

UNITED STATES PATENT OFFICE

JOHN MacLAURIN, OF WARE, MASSACHUSETTS

SEALING TAPE AND PROCESS OF MANUFACTURING SAME

No Drawing.

Application filed February 25, 1925. Serial No. 11,800.

This invention relates to sealing tapes and is especially concerned with the manufacture of sealing tapes carrying a waterproof adhesive which is hard and non-tacky at normal temperatures but is rendered tacky by the application of heat. Such tapes are especially adapted for use in reinforcing the corners and edges of paper boxes and cartons and for securing together the flaps of cartons, or for permanently fastening the lateral edges of carton together in the process of manufacturing them.

It is the chief object of the invention to produce a firmer union between the adhesive material and the strip of cloth which carries it than has been possible heretofore, while still preventing the adhesive from sweating through the cloth during its subsequent application to the carton or other article. It is also an object of the invention to devise a tape which will present a neater and more satisfactory appearance when finally applied to a carton or the like than has been the case heretofore.

In manufacturing sealing tape of the character above designated, I have found that the meltable adhesive bonds to the cloth only with some difficulty, the union often being so poor that the adhesive peels off the cloth. My experiments have demonstrated that the reason for this is that the clay, starch, or other filling material in the cloth is responsible for the reluctance with which the adhesive unites with the fabric. At the same time this filling material performs the very useful function during the application of the tape to a carton of preventing the adhesive from saturating the fibres of the cloth and soaking or "sweating" through to the uncoated surface of the cloth where it would produce an unsightly stain.

According to the present invention the cloth, such as sheeting, while "in the gray" is filled on one side only. A filler of the usual character may be used for this purpose, such as a filler consisting, for example, of a mixture of clay, starch, and a pigment designed to give the cloth the desired color. In some cases it may be necessary to give the cloth a light caustic bleaching for the purpose of

neutralizing any oil in it before this filling or coating operation is performed. The coated side of the cloth is next calendered, care being taken, however, to maintain the uncoated side in as fibrous a condition as possible. This may conveniently be accomplished by running the cloth through a calendering machine of the usual type, the cotton or paper rolls on the calender running in contact with the uncoated side of the cloth, while the metal rolls of the machine engage only the side of the cloth that has been filled or coated.

After the cloth has been filled and calendered, a coating of adhesive is next applied to the side of the goods which has not been filled. Any suitable waterproof adhesive may be used for this purpose, but I prefer to use the composition described and claimed in pending application Serial No. 725,392, filed July 11, 1924. Such a composition may consist of a mixture of approximately ten parts of stearine pitch with one part of paraffin wax, or some other soft wax. The mixture is melted and applied with the aid of a spreading machine of a type common in this industry. Due to the fact that the surface of the cloth to which this adhesive is applied has been kept in a fibrous condition and that this surface of the goods is not coated with a filler, the adhesive adheres very readily and firmly to the cloth, forming a bond which is far superior to that obtained by prior processes. The cloth is usually coated in a wide strip or web and this web is then cut into narrow widths suitable for sealing tape.

In applying such a tape to a carton, box, or other article, it is pressed against the article by a metal tool heated sufficiently to soften the adhesive and make it sticky. I have definitely determined that a tape made in the manner above described has none of the tendency to separate from the adhesive coating which has proved so troublesome heretofore. At the same time the filler effectually resists the tendency of the adhesive to sweat through the cloth when it is melted during the operation of affixing the tape to a carton, and the filler acts in this respect as a protective agent for the cloth. The filler

obviously is of such a nature that there is not the slightest danger of its being affected by the heat used in securing the tape to a carton. The tape, therefore, presents a neat and entirely satisfactory appearance after being applied, and its firm union with the cloth produces a more secure sealing or reinforcement of the carton or other article to which it is affixed than otherwise would be possible.

While I have above mentioned a filling material that is commonly used and which is entirely satisfactory, it is contemplated that other fillers could be substituted for it. It is also contemplated that the cloth might be filled and calendered in the usual manner, and the filling then removed from one side by teaseling or napping, this napping operation also having the effect of producing a fibrous surface on the cloth to which the meltable adhesive subsequently will be applied. I prefer the process first described, however, for the reason that in the latter process practically the entire fibre of the fabric is coated to some extent with the filling material, and this material may not all be removed by the napping operation from the side of the fabric which is to be coated with adhesive. A poorer union between the meltable adhesive and the cloth, therefore, may result.

Having thus described my invention, what I desire to claim as new is:

1. A sealing tape comprising a strip of cloth, a coating of waterproof adhesive united securely to one side of said strip, said adhesive being hard and non-tacky at normal temperatures but adapted to become soft and sticky when heated to a temperature substantially above normal, and a protective filling material in the surface of said strip opposite to said coating and adapted to strongly resist the tendency of said adhesive to sweat through the cloth when the adhesive is melted in affixing said tape to an article, the surface of said strip to which the adhesive is applied being uncoated with filling material.

2. A sealing tape comprising a strip of cloth, a coating of waterproof adhesive on one side of said strip, said adhesive being hard and non-tacky at normal temperatures but adapted to become soft and sticky when heated to a temperature substantially above normal, and a coating of a protective filling material on the other side of said strip, the surface of said strip to which the adhesive is united being uncoated with said material.

3. A sealing tape comprising a strip of cloth, a coating of waterproof adhesive on one side of said strip, said adhesive being hard and non-tacky at normal temperatures but adapted to become soft and sticky when heated to a temperature substantially above normal, the opposite side only of said strip being coated with a protective material which does not become softened during the process of affixing the strip to an article, said protective

material being adapted to resist the tendency of the adhesive to sweat through the cloth when the adhesive is melted.

4. That improvement in the process of manufacturing sealing tape which consists in coating a strip of cloth on one side only with a filler, maintaining the opposite surface of said strip substantially uncoated by said filler, and then coating the latter surface with an adhesive which is hard and non-tacky at normal temperatures but which becomes soft and sticky when heated to a temperature substantially above normal, said filler being adapted to resist the tendency of said adhesive to sweat through the cloth when melted during the process of affixing said tape to an article.

5. That improvement in the process of manufacturing sealing tape which consists in coating a strip of cloth on one side only with a filler, calendering the coated side of the cloth while maintaining the opposite side in a fibrous condition and substantially free of said filler, and then applying to the latter side a coating of an adhesive which is hard and non-tacky at normal temperatures but which becomes soft and sticky when heated to a temperature substantially above normal, said filler being adapted to resist the tendency of said adhesive to sweat through the cloth when melted during the process of affixing said tape to an article.

6. That improvement in the process of manufacturing sealing tape which consists in providing a strip of cloth coated on one side with a filler but substantially uncoated with filling material on its opposite side, and applying to the latter side a coating of an adhesive which is hard and non-tacky at normal temperatures but becomes soft and sticky when heated to a temperature substantially above normal, said filler being adapted to resist the tendency of said adhesive to sweat through the cloth when melted during the process of affixing said tape to an article.

JOHN MACLAURIN.