This invention relates to improvements in gummed tape and the method of sealing therewith.

Packing cases made of fibrous materials, such as corrugated pasteboard and the like, are widely used in the shipment of canned, bottled and other goods. These cases are sealed by securing together with glue or externally placed gummed tape the flaps which form their covers, and can not be conveniently opened without danger of destroying the case, or at least damaging it to the extent that it is undesirable in appearance for the packaging of a new product. In many instances empty containers, such as bottles or cans, are shipped in such cases to a manufacturer who fills the containers and re-ships them. Likewise, manufacturers ship unlabeled products to distributors, who must remove them from the cases for labeling. The cost of packing is materially reduced if the same case is used for re-shipment of the final product; but heretofore all attempts at sealing the cases in a manner permitting their re-use after they have once been opened have proven impractical.

It is, therefore, the object of the present invention to provide a simple and improved form of gummed tape and provide a method for sealing cases with such tape in a manner that will permit opening and re-sealing the cases without in any way detracting from their strength or appearance.

One form of my invention is exemplified in the accompanying drawing, and the same is described in detail in the following specification, wherein further of the objects and advantages thereof are made apparent.

In the drawing—
Fig. 1 is a perspective view of a strip of gummed tape manufactured in accordance with my invention;
Fig. 2 is a perspective view of a packing case during the first step of temporarily sealing the same with my improved tape;
Fig. 3 is a similar view of the same case completely sealed;
Fig. 4 is a view of the same case after the temporary seal has been broken; and
Fig. 5 is a perspective view of a packing case illustrating a modified form of applying my gummed tape thereto for the purpose of forming a temporary seal.

Referring more particularly to the drawing, Fig. 1 shows a portion of a strip of gummed tape manufactured in accordance with my invention.

In this figure, the tape is shown as consisting of two strips of paper. The strips are bonded together by an adhesive indicated at 11 of a material that will permit relatively easy separation of the strips when they are grasped at their edges and pulled away from each other, the bond formed by the adhesive being sufficiently strong to prevent accidental separation of the strips during ordinary handling of the same. The outer surfaces of the strips, which are bonded together at their inner surfaces in the manner above described, are provided with a coating of adhesive indicated at 12, which adhesive is in the nature of a re-moistening gum and may be any suitable type of gum ordinarily used on gummed tapes of this character.

The length, width and thickness of the paper strips may be varied according to the demands of the particular use to which the tape is to be put; and, if desired, materials other than paper may be used to provide extra strength or other qualities that may be required for special uses, all within the scope of my invention.

As has been stated, the material forming the temporary bond between the adjacent surfaces of the strips may be any substance that will withstand normal handling conditions and yet permit ready separation of the strips when they are grasped separately to be pulled apart. I have found to be desirable for this purpose a mixture of starch and china clay. Such a mixture may consist of about one (1) part of starch to about fifteen (15) parts of clay suspended in water to the consistency of a thick paste and heated to a temperature preferably below its boiling point. The exact proportions of starch and clay given above are not essential, but it is found that an excess of starch will render the bond between the strips of paper so secure that they can not satisfactorily be torn apart without rupturing the paper, itself. It is also desirable that the bonding material thus made be used in abundance rather than sparingly as, if too little of the material is used, the bond is likely to become a permanent one.

The order of bonding the strips together and gumming their outer surfaces may be such as desired, but I have found it most convenient, first, to coat one side of one sheet of paper with an animal-gum or other gum of the re-moistening type. A second sheet of paper, preferably ungummed, is then bonded to the ungummed side of the first sheet with an adhesive such as the clay-starch mixture described above. After the resulting product has been permitted to dry, the outside of the second sheet of paper is coated...
with the gum similar to that first applied to the first sheet. The material thus prepared may be slit in the usual manner of cutting gummed tape into any desired widths and lengths and is then in condition for use in forming a temporary seal for packing cases of the fiberboard or corrugated pasteboard type.

