Dec. 13, 1927.

S. C. CARY

1,652,813

MEANS FOR SEALING SHIPPING PACKAGES

Original Filed May 15, 1919

Fig. 1.

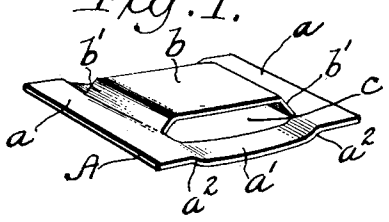


Fig. 2.

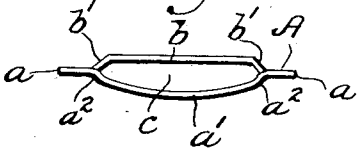


Fig. 3.

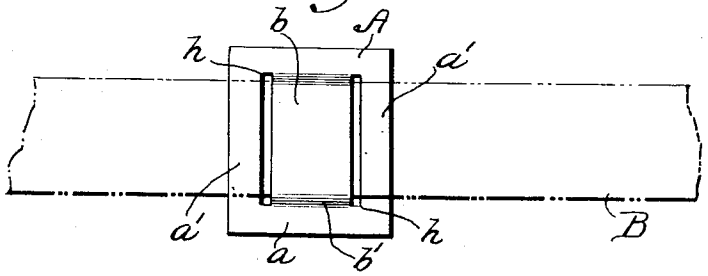


Fig. 4.

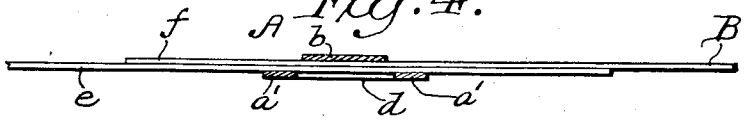


Fig. 5.

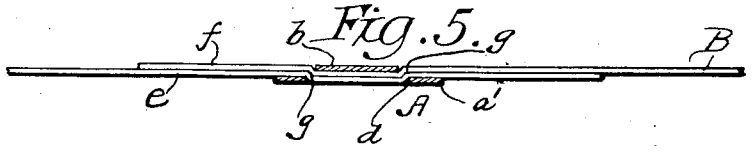
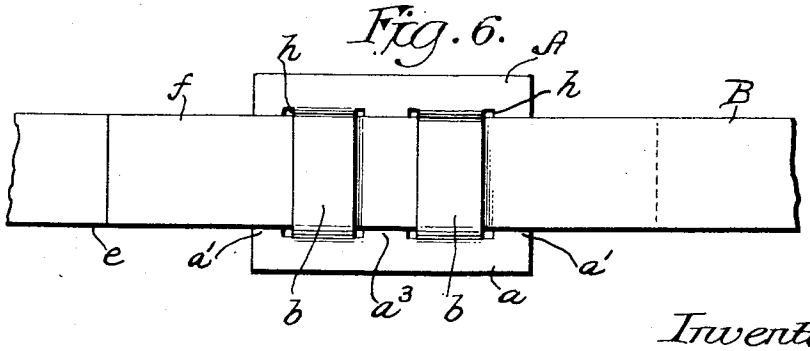


Fig. 6.



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UNITED STATES PATENT OFFICE.

SPENCER C. CARY, OF NEW YORK, N. Y., ASSIGNOR TO CARY MANUFACTURING CO., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MEANS FOR SEALING SHIPPING PACKAGES.

Application filed May 15, 1919, Serial No. 297,348. Renewed June 18, 1923.

This invention pertains to means for sealing packages, and, more particularly, to a seal member adapted for deformation in such a way as to effect an interlocking connection between the meeting end portions of a binder under tension with reference to a shipping package.

