United States Patent

[11] **3,550,768**

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[21] Appl. No. **807,249**
[22] Filed **Mar. 14, 1969**
[45] Patented **Dec. 29, 1970**

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[54] **SEAL BLANK**
9 Claims, 3 Drawing Figs.

[52] **U.S. Cl.** **206/65,** 24/23, 211/59
[51] **Int. Cl.** **B65d 63/06,** B65d 71/00, B65d 85/62
[50] **Field of Search** ..... 206/65(K), 65, 57, 37; 24/23(W), 20(W); 211/59, 57

[56] **References Cited**

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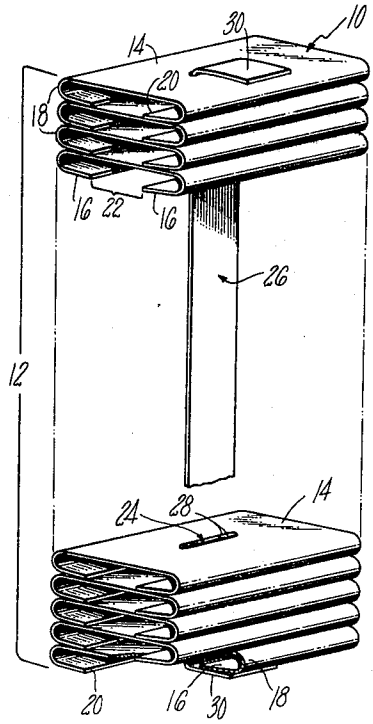
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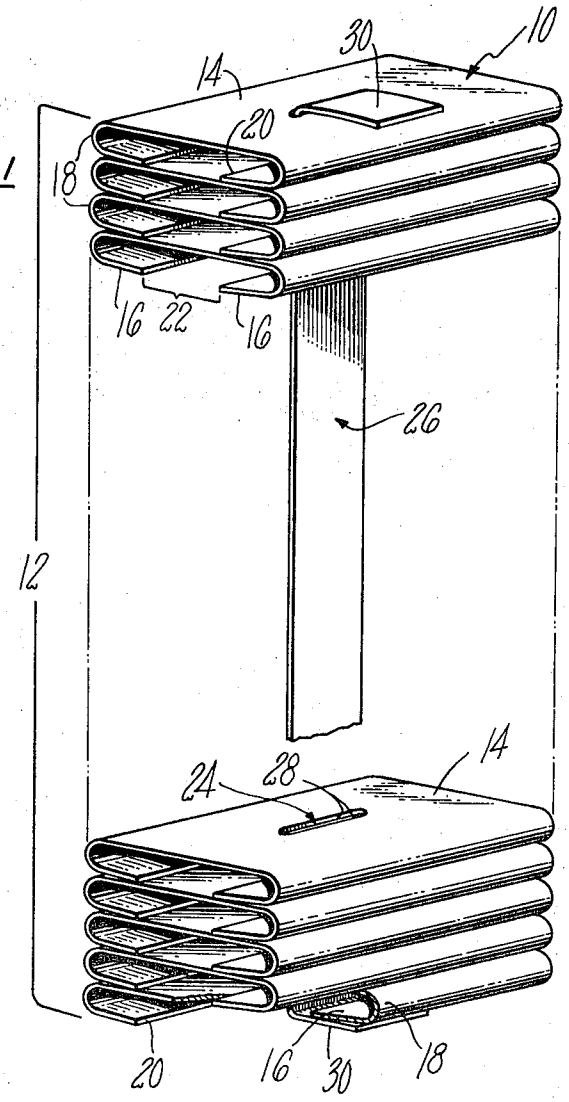
ABSTRACT: Stacked sleeve seal blanks having configured apertures in their back plates are secured in a uniformly oriented manner through interengagement with a semirigid binder ribbon passing through and cooperating with the apertures. The ribbon may be bent or twisted at its ends to temporarily lock the seal blanks together until the entire stack is inserted as a unit into a suitable blank feeding device.



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FIG. 1



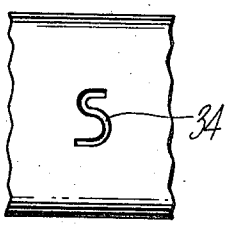


FIG. 2

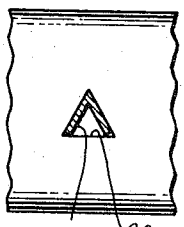


FIG. 3

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SEAL BLANK

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates to a new and improved seal blank for securing overlying portions of strapping and the like and to a transportable stack of such seal blanks.

Seal blanks may be conveniently classified into two groups, nestable blanks commonly referred to as the "open" type and nonnestable blanks of which the closed sleeve seal blank is typical. The open nestable blanks are generally of U-shaped cross section and conventionally have a pair of outwardly flared side flanges permitting overlap or nesting of one blank within another when the blanks are stacked in aligned overlying relationship. The nonnestable seal blanks do not possess overlapping flanges and therefore must be placed within a carton or tied with an externally circumscribing binder to prevent relative orientation and misalignment of the blanks during shipment and handling.

