

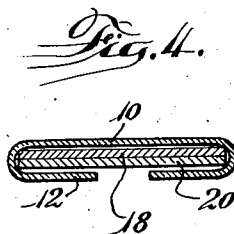
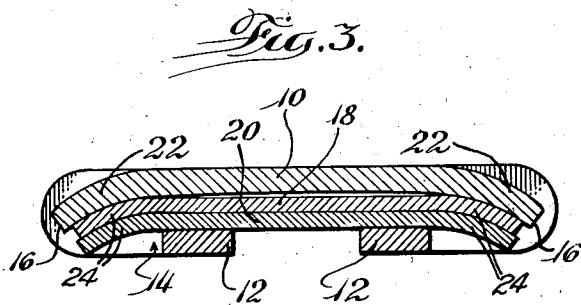
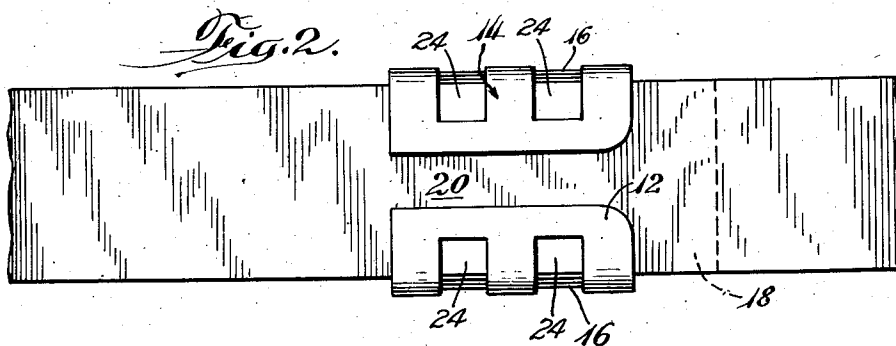
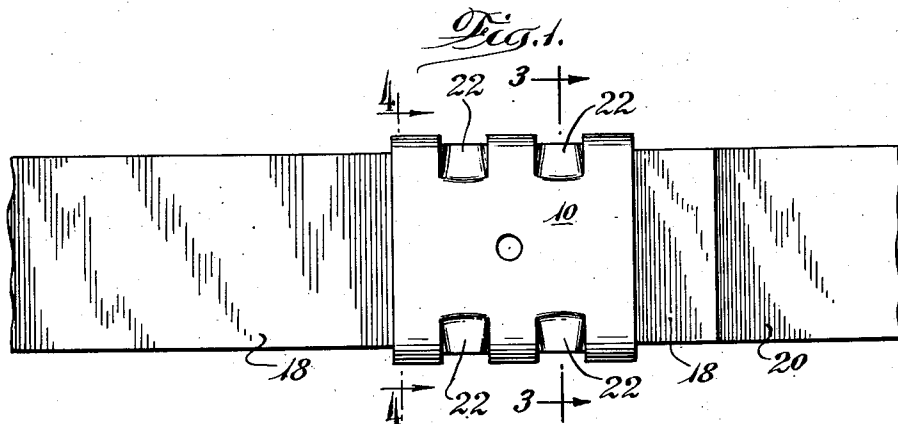
Sept. 16, 1952