In Figs. 2, 3 and 4 of the drawing, I have illustrated a preferred method for sealing and opening a packing case with the gummed tape described above. After the case has been filled, the end flaps are closed and a strip of the gummed tape is moistened on one side and secured across the end flaps in the position illustrated in Fig. 2 and centrally of the case so that when the opposite or exposed side of the tape is moistened, the side flaps may be brought to their closed positions, as illustrated in Fig. 3, where they will be bonded to the upper layer of the tape. To expedite the sealing operation, the tape may be moistened on both sides before it is placed over the end flaps so that the side flaps may be brought to their closed position immediately.

It is pointed out that when the packing case is so sealed, the strength of the seal does not depend upon the temporary adhesive 11 which bonds the strips 10 together; but as both of the side flaps are secured by the gum 12 of a single sheet 10 of the gummed tape, it is impossible to open them without tearing the tape, the tensile strength of which is sufficient to withstand all exigencies of handling and shipping of cases of this sort.

While the packing case is thus very securely sealed, it is possible, by employing the proper method, to break this seal without in any way destroying the appearance or structure of the case. By simply drawing a knife or other tool sufficiently sharp to break the paper strip 3 along the seam 13 between the side flaps of the case, either one or both of the paper strips 10 may be broken. While it is sufficient that one of the strips be broken, it will not in any way be harmed by breaking the other strip; and after either one or both of the strips have been broken along the seam 13, the side flaps of the box may be opened by pulling upon them sufficiently only to overcome the relatively weak bond formed by the material 11 between the strips 10 of the gummed tape. After the side flaps have been opened, the upper layer of the gummed tape will remain on their inner edges in the manner illustrated in Fig. 4 of the drawing, and it is then possible, by simply fracturing the lower layer, as at 14 in Fig. 4, to open the end flaps.

Closing and opening of the case in this manner has no tendency to weaken or destroy it and it is then possible for the case to be re-sealed in any customary manner, such, for example, as by gluing with the glue deposited directly on the flaps of the case.

A modification in the method of temporarily sealing a case with this gummed tape is illustrated in Fig. 5, wherein strips of the tape are shown as placed lengthwise of the end flaps adjacent the outer edges of the case. These strips, when moistened on their top surface, will serve to seal the side flaps in a closed position; and upon being broken through the seam 13 in the closed case, will permit opening of the case by fracturing the bond between the strips 10 of the gummed tape in the same manner as described in connection with the modification illustrated in Fig. 4.

While I have described my invention as applied to cases that are opened but a single time before they are finally or permanently sealed, it is obvious that the gummed tape may be used in the same manner repeatedly on the same case so that a single case may be used until it is completely worn out without any possibility of becoming torn or broken while it is being opened.

While I have illustrated and described a preferred form of my invention, it is to be understood that various changes may be resorted to in its manufacture and use without departing from the spirit and scope of the appended claims.

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

1. A gummed tape comprising two strips of tape material each having a gummed surface and temporarily bonded together at their ungummed surfaces.

2. A gummed tape comprising two strips of tape material each having a gummed surface and bonded together at their ungummed surfaces by an adhesive which will permit their being separated without rupturing the tape.

3. A gummed tape comprising two strips of gummed tape material placed back to back and bonded together by an adhesive of starch and clay.

4. A gummed tape comprising two strips of tape placed back to back, a coating of gum having relatively high adhesive qualities on the exposed surfaces of the tapes, and a relatively low-strength adhesive disposed between the tapes and bonding them together temporarily.

5. The method of sealing a packing case having flaps forming a closure thereof which comprises placing a strip of gummed tape in a position to hold one pair of flaps closed, bonding a second strip of gummed tape thereto with the gummed side up, and closing the other pair of flaps into contact with the second strip of tape.

6. The method of sealing the flaps on a packing case or the like which comprises placing a strip of tape gummed on both sides and capable of being separated between its gummed surfaces between the closed flaps of the case in a position where it may be broken through the seam at adjacent edges of the uppermost flaps.

7. A temporary seal for a packing case or the like having overlapping flaps forming a closure, which comprises a piece of gummed tape securely bonded to one flap, a second piece of gummed tape securely bonded to another flap and back-to-back with the first-named piece of gummed tape, and a temporary bond between the backs of the two pieces of gummed tape.

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