E McI. LAW.

PACKAGE TIE.

APPLICATION FILED JAN. 28, 1911.

1,031,188.

Patented July 2, 1912.

Fig. 1.

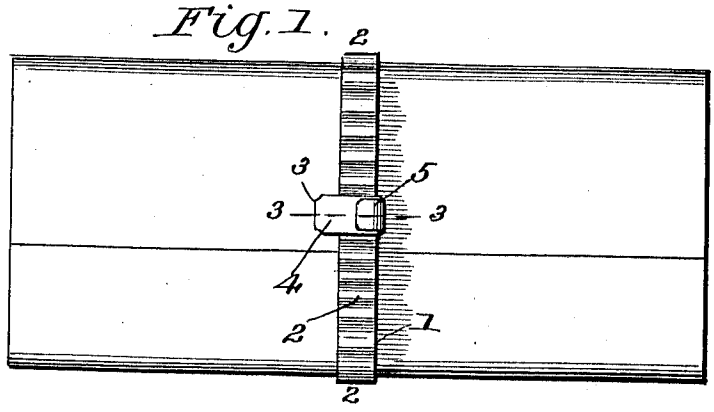


Fig. 2.

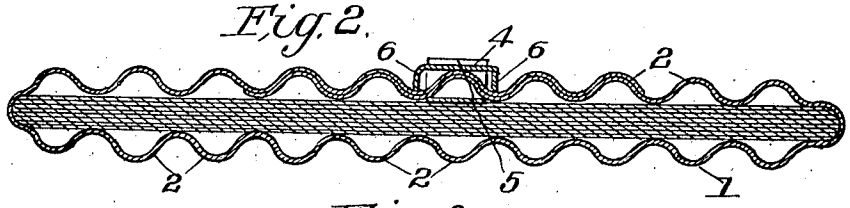


Fig. 3.

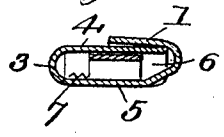


Fig. 5.

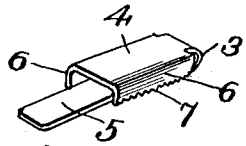


Fig. 4.

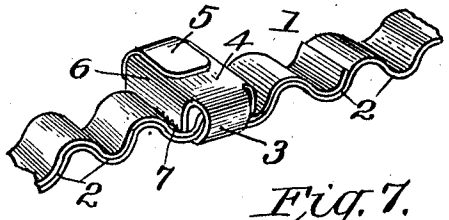


Fig. 6.

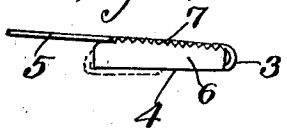


Fig. 7.

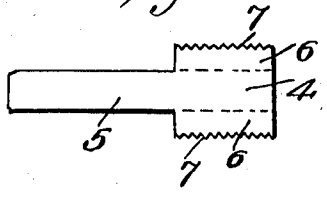
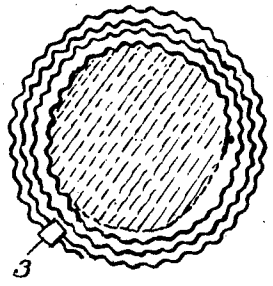


Fig. 8



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UNITED STATES PATENT OFFICE.

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PACKAGE-TIE.

1,031,188. Specification of Letters Patent. Patented July 2, 1912.

Application filed January 28, 1911. Serial No. 605,318.

To all whom it may concern:

Be it known that I, E McIvor Law, a citizen of the United States, residing at Miami, in the county of Dade and State of Florida, have invented certain new and useful Improvements in Package-Ties, of which the following is a specification.

It is well known that the ordinary rubber band, which is the most convenient form of package tie now in use, has become objectionable from a commercial stand point on account of its increased cost and its tendency to soon lose its resiliency and break.

The object of the present invention is to provide a particularly simple, durable and efficient package tie which is designed to supersede the rubber band and to obviate its disadvantages.

Another object of the invention is to produce a device of this character including a pliable metallic tie band which is formed throughout its length with a longitudinal series of transverse corrugations, the corrugations causing the overlapping ends of the band to interengage and also serving to render the band slightly elastic.

A still further object of the invention is to provide an improved clip which is adapted to be secured conveniently about the overlapping ends of the tie band, and which coacts with the specific construction of the tie band to effectually retain the said ends in engagement to form a thoroughly reliable joint.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing in which:

Figure 1 is a top plan view illustrating the application of my improved package tie; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a section on the line 3—3 of Fig. 1; Fig. 4 is a fragmentary perspective view showing the clip connecting the ends of the tie band; Figs. 5 and 6 are detail views of the clip detached; Fig. 7 shows the blank from which the clip is formed; and, Fig. 8 is a diagrammatic view illustrating another manner of applying the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

My improved package tie includes a tie band 1 that is preferably composed of a strip or ribbon of any suitable pliable metal. The band is formed with longitudinal series of transversely extending corrugations or crimps 2 which give the band an undulating form and provide alternating projections and depressions on each side of the band. These corrugations are preferably of uniform size. The purpose of the corrugations is to cause the overlapping ends of the band to interengage at a plurality of points when the band is applied to a package. Furthermore the end portions of the band may be engaged when overlapped different amounts, thereby permitting the band to be adjusted for use with packages of different sizes. Although it will suffice for some purposes to provide the corrugations merely at the ends of the band, it is preferred to have the series of corrugations extend throughout the entire length of the band, as shown, since this renders the band slightly elastic and thus causes the same to fit snugly about the package.