J. H. LESLIE, II
BUNDLE-BINDER SEAL

2,610,374

Filed Sept. 3, 1948

2 SHEETS—SHEET 1



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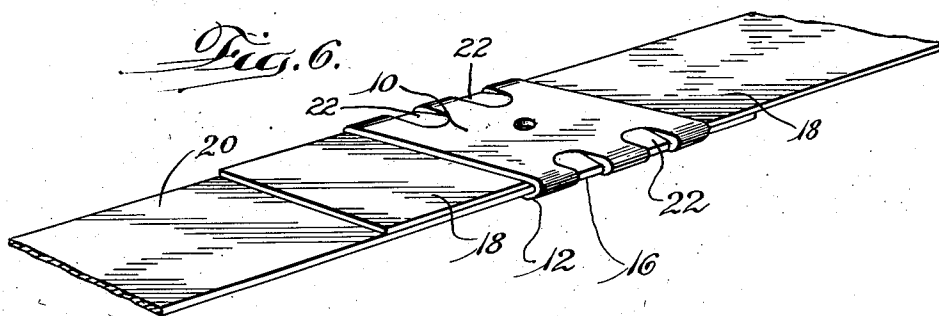
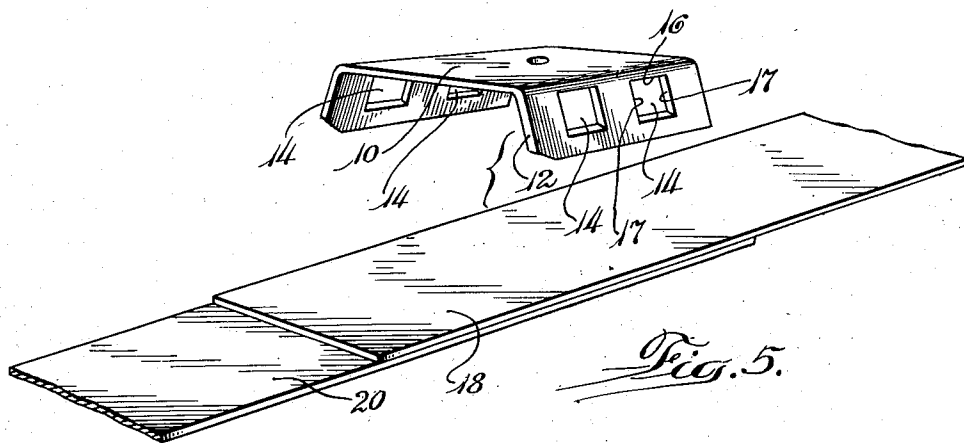
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

2,610,374

BUNDLE-BINDER SEAL

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

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2 Claims. (Cl. 24—23)

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My invention relates to an improved bundle-binder seal; that is, a seal for use in forming seal joints in the overlapping ends of tensioned bundle encircling loops of steel binder strap.

Particularly in the strapping of finished sheet metal, although the advantage pertains in some degree to any strapped package, it is highly desirable that a strap joint be flat on both its inner and outer surfaces. Joints protruding inwardly toward the bundle may cause serious damage to the material strapped in the event that excessive pressure or impact is brought to bear on the joint as in the course of handling or stacking. In the case of sheet metal, the sheet or sheet edges adjacent the seal will be injured, and frequently, if the sheets are thin, the injury or dent will be transmitted to mar several sheets interiorly of the outer sheet. Joints protruding outwardly from the bundle can do similar harm to other material which may be brought against the seal in the course of handling or stacking, and outwardly protruding joints can interfere with the sometimes desirable sliding of bundle-on-bundle or on other objects, and, by catching against other joints or objects, tend to loosen and displace the binder straps. This flatness, of course, should be obtained with a minimum loss of strength in the union or joint between the overlapping ends of the bundle-encircling loops of strap binder.

The joints characterized by these protrusions, i. e., sheared and offset portions of the joint edges to perfect the juncture, have a second flaw. Again, when great pressure or impact may be applied to the joint as in handling, the protrusions may be flattened to realign substantially the sheared portions with the bodies of the elements from which they were formed. This reduces the strength of the joint materially. Were it possible to bend these tabs or tongues sufficiently for a strong seal and still contain them within the limits of the inner and outer surfaces of the joint, the tabs would be protected by these surfaces from being straightened by impact or pressure. This my invention accomplishes.

One object of my invention, therefore, is to provide a seal for a strap joint which, while maintaining good strength characteristics, has no projections from either the inner or outer surface, that is, either toward or outwardly from the bound bundle.

Another object of my invention is to provide a steel strapping joint which is not subject to loosening by excessive pressure being applied to the faces of the seal.

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Other objects and advantages will become apparent from the description and drawings, of which:

Fig. 1 is a plan view of the outer surface of a strap joint employing a seal embodying the features of my invention;

Fig. 2 is a plan view of the inner surface of a joint;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a reduced section on the line 4—4 of Fig. 1;

Fig. 5 is a perspective of overlapping strap portions suitably arranged for sealing, showing a seal in placement position thereover; and

Fig. 6 is a perspective view of the completed joint.

