Jan. 21, 1941. J. H. LESLIE, 2D 2,229,102

STRAP SEAL

Filed Feb. 10, 1939

Fig. 1.

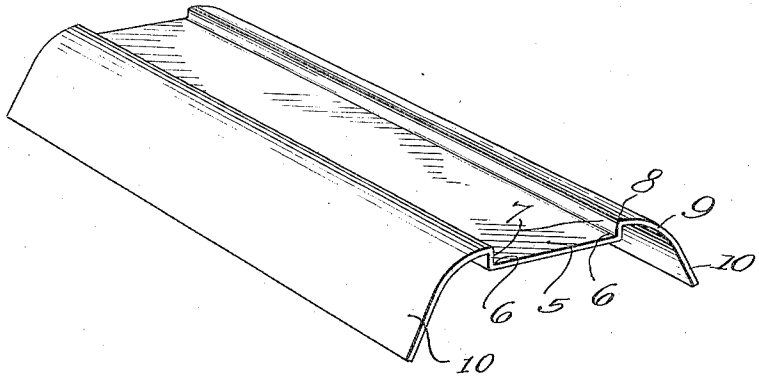
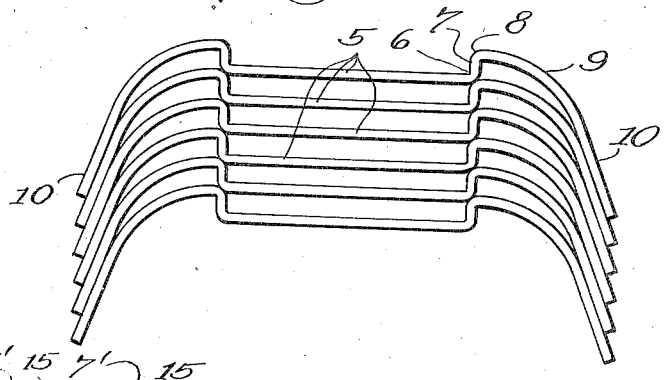


Fig. 2.



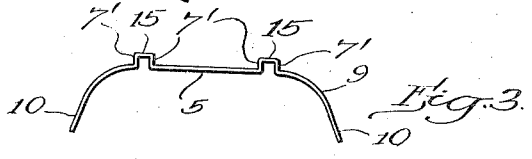


Fig. 3.

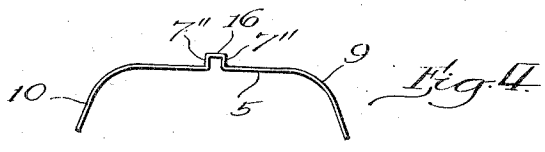


Fig. 4.

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Patented Jan. 21, 1941 2,229,102

UNITED STATES PATENT OFFICE

2,229,102

STRAP SEAL

John H. Leslie, II, Winnetka, Ill., assignor to Signode Steel Strapping Company, Chicago, Ill., a corporation of Delaware

Application February 10, 1939, Serial No. 255,656

5 Claims. (Cl. 24—23)

My invention relates to strap seals—i. e., to the more or less channel shaped metallic devices that are employed to embrace overlapping portions of package binder strap and to be deformed therewith to produce a tension resisting and molestation detecting joint between such overlapping strap portions.

One of the objects of the invention is to provide an improved seal particularly adapted for use with magazine type package binding tools, such for example, as the tool set forth in an application for patent executed by me on even date herewith and entitled "Package Binding Tools," Serial No. 255,655 filed February 10, 1939.

Another object is to provide a seal which, with other like seals, may be nested together in a stack for reception by and retention in the magazine of such a tool.

Another object is to provide seals which readily stack together, with uniform and properly maintained spacing therebetween to facilitate separation from the stack one at a time.

Another object is to provide seals which may be maintained in a stack, are not readily squeezed together to alter the desirable separation, are not subject to tilting or cocking with respect to each other and which readily may be slid longitudinally with respect to each other to facilitate ejectment, one at a time, from a magazine.

In the accompanying drawing:

Fig. 1 is a perspective of a seal of the shape I prefer to employ;

Fig. 2 is an end elevation through a stack of seals shaped as shown in Fig. 1;

Fig. 3 is an end view of a modified shape of seal, and

Fig. 4 is an end view of another modified shape.

The seals are formed from relatively thin sheet metal—preferably steel—having a characteristic that when deformed with overlapping strap ends, which it embraces to provide an interlocking tension resisting joint, it will retain its deformed shape against considerable force tending to alter that shape. Of course, the size and weight of the seals will vary with the size and weight of the strap with which they are to be used and with the strap tension the joints are to withstand.