To retain the ends of the tie band in association I provide a clip constructed of a single strip of spring metal which is doubled upon itself at an intermediate point, as indicated at 3, to constitute a pair of opposed members or jaws, designated 4 and 5 respectively. The jaw 4 is formed with side flanges 6 which extend substantially perpendicularly toward the jaw 5, the longitudinal edges of the side flanges being preferably serrated as indicated at 7. The jaw 5 projects beyond the free end of the jaw 4 and is slightly narrower than said jaw so as to be capable of being received between the side flanges. Both jaws are normally substantially straight and diverge slightly to provide a relatively large mouth and to cause the jaw 5 to clear the serrations 7.

In practice the tie band is passed around the package to which the invention is to be applied, and end portions of the band are overlapped the requisite amount to adjust the band to the size of the package. When the device is used with a comparatively thin package, as shown in Fig. 2 of the drawing, the corrugations prevent the formation of sharp bends at the points in the band

where it embraces the side edges of the package, and hence liability of the band pinching or otherwise injuring the side edges of the package is effectually precluded. The corrugations of the overlapping ends of the band are interengaged to retain said ends in association. As the band is slightly elastic it may be stretched to a certain extent, if necessary, to cause said corrugated ends to interengage when the band is adjusted to the package. The clip is now applied and is slipped transversely with respect to the tie band to receive the overlapping end portions of said band between the jaw 5 and the side flanges 6. The jaw 5 is arranged at the under side of the clip, that is, adjacent to the surface of the package, and has its free end returned outwardly to overlap the outer face of the jaw 4 (see Fig. 3). In this position the jaw 5 holds the spring jaws drawn together and closes the entrance between the jaws to retain the clip securely on the band against accidental lateral displacement.

The pressure between the jaws of the clip holds the overlapping end portions of the band in contact and maintains the corrugations in interengagement so as to prevent the ends from being pulled apart and to establish a positive and thoroughly reliable union therebetween. The side flanges 6 are so spaced apart as to cause the jaw 4 to straddle a corrugation on the adjacent side of the tie band, the main portion of said jaw bearing upon the projection formed by said corrugation, and the side flanges bearing upon the bottom of the depressions on each side of the projection (see Fig. 2). The jaw 4 has, therefore, a very efficient bearing on the band so that the ends of the band are maintained firmly in contact for a considerable distance. By virtue of the fact that the jaw 4 straddles a corrugation, the clip is prevented from being accidentally displaced longitudinally on the band, this being quite important in order to insure against the clip slipping beyond one of the overlapping ends of the band and thus releasing the parts. Any possible slipping is further prevented by the serrations 7 of the side flanges which bite into the metal to obtain a firm grip thereon. The said flanges 6 are greater in length than the width of the tie band and project laterally therebeyond so that when the free end of the jaw 5 is bent into operative position, it is partially received between the adjacent ends of the side flanges, as clearly illustrated in Fig. 3. This serves to brace the jaw 5 against strain in the direction of the length of the tie band and thus prevents undue strain on the doubled portion 3.

From the foregoing description in connection with the accompanying drawing, it will be apparent that I have provided an improved device which may be easily and quickly applied to the package, which is neat in appearance and which is quite secure. If desired two or more separate bands may be spliced together by means of the clips, to enable the device to be applied to a large package. As the metallic band is only slightly elastic, it will be retained in place about the package without exerting undue pressure thereon and will not tend to wrinkle or otherwise injure a thin package. The package tie may be expeditiously released by merely bending the jaw 5 back to its original position. However, any such bending tends to crease the material and makes it practically impossible for any one to remove and replace the tie without leaving some indication thereof. This feature is quite advantageous since it enables any tampering of the package to be detected. Another important advantage resides in the fact that the parts of the device may be readily formed from sheet metal, thus permitting the invention to be easily and cheaply manufactured.

Attention is also directed to the fact that the band may be applied to a package by placing one end of the band against the package and then wrapping the band several times around the package so that the second wrapping extends outside of the first and so on. The outer end of the band is fastened to the wrapping just beneath by means of a clip 3, as illustrated diagrammatically in Fig. 8. As the band is corrugated throughout its length, it is possible to fasten the free end of the band to the wrapping just beneath at various different points, to suit the size of the package.

For the sake of perspicuity the wrappings are shown in the drawing as spaced apart, but it will be understood that in actual practice the successive wrappings will contact with each other and their corrugations will interengage, thereby retaining the wrappings firmly in place.

Having thus described the invention, what I claim as new is:

1. A package tie including a clamping band having portions thereof overlapped and provided with interengaging corrugations, and a clip fitting around the clamping band at the overlapped portions thereof and formed of a single length of metal bent upon itself to form upper and lower members connected at one end to produce an end wall and provided with spaced depending flanges, the metal forming the lower member being extended upwardly to form the other end wall of the clip and thence bent downwardly in contact with the upper member.

2. A clip formed of a single length of metal having an intermediate portion thereof bent upon itself to produce spaced upper

and lower members connected by an end wall, the metal forming the opposite longitudinal edges of the upper member being bent downwardly to produce depending side flanges, the free ends of which are serrated, and the metal forming one end of the lower member being extended upwardly to form a second end wall and thence bent inwardly and downwardly in contact with the upper surface of the upper member.

In testimony whereof, I affix my signature in presence of two witnesses.

E McIVOR LAW. [L. S.]

Witnesses:

E. McIvor Law, Jr.,

T. C. Hinton.