The seal embodying my invention comprises primarily a rectangular piece of metal having segments on opposite sides thereof bent relative to the main portion to define a back plate 10, which really forms the front or exposed side of a finished joint. This back plate 10 is approximately equal in width to the width of the strap for which the seal is to be employed. Two flanges 12 depend from its opposite edges. In the particular embodiment here shown each flange has two rectangular openings or "windows" 14 formed therein. The number of windows in each flange may be varied as desired or as requirements of joint strength may dictate. I have chosen to explain a seal having two windows in each flange. These windows are located to lie wholly within the area of the flange in which they occur, the inner edge 16, however, being closely adjacent to the seal back plate 10. The exact positioning of the inner window edge 16 is such that, when the seal is folded, this edge will lie approximately at the center of the fold.

In the production of a seal joint the seal is placed over the overlapping ends 18 and 20 of the strap surrounding a bundle with the flanges directed inwardly toward the package. With an appropriate tool the flanges are then folded in so as to lie in a plane parallel with the plane of the back plate, enclosing the strap ends 18 and 20 to define a strap-seal resembling a sandwich. The back plate 10, being of solid metal, has greater rigidity than the perforated flanges. The bend, therefore, will occur in the flanges without deformation of the back plate and hence the minimum spacing of the fold edges may be predetermined with accuracy without using the strap edges for its definition. This feature is of importance when it is desired to tension the strap around a bundle after the placement and

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partial folding of the seal because, by employing a seal designed in accordance with my invention, the folds may be spaced from the strap edges to avoid crimping or undesirable pressure of the seal thereon. In this fashion the strap portions are maintained slidable relative to the seal and each other.

After thus folding the steel flanges about the overlapping strap ends, either prior to or after the strap has been tensioned, relatively longitudinally narrow notches or tongues 22, substantially the width of the flange windows, are first formed in the back plate and edges of the overlapping strap ends and then offset inwardly into but not beyond the window openings. In this operation the tongues in the back plate are produced by actually slightly shearing the metal thereof substantially in line with the edges of the windows. It is, however, frequently unnecessary similarly to shear the edges of both strap ends because frequently and under some conditions the edges of the strap ends can be offset sufficiently to provide adequate interlock by merely bending into but not beyond the flange windows small sections or tongues thereof. The aim is that tongues formed in both the back plate and the overlapping strap ends of substantially the same width as the flange windows be offset inwardly sufficiently to provide pull resisting interlocking shoulders but not sufficiently to cause the tongues appreciably to project inwardly beyond the windows.

By locating the flange windows entirely within the area of the flange in which they are located so that, in the formation of the joint, one or more small tongues are first sheared into each side of the back plate and then those tongues are offset inwardly carrying with them somewhat corresponding edge portions of the overlapping strap ends, the tongues from the back plate not only themselves act as interlocks between the strap ends but tend to retain the interlocking

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relation between the edges of the tongues 24 formed in the edges of the overlapping strap portions. Thus, not only is a strong and dependable joint produced but also, since the offsets project into but not inwardly beyond the windows, the joint is flat on both its inner and outer faces.

Having described the nature and one embodiment of my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A binder strap joint comprising overlapping ends of the strap and a seal consisting of a back plate and flanges surrounding and tightly fitting about the overlapping strap ends, the flanges of the seal having openings wholly within the flange borders, and the back plate and overlapping strap ends being sheared inwardly along opposite edges to form tongues which are offset to project into but not beyond the openings in the said flanges.

2. A binder strap joint comprising overlapping ends of the strap and a seal consisting of a back plate and flanges surrounding and tightly fitting about the overlapping strap ends, the flanges of the seal having openings wholly within the flange borders, and the back plate and edges of the overlapping strap ends being offset inwardly into but not beyond the flange openings so as to provide shoulder interlocks against relative longitudinal movement between the seal and the overlapping strap ends and between the overlapping strap ends.

JOHN H. LESLIE, II.

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The following references are of record in the file of this patent:

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