As is well known, it has become the custom for seal blanks to be fed to a sealing station from elongated magazines or similar dispensing devices. Accordingly, it is desirable to provide the blanks in the form of elongated stacks which can be quickly and efficiently loaded into the magazine. The open-type nestable seal blanks are particularly well suited to this stacking requirement and therefore have experienced considerable popularity at the expense of the closed type blank, despite the many advantages of the latter.

Accordingly, it is an object of the present invention to provide a new and improved, nonnestable, seal blank construction and design which facilitates the aligned stacking of a plurality of such blanks and the prevention of relative orientation thereof within the stack without the necessity for external wrappings, thereby enhancing the adaptability of such blanks for use with magazine-fed sealing devices.

Another object of the present invention is to provide a new and improved seal blank of the type described which is self-orienting into an aligned relative position within the stack independently of immediately adjacent seal blanks.

Still another object of the invention is to provide a stack of closed-type strapping seal blanks which can be conveniently handled and shipped, and can be readily inserted into a magazine while the blanks are releasably held against relative movement.

A further object of the present invention is the provision for a simple and economical seal blank design capable of utilizing the manufacturer's trademark or symbol as part of the stack alignment feature thereof.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

These and related objects are achieved in accordance with the present invention by providing a seal blank with a suitably configured aperture in its back plate for preventing rotation of the seal blank relative to a deformable, stack-binding ribbon passing through the aperture. Both the aperture and the ribbon are of noncircular shape and permit free sliding movement of the blank along the longitudinal axis of the ribbon except when the ribbon is deformed to limit such movement.

A better understanding of the objects, advantages, features, properties and relationships of the invention will be obtained from the following detailed description and the accompanying illustrative drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the Drawing

FIG. 1 is a perspective view of a stack of sleeve seals incorporating the invention, a portion of the stack being removed for clarity of illustration;

FIG. 2 is a partial plan view of a sleeve seal blank showing the ribbon-receiving aperture thereof in the form of the letter S; and

FIG. 3 is a plan view similar to FIG. 2 showing another embodiment of the aperture with the ribbon filling only a portion thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing in greater detail, wherein like reference numerals indicate like parts throughout the various FIGS., several sleeve-type, strapping seal blanks **10** are shown uniformly oriented and aligned in the form of an elongated stack, generally designated by the numeral **12**. Each sleeve seal blank **10** within the stack **12** is substantially identical and is comprised of a generally rectangular, flat back plate **14** and a pair of flat, underlying flanges **16** spaced from the plate **14** and integrally connected therewith by arcuate edge portions **18**. The flanges **16** are disposed substantially parallel to back plate **14** and terminate in free edges **20** which define a longitudinally extending central gap **22** communicating with the interior of the seal blank. As depicted, the flanges **16** are spaced from the back plate **14** by a slightly greater distance at their free edges **20** than at arcuate edges **18** to assure noninterference by the flanges with the smooth feeding of the strapping between the plate **14** and the flanges **16** and the subsequent tightening thereof.

As is apparent from FIG. 1, contact between adjacent seal blanks occurs only between those areas of the back plate **14** of the lower blank which underlie the spaced parallel free edges **20** of the overlying seal blanks. The generally flat and smooth top surface of plate **14** provides no substantial interference to relative movement between the seal blanks, and clearly no mutually interlocking surfaces. Accordingly, the blanks themselves provide no mutually interlocking surfaces. Accordingly, the blanks themselves provide no mutually interacting locking means for securing the blanks against rotational or slidable displacement in the absence of a suitable binder.

Advantageously, such misalignment is prevented in accordance with the present invention by providing the back plate **14** of each sleeve seal blank with an aperture of suitable configuration to provide self-alignment of the blank when the stack **12** is secured by a ligature of complementary configuration extending through the apertures axially of the stack. Accordingly, as shown in FIG. 1, the blanks **10** are provided with a generally elliptical aperture **24** positioned centrally in the back plate above the gap **22** defined by flange edges **20**. A ribbonlike binder or ligature **26** passes longitudinally through the entire stack **12**, firmly securing each seal blank **10** against displacement in its respective horizontal plane by the interfering cooperation between the ligature **26** and the sidewalls **28** of the aperture **24**. The aperture and binder are configured and dimensioned for a freely cooperative fit to provide free sliding movement of the blanks along the length of the binder.

