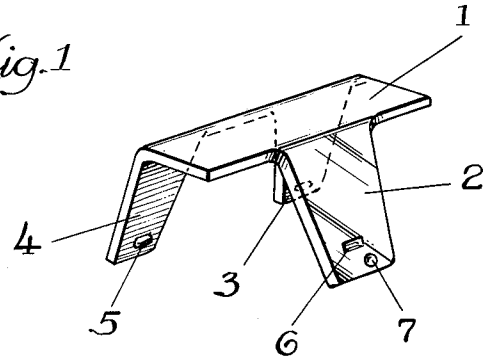
May 1, 1962 W. F. KUSTER 3,032,184

NESTED SEAL BLANK

Filed Aug. 9, 1960

Fig. 1



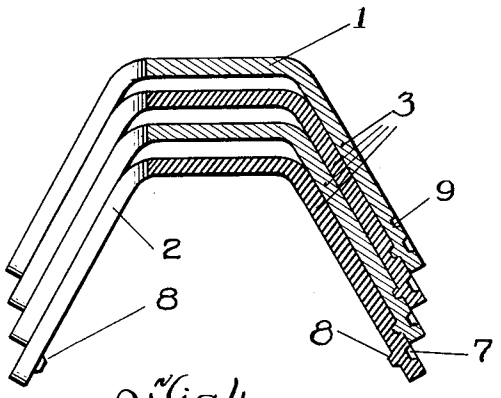


Fig. 4

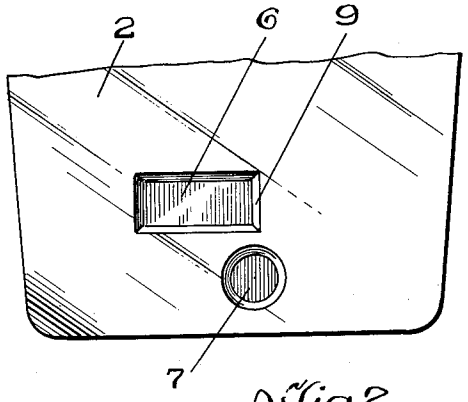


Fig. 2

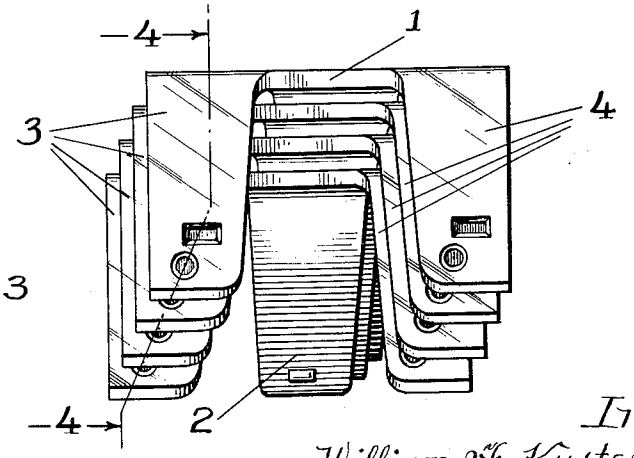


Fig. 3

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3,032,184

NESTED SEAL BLANK

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This invention relates to a nestable seal blank, useful for sealing overlapped strands of wire, steel strapping, plastic ligature or the like and, more particularly, to a seal blank having locking dimples and recesses on its legs, so positioned that an angular clip arrangement is possible when the blanks are stacked or nested together. Such an angular configuration permits the use of a sloping magazine in a crimping tool which permits better access to, and visibility of the workpiece.

The use of crimping tools with magazines for seal blank clips is quite common. There are many patents which illustrate such machines such as, for example, United States Patent Nos. 2,229,522, 2,336,264, 2,661,030 and 2,707,430, which issued January 21, 1941, December 7, 1943, December 1, 1953, and May 3, 1955, respectively. Various nested clip arrangements have been provided such as indicated in Patent Nos. 2,062,098, 2,229,102, 2,746,601 and 2,871,536, which issued November 24, 1936, January 21, 1941, May 22, 1956, and February 3, 1959, respectively.

These patents show nested seal blanks which utilize sodium silicate, strings or wires extending through a center orifice in each seal blank or inwardly directed lips or dimples which engage a channel on the adjacent blank, to maintain the nested blanks in a stacked arrangement.