In the inventions forming the subject matter of my prior Patent No. 1,301,102, granted April 22, 1919, and of my prior application Serial No. 267,937, filed Dec. 23, 1918, there are disclosed sealing members wherein the lapping end portions of a binder are adapted by compressing certain parts of the sealing member to effect the interlocking engagement of said binder end portions, such compression taking place without cutting or shearing the binder and the whole operating to produce a seal and coupling which lies close to or flat upon the package in order that the packages may be stacked or piled to advantage.

The prior inventions utilize a sealing member composed of flat metal slotted to produce one or more bridge members which, in the condition of the seal prior to its union with the binder, are struck up from the plane of the plate forming an element of said seal. The manufacture of the sealing member involves the displacement of the bridge member relatively to the plane of the plate, and this requires the use of metal possessing a certain degree of ductility, as one result of which the seal does not successfully resist a high tensional strain on the binder.

According to the present invention the metal is displaced in both the seal plate and the bridge member, the effect of which is threefold; (*a*) there is no tendency to rupture or fracture the metal along the lines of juncture between the bridge member or members and the plate; (*b*) it is feasible to use harder and stronger metal in the production of the seal, thus affording a coupling which resists great tensional strains of the binder, and (*c*) the area of the opening in the seal member is made sufficiently large for the easy and free introduction of the end portions of the binder.

Other functions and advantages of the invention will appear from the following description, taken in connection with the drawings, wherein

Fig. 1 is a perspective view of the seal member detached from a binder.

Fig. 2 is an elevation of said seal member looking at one edge thereof.

Fig. 3 is a plan view of the seal member, showing the binder in dotted lines.

Fig. 4 is a longitudinal section prior to compression whereby the binder and the seal are interlocked.

Fig. 5 is a sectional view illustrating the deformation of the seal and the binder to effect interlocking of the parts.

Fig. 6 is a plan view showing the seal member with a plurality of bridge members.

The seal member A is composed, preferably, of strip steel which is cut and struck up by dies appropriate for the purpose. It consists of a plate *a* and one or more bridge members *b*, the salient feature being a mutual deflection of the metal in the bridge member and in the plate relatively one to the other so as to produce an opening *c*, the area of which is sufficiently large to permit the free introduction of the two end portions *e f* of a binder B.

The seal member shown in Figs. 1 and 2 is provided with a single bridge member *b* which spans a slot or recess *d* formed by the deflection of the bridge member relatively to the plane of the plate *a*, the end portions *b'* of said bridge member being inclined relatively to the plane of said plate.

Experience shows that the deflection of the bridge member with respect to the plane of the plate and for an extent required to insure the free introduction of the two end portions *e f* of the binder, has a tendency to so strain or stretch the metal along the lines of juncture of the inclined portions *b'* with the plate *a* as to be likely to rupture or fracture the metal, or to at least so weaken the metal along such lines of juncture that the seal when coupled with the binder will not at all times resist a high tensional strain exerted on said binder, in addition to which there must be used metal having such ductility or softness as will permit the necessary deflection of the bridge member to the extent required.

With a view to overcoming these objections, I deflect the sides *a'* with respect to the plane of the plate *a*, such deflection of

the sides a' being equal substantially to the deflection of the bridge member b with reference to the plane of said plate, said deflected side portions a' being joined by inclined portions a^2 with the plate.

This construction obviates undue strain or stretching of the metal along the lines at which the ends of the bridge member b join with the plate a, for the reason that said bridge member is not required to be deflected to an extent considered necessary heretofore for the production of the opening adapted for the reception of the binder. Furthermore, by mutually deflecting the sides a' and the bridge member b relatively to the plane of the plate a the area of the opening c is increased to an appreciable extent without in the least subjecting the metal to fracture or to undue stresses, whereby the opening is made sufficiently large to permit the easy introduction of the two end portions of the binder, see Fig. 4. Again, the new construction enables me to use stronger and heavier sheet metal in the production of the seal member, to the manifest stability of said seal in resisting the tensional strain of the binder.