The ribbonlike binder **26** is preferably a semirigid member, albeit sufficiently soft to facilitate manual deformation of those portions which protrude from a given stack of seal blanks. Thus, as shown in FIG. 1, the end tabs **30** of the binder may be bent down into contact with the terminal seal blanks in the stack. Of course, it will be appreciated that the binder may be deformed in other ways to provide the desired blank-securing effect, such as by twisting the ends of the ligature about their axis. It is also a feature of the present invention that the ribbonlike ligature **26** can be easily withdrawn from the stack after it has been loaded into the magazine of a sealing device. Even in the absence of a straightening of the lower end tab **30**, the ligature can be easily removed simply by firmly grasping the top end tab and steadily drawing the ligature upwardly. Thereby no cutting tool is required to ready the stack for use and the risk of jamming a severed binder in the magazine is substantially reduced.

In order to provide these features it has been found that dead soft strip steel can be beneficially employed. Such material is easily deformed by hand yet is sufficiently rigid to resist inadvertent release of secured seal blanks within the stack. It will be appreciated that suitable equivalent material can also be used.

As will be readily appreciated, the specific design of the aligning and orienting aperture of the seal blank may vary substantially so long as the requisite interference to rotation relative to the binder is maintained. Apertures **34** and **36** shown in

FIGS. 2 and 3, respectively, are exemplary of other configurations which may be employed. Accordingly, the particular configuration may take the form of a manufacturer's trademark or symbol such as the triangular aperture 36, or may be a letter associated with the manufacturer such as the S-shaped aperture 34 of FIG. 2. Either configuration would readily cooperate with a noncircular ligature of suitable size and shape to impart the desired orientation and alignment to the seal blanks. As will be appreciated, the ligature may conform entirely to the configuration of the aperture, as illustrated in FIG. 1, or may fill only a portion thereof in the manner of binder 38 of FIG. 3. In either event the cooperative interference fit between the seal blank and the ligature is present.

As can be seen from the foregoing detailed description, the present invention provides a new and improved sleeve seal blank capable of being stacked in an oriented and aligned manner for shipment and handling as a unit without external packaging. Additionally, secured stacks can be quickly and efficiently loaded into a magazine or other dispenser for a strap sealing device in much the same manner as nested seal blanks. The noncircular aperture in the back plate of the seals provides for self-orientation of the seals through the cooperative interengagement with a noncircular ligature whose ends can be easily deformed to retain the stacked seal blanks in firm abutting engagement. The construction also permits the free, unhampered removal of independent blanks from the stack after removal of the retaining ligature. Further the new design permits the loading of the stack within a dispensing device prior to removal of the ligature and facilitates the manual removal thereof without the necessity of cutting tools thereby precluding disintegration of the stack or possible misalignment of the blanks prior to the magazine loading operation.

As will be apparent to persons skilled in the art, various modifications, adaptations and variations of the foregoing specific disclosure can be made without departing from the teachings of the present invention.

I claim:

1. An elongated stack of nonnestable seal blanks suitable for securing strapping and the like comprising a plurality of individual seal blanks disposed in aligned overlying relationship, each of said blanks including a back plate having seal blank orienting means spaced inwardly from the edges thereof, the orienting means of immediately adjacent seal blanks being mutually independent, and a thin elongated strip of easily deformable ribbonlike binding material extending along the length of the stack in engagement with the orienting means of each seal and providing continuous positive interference to movement of the blanks relative to the strip at the area of engagement therewith, said strip being of single thickness and adapted to retain the blanks in alignment within the stack for transport and storage thereof yet at the same time being sufficiently pliable to be axially withdrawn from engagement with the blanks without rupture of the strip.

2. The stack of claim 1 wherein the orienting means are the sidewalls of an aperture in the back plate of a nonnestable seal blank and the strip extends through the aperture in each seal blank for contact with the sidewalls, the configuration of the aperture and the strip mutually cooperating to prevent rotation of the seal blanks relative to the strip.

3. The stack of claim 2 wherein both the aperture and the strip are of noncircular configuration.

4. The stack of claim 1 wherein the deformable strip has a central portion within the stacked seal blanks and top and bottom end portions extending therebeyond and deformed to secure the seal blanks within the stack.

5. The stack of claim 1 wherein the orienting means includes a noncircular aperture and the deformable strip is a semirigid ribbon passing through the aperture of each seal blank and deformed externally of the terminal blanks within the stack.

6. The stock of claim 5 wherein the ribbon has a cross-sectional area substantially less than the size of the aperture.

7. A seal blank of the nonnestable type adapted to be stacked in aligned overlying relationship with other similarly formed seal blanks and retained within the stack by a ribbonlike deformable strip comprising a back plate having a noncircular aperture spaced inwardly from the edges thereof for positive interfering engagement with said deformable strip, said aperture being configured to prevent rotation of the seal blank relative to the strip at the area of interfering engagement therewith.

8. The seal blank of claim 7 wherein the blank is a sleeve type and includes spaced side flanges in substantially parallelism with the back plate, the aperture being centrally disposed on the back plate overlying the space between the side flanges.

9. The stack of claim 1 wherein the elongated strip is made of dead soft strip steel.