In all such prior art stacking, a vertical alignment of each blank in the nested stack was necessary. Without such alignment, the stack was unsteady and subject to fairly easy rupture. And, since most seal delivery mechanisms of crimping tools slide the blank sidewise onto the overlapped portions of a strapping or ligature, it was always presumed that a vertical alignment of the nested stack was required which, in turn, necessitated the use of a magazine perpendicular to the axis of the tool. And the requirement that the magazine delivery opening be closely proximate to the crimping jaws necessitated attachment of such a perpendicularly disposed magazine close to the crimping end of the tool. This reduced the accessibility of the gun to the workpiece especially where the workpiece was angular.

A unique design for a seal blank has now been found which permits an angular nested arrangement so that a sloping magazine can be utilized. More particularly, this unique design embodies a blank having a back plate member with at least one outwardly flaring flat leg extending from two opposite edges of said back member to form an inverted stirrup. Each flat leg of the seal blank contains a projection on its inside surface and a recess or depression on its outside surface so located as to receive the projection of a second and similarly shaped seal blank nested therewith. In addition, the projection and the recess are positioned diagonally with respect to each other. Such a diagonal arrangement results in an angular configuration for the clip formed of the nested array of such seal blanks. And a magazine which slopes away from the mouth of the crimping tool can, therefore, be utilized.

"Seal blank" as used herein refers to any plastic or metallic structure used to seal or tie together any form of ligature such as flat strapping, wire, plastic strip or other ligature or any combination thereof whether in a particular form such as a box spring and frame in a mattress, or in any lattice structure or as a tying band around a package.

The invention is more aptly described by reference to the accompanying drawing, in which:

FIGURE 1 is a perspective view of a three legged embodiment of the seal blank of this invention;

FIG. 2 is a detailed side view of the front leg of the blank shown in FIGURE 1;

FIG. 3 is a side view of a nested array of seal blanks such as that shown in FIGURE 1; and

FIG. 4 is a cross-sectional view of the clip of FIG. 3 taken along line 4—4.

Referring to the drawing, particularly FIGS. 1 and 2, the seal blank of this invention consists of a back plate 1 from which depends a number of legs. In the embodiment shown in FIGURE 1, the back member is flat and has a single leg 2 on the front side and two legs 3 and 4 on the back side. Such a flat-back, tri-legged structure is particularly adaptable for affixing box springs to the frame of a box spring or a mattress, or for affixing springs in furniture cushions and the like. Obviously, however, for other uses, a differently shaped back with a lesser or a greater number of legs might be more desirable to form a secure seal. For the sake of simplicity and clarity, however, only the tri-legged embodiment will be herein described in detail.

Each leg 2, 3 and 4 contains a projection 5 on its inside surface. Obviously, the projection could also be on the outside surface. While the projection may be any shape and be operable, it is preferred that it be rectangular and have sloping edges 8, the purpose being more fully explained below.

Each leg also has a recess 6 on its outside surface. Alternatively, the recess 6 may be on the inside surface where the projection 5 is on the outside surface. The recess preferably also has sloping edges 9, and is rectangular in shape. The circular depression 7, shown on the outside surface of each leg is a machine mark formed during the formation of projection 5 on the inside surface. Projection 5 is formed by stamping a plunger into the outside surface of the leg while maintaining an appropriately shaped die on the opposite side of the leg.

Both the recess 6 and the projection 5 are spaced diagonally with respect to each other, such as shown in FIGURES 1, 2 and 3 of the drawing. Such diagonal positioning automatically provides the angular nested or stacked configuration to the clip.

The clip is formed by nesting or stacking a series of seal blanks upon each other in angular fashion such as shown in FIGURE 3 and then pressing them together to snap the projections 5 into locking engagement with the opposing recesses 6. An adhered array of seal blanks, more aptly termed a "seal blank clip," results. The clip so formed is rigid and not easily separated by hand or by accidental or even intentional jarring of the nested array.

The clip can be used in a sloping magazine of a crimping tool. When the tool is operated, only a relatively light force need be applied by the seal blank pickup member of the tool to slide the bottom seal blank of the strip as shown in FIGURE 3, laterally into the seal forming portion of the tool. Such release is further facilitated by providing the projections and the recesses with the sloping side walls or edges 8 and 9, described above. Of course, other configurations to facilitate release such as a dome-shaped or convex projection in a concave recess would also be useful.