The mode of using the seal member will be readily understood by reference to Figs. 4 and 5. The two end portions e f are inserted through the opening c, i. e. in the space intervening the deflected bridge b and the deflected sides a', see Fig. 4, after which the seal is subjected to pressure, the effect of which is to mutually press the bridge b and the sides a' toward or into the plane of the plate a, or substantially so, whereby the overlapping end portions e f of the binder are shouldered as at g, see Fig. 5, and thus the binder ends e f and the seal member are mutually interlocked. The seal practically occupies the plane of the binder, being free from many substantial projecting surfaces or parts, whereby it is adapted to lie close to or in compact relation with the package, so that the boxes or packages may be safely piled or stacked one upon another. The seal operates to securely fasten or lock together the two end portions so as to resist the tensional strain of said binder, and its material and structure are such that the binder can be drawn or stretched very tightly around and in contact with the package without the seal giving way under the stresses exerted upon and by the binder.

By reference to Figs. 1 and 3, it will be noted that spaces h of substantial width are provided between the edges of the deflected bridge member b and the inner edges of the deflected sides a'. These spaces are produced by cutting slots in the metal of the blank during the process of manufacturing the seal member, and said slots are advantageous for the reason that in compressing the seal member the shouldered portions g of the band ends are received partially within said slots (see Fig. 5), whereby the operation of upsetting the seal and band does not bring the edges of the bridge b into shearing relation to the inner edges of the sides a' of the plate.

It is apparent that the seal may have more than one bridge member, and in Fig. 6 I have shown said seal sufficiently large to contain two of the bridge members b, b, the marginal edges of which are spaced relatively to the sides a' and an intermediate bar a^3 of the plate by the provision of slots h' as heretofore described. The sides a' and bar a^3 are with the bridges b b mutually deflected with reference to the plane of the plate a, as heretofore described, and thus an opening or space is provided which is sufficiently large for the free introduction of the band end portions e f. The seal of Fig. 6 is used in the manner heretofore described by compressing the seal and the band ends so as to interlock the parts, the use of the two bridges and the bar a^3 effecting a double interlocking connection between the seal and said end portions of the band.

The binder shown in the drawings is a flat band of the character usually designated in the trade as box strapping, but it will be understood that I may use wire or any other metal suitable for binding the boxes or other shipping packages.

Having thus fully described the invention, what I claim as new, and desire to secure by Letters Patent is:—

1. Means for binding and sealing packages embodying a sealing member comprising a plate and one or more bridge members integral with the plate, the sides of the plate and the bridge member or members being deflected with respect to the plane of the plate in opposite directions to each other and to a substantially equal extent, and a binder the end portions of which are inserted into the seal member and the end portions of the binder being upset by pressure and mutually interlocked for resisting tensional strains on the binder.

2. A sealing member for package binders comprising a plate with an integral bridge member, the sides of the plate being deflected in one direction with respect to the plate, and the bridge member deflected in the opposite direction to a considerable extent, the ends of the bridge portion being inclined relatively to the plane of the plate, and the deflected side portions joined to the plate by inclined portions.

3. A sealing member for packages or package binders, comprising a plate and a bridge member, the material of the plate and bridge member being deflected relatively one to the other to provide an opening to permit the free introduction of two end portions of a binder, and a binder the overlapped ends

thereof being inserted through said opening beneath the bridge member and the bridge member and overlapped end of the binder being intimately compressed to bring all parts in substantially the same plane.

4. A seal member for uniting the lapping ends of a package binder comprising a unitary plate provided with a plurality of transverse slots for producing a bridge member, the boundary portions of said plate and the bridge member being in relatively different planes to provide a clear space for the insertion of the binder ends freely and unobstructedly, the width of each slot exceeding the thickness of the binder, whereby the bridge member and the plate are adapted to be compressed upon the binder ends without subjecting the binder to a shearing action during such compression.

In testimony whereof I have hereunto signed my name.

SPENCER C. CARY.