Referring first to the preferred shape shown in Figs. 1 and 2, each seal has a flat back plate 5. Along each edge of the back plate the sheet is bent backward along an angle 6, substantially perpendicular to the back plate to form substantially parallel upstanding riser flanges 7. At the outer edge of each flange 7 the sheet is bent outwardly along the angle 8 substantially perpendicular to the adjacent flange 7, and then forwardly and outwardly on a curve 9, and finally left obliquely straight as at 10. Thus, the seal of Figs. 1 and 2, in cross-section, comprises a central back plate 5 flanked by riser or separation flanges 7 and lateral wings 9, 10. The height of flanges 7 may be varied depending upon the amount of separation desired between the back plates of adjacent seals when they are stacked in nested relation as shown in Fig. 2. The angles at which the straight portions 10 of the wings flare or diverge from the vertical (i. e., the perpendicular to the back plate) should be varied as the height of flanges 7 is varied in order to provide, in effect, the four point—or more strictly speaking a four line—contact between adjacent seals. In general, the higher the flanges the steeper the angles at which the straight portions 10 of the wings flare from the back plate.

When a plurality of such seals are nested together to form a stack, as indicated in Fig. 2, the contacts between adjacent seals are substantially along lines where angles 6 of one seal fit against angles 8 of an adjacent seal and throughout limited areas of the skirts adjacent the seals' edges. In this manner the back plates 5 of the seals in a stack are maintained separated—the amount of separation being dependent upon the height of flanges 7—and, by reason of the contacts between seals extending throughout their lengths, the separation is uniform from end to end. Yet, because the principal contacts are restricted substantially to lines where angles 6 and 8 abut, one seal may be readily slid upon another, for example, to feed them one at a time form a stack. Also, the inter-wing contacts, plus the slight internesting of the rounded angles or running corners 6 and 8, prevent lateral displacement and rotation of a seal relative to its neighbor in the plane of Fig. 2, and hence keep the stack straight. Furthermore, because of the fact that the principal line contacts extend from end to end of the seals, there is little tendency for seals to tilt or cock upon each other, either while they are together in the stack or while one is being slid longitudinally from the rest of the stack. The riser flanges 7 serve as strengthening ribs to keep the seals in shape and to prevent them from being flattened individually or crushed into adjacent seals.

In order to facilitate handling as a stack, the seals may, if desired, be secured together in such a way that, although individual seals may be removed from a stack when occasion requires, they are united against inadvertent separation. For example, they may be stuck together by thin films of sodium silicate (water glass).

In Fig. 3 the separation-flanges 7' are provided by a pair of parallel longitudinal corrugations or ribs 15 formed in and flanking the back plate.

In Fig. 4 the separation-flange 7'' is a single central longitudinal rib 16 in the back plate.

Otherwise than in respect of the manner of providing the seal separation and stiffening flanges, the characteristic shapes of the seals shown in Figs. 3 and 4 are the same as those heretofore explained in connection with Figs. 1 and 2.

Having thus illustrated and explained the nature and characteristics of my invention, what I claim and desire to secure by United States Letters Patent is as follows:

1. A strap seal, vertically internestable with like seals, comprising a single piece of sheet metal bent longitudinally to provide an elongated rectangular central back plate, similar low riser flanges upstanding from the respective lateral margins of the back plate, and similar wide wings extending outwardly and obliquely downwardly from the upper edges of the respective riser flanges.

2. A strap seal according to claim 1, wherein the height of the riser flanges substantially equals the vertical thickness of the wings adjacent their outer edges.

3. A strap seal according to claim 1, wherein the height of the riser flanges substantially equals the vertical thickness of the wings adjacent their outer edges and wherein each wing includes an obliquely straight portion of substanial width adjacent its outer edge and a curved portion extending between the riser flange and the straight portion.

4. A strap seal, vertically internestable with like seals, comprising a single piece of sheet metal formed to provide a back plate, similar outwardly and downwardly extending wings at the respective lateral edges of the plate, and a central bead in the back plate for spacing it from the back plate of an adjoining seal in a stack of like seals.

5. A strap seal, vertically internestable with like seals, comprising a single piece of sheet metal formed to provide a back plate, wings extending outwardly and downwardly at the respective lateral edges of the plate, and a spacer intermediate the wings for spacing the plate from the back plate of an adjoining seal in a stack of like seals.

JOHN H. LESLIE, II.