From the foregoing, it will be readily observed that numerous variations and modifications may be effected without departing from the spirit and scope of the novel concepts of this invention.

I claim:

1. A seal blank useful for forming a joint between overlapped portions of ligature and adapted to be nested

with another similarly formed seal blank in an angular stacked configuration comprising a backplate having at least one outwardly flaring leg depending from two opposing edges thereof to form an inverted stirrup, each leg having a projection and a recess on opposite sides thereof, said projection and said recess positioned diagonally with respect to each other and said projection being adapted to engage and lock into the recess of a second and similarly shaped seal blank when nested in straddle fashion therewith.

2. A seal blank useful for forming a joint between overlapped portions of ligature and adapted to be nested with another similarly formed seal blank in an angular stacked configuration comprising a backplate having at least one outwardly flaring leg depending from two opposing edges thereof to form an inverted stirrup, each leg having a projection and a recess on opposite sides thereof, said projection and said recess positioned diagonally with respect to each other and said projection being adapted to engage and lock into the recess of a second and similarly shaped seal blank when nested in straddle fashion therewith, and said recess having sloping side walls to facilitate release of the nested seal blank when so nested.

3. A seal blank useful for forming a joint between overlapped portions of ligature and adapted to be nested with another similarly formed seal blank in an angular stacked configuration comprising a backplate having a first outwardly flaring leg depending from one edge and a pair of outwardly flaring legs depending from the opposite edge in staggered relation to said first leg to form an inverted stirrup with staggered side walls, each leg having a projection and a recess on opposite sides thereof, said projection and said recess positioned diagonally with respect to each other, and said projection being adapted to engage the recess of a second and similarly shaped seal blank when nested in straddle fashion therewith.

4. A seal blank useful for forming a joint between overlapped portions of ligature and adapted to be nested with another similarly formed seal blank in an angular stacked configuration comprising a flat backplate having a first outwardly flaring flat leg depending from one edge and a pair of outwardly flaring flat legs depending from the opposite edge in staggered relation to said first leg to form an inverted stirrup with staggered side walls, a projection on the inside surface and a recess on the outside surface of each of said legs, said projection and said recess positioned diagonally with respect to each other and said projection being adapted to engage and lock into the recess of a second and similarly shaped seal blank when nested in straddle fashion therewith, and said projection and said recess having sloping side walls to facilitate release of the nested seal blank when so nested.

5. An angularly disposed nested array of seal blanks comprising a stacked assembly of individual seal blanks neseted together, each blank in said assembly having a backplate with at least one outwardly flaring leg depending from two opposing edges thereof to form an inverted stirrup, each of the legs having a projection and a recess on opposite sides thereof positioned diagonally with respect to each other, and each said projection engaging and locking into the recess of the next adjacent seal blank in the nested array.

6. An angularly disposed nested array of seal blanks comprising a stacked assembly of individual seal blanks nested together, each blank in said assembly having a backplate with at least one outwardly flaring leg depending from two opposing edges thereof to form an inverted stirrup, each of the legs having a projection and a recess on opposite sides thereof positioned diagonally with respect to each other, and each said projection engaging and locking into the recess of the next adjacent seal blank in the nested array, and each said recess having sloping side walls to facilitate release of the lowermost seal blank.

7. An angularly disposed nested array of seal blanks comprising a stacked assembly of individual seal blanks nested together in similar fashion, each blank in said assembly having a backplate with a first outwardly flared leg depending from one edge and a pair of outwardly flaring legs depending from the opposite edge in staggered relation to said first leg to form an inverted stirrup with staggered side walls, each of said legs having a projection and a recess on opposite sides thereof positioned diagonally with respect to each other, and each said projection engaging and locking into the recess of the next adjacent seal blank in the nested array.

8. An angularly disposed nested array of seal blanks comprising a stacked assembly of individual seal blanks nested together in similar fashion, each blank in said assembly having a flat backplate with a first outwardly flaring flat leg depending from one edge and a pair of outwardly flaring legs depending from the opposite edge in staggered relation to said first leg to form an inverted stirrup with staggered side walls, a projection on the inside surface and a recess on the outside surface of each of said legs, said projection and said recess positioned diagonally with respect to each other and said projection being adapted to engage and lock into the recess of the next adjacent seal blank in the nested array, said projection and said recess having sloping side walls to facilitate release of the lowermost seal blank.

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