines from the market.

Therefore, an object of the present invention is to provide a novel slotting anvil for cutting stitch flaps and extended glue flaps as well as other cutouts close to a slot, which fulfills and satisfies the foregoing long existing needs.

In brief, in a preferred embodiment there is provided a rotary anvil incorporating a polyurethane cover and a thin tool steel blade of ring form at one side adjacent and defining the inner wall of the annular groove against which the extreme outer segment of the axially extending blade of the rotary head strikes, thereby substantially eliminating the pounding heretofore necessarily a part of stitch flap cutting. Blunting of blade points is eliminated and accurate cutting is assured.

Hence, another object is to provide a novel slotting anvil formed for highly effective cutting and slotting in which pounding of metal on metal is substantially eliminated with resultant benefit to anvil and associated machinery and increased production.

Another object is to provide a novel slotting anvil incorporating a resilient main working periphery and a thin inner blade of steel or the like.

Other objects are to provide anvil structure of the nature heretofore set forth which is highly efficient, which permits the machinery to be run at higher speeds, increasing production, which permits use of present cutting blade equipment by substituting serrated for solid blades, which is long wearing and very effective for the intended purposes, which is readily employed with minimum instruction, and which is otherwise an improvement on existing structures.

The foregoing and other objects and advantages are apparent from the following description taken with the accompanying drawings, in which:

FIGURE 1 is a view of the periphery of a stitch flap lower slotting anvil incorporating the teachings of the present invention mounted upon a shaft which is broken away, as shown, for conservation of space;

FIGURE 2 is an enlarged side elevational view of the rotary anvil of FIGURE 1, looking toward the left of FIGURE 1; and

FIGURE 3 is a further enlarged cross-sectional view taken on substantially the line 3—3 of FIGURE 2, the central portion of the shaft being broken away for conservation of space.

Referring to the drawings more particularly by reference numerals, **80** indicates generally a lower slotting anvil incorporating concepts of the present invention. The slotting anvil **80** includes two metal halves **81** and **82**, resilient cover members **83** and **84** which extend across the major portion of the periphery of the anvil **80** and which are similar in construction and application to the cover members described in my said copending application, an annular narrow tool steel blade comprising ring halves **85** and **86** mounted against shoulders **87** and **88** formed at one side of the metal halves **81** and **82**, respectively, as is clearly illustrated in FIGURE 3, an annular wide tool steel blade comprising ring halves **90** and **91** spaced from the ring halves **85** and **86**, respectively, by spacers **92** thereby forming an annular channel **93**, said ring halves **90**, **91** and **85**, **86** being secured in operative position against the shoulders **87**, **88** by suitable bolts or cap screws **95**.

In a preferred embodiment of the novel slotting anvil **80**, the blade halves **85** and **86** are $\frac{3}{32}$". Hence, in use, all except $\frac{3}{32}$" of the cross cut is made by the cutting rule or blade into the resilient cover members **83** and **84**, thereby reducing the pounding of metal upon metal to a minimum and preventing blunting of the cutting rule or blade which rapidly occurs when it strikes against a metal surfaced anvil heretofore used.

The present novel lower slotting anvil is highly effective for all types of work, including cutting of the quad lock-type of box. It is a distinct improvement over existing structures.

It is manifest that the disclosed structure fulfills the objects and advantages sought.

It is to be understood that the foregoing description and the accompanying drawings have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention, which is limited only by the claims which follow.

What is claimed is:

1. In combination, a rotary slotting anvil for rotary die cutting comprising an annular base member, spaced annular blades adjacent one edge thereof, and a resilient

cover on said base member covering the surfaces thereof between the inner of said two blades and the other edge of said base member, said inner annular blade being of narrow width thereby reducing to a relatively nominal amount the pounding of a head's blade disposed transversely thereto.

2. The combination of claim 1 in which said inner annular blade is of the order of $\frac{3}{32}$" in thickness.

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