Oct. 13, 1936. W. W. McLAURIN 2,057,042

GUMMED TAPE

Filed April 29, 1932

Fig. 1

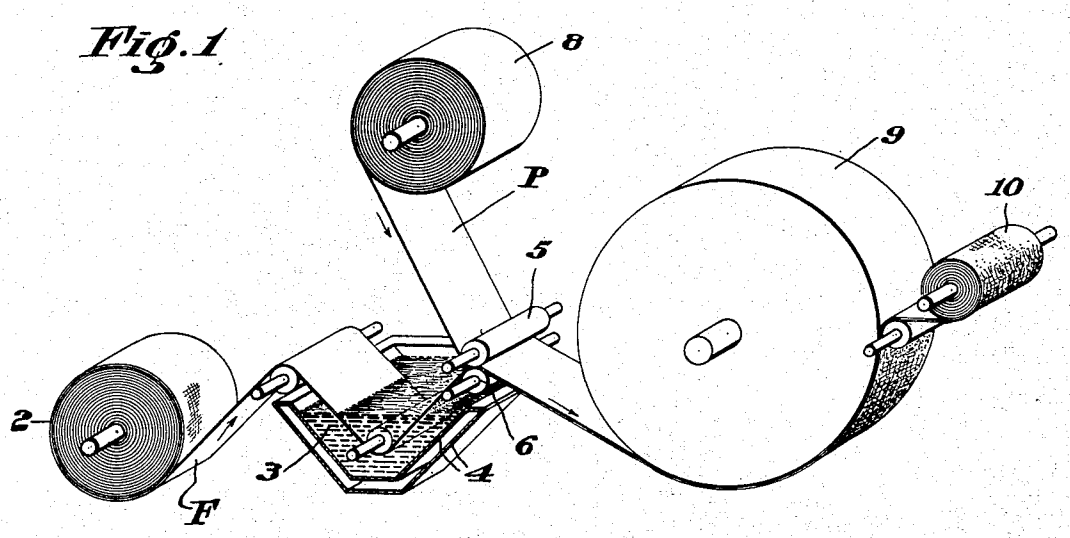


Fig. 2

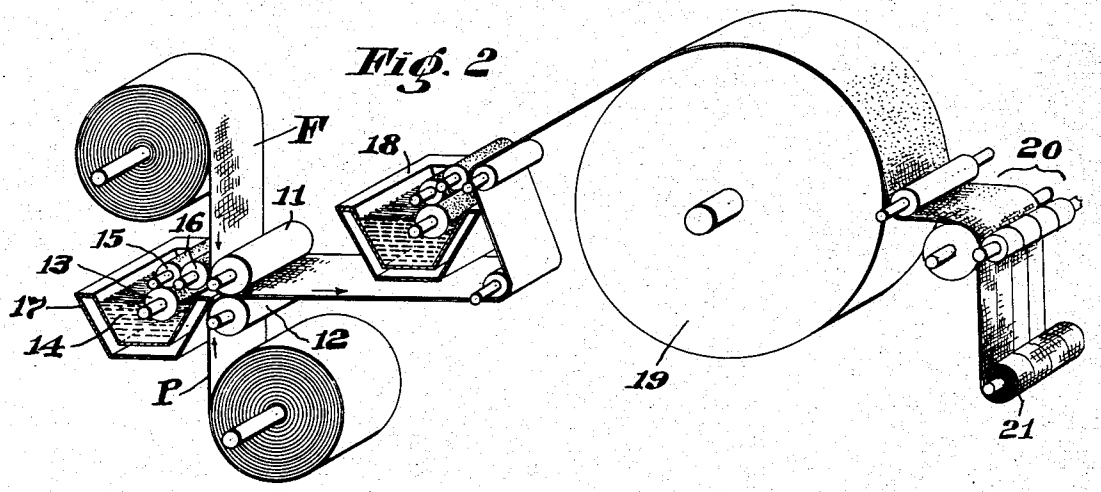
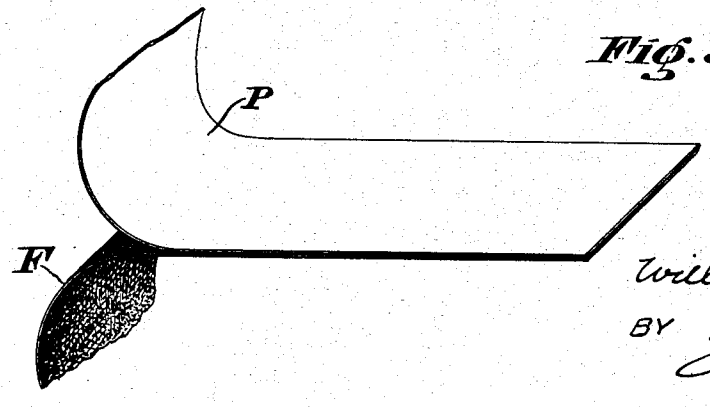


Fig. 3



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Patented Oct. 13, 1936

2,057,042

UNITED STATES PATENT OFFICE

2,057,042

GUMMED TAPE

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Application April 29, 1932, Serial No. 608,253

3 Claims. (Cl. 154—43)

This invention relates to tapes for sealing and reinforcing cartons, boxes, packages, and the like. It is more especially concerned with that type of tape in which a fabric backing is used, the backing carrying a waterproof adhesive which is normally hard and substantially devoid of stickiness or tackiness, but which is adapted to become tacky when heated to temperatures somewhat above normal.

In applying tapes of this kind it is customary to heat the adhesive coating sufficiently to render it sticky, and to press it against the carton, box, or other article of work while the coating is in this condition. Frequently the implement which presses the tape against the work is heated sufficiently to soften the adhesive, although other methods of accomplishing this result also are used. There is a strong tendency for the adhesive to sweat through the fabric when the tape is applied by any of these methods, and if this occurs it produces a discoloration or staining of the tape which is highly objectionable from the standpoint of appearance. In order to avoid this difficulty it has been the usual practice to back fill the fabric with clay, talc, chalk, or some other filling material designed to resist the tendency of the melted adhesive to wet the fabric. The application of such a filling material adds substantially to the expense of manufacture of tapes of this character.

The present invention deals especially with this problem, and it aims to improve both the tape and the methods of making it, with a view to reducing the expense of manufacture of the tape while still producing a thoroughly satisfactory product.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawing, and the novel features will be particularly pointed out in the appended claims.

In the drawing,

Figure 1 is a diagrammatic perspective view illustrating one method of making tape in accordance with this invention;

Fig. 2 is a view similar to Fig. 1 illustrating a somewhat different method; and

Fig. 3 is a perspective view of a short section of tape embodying features of this invention.

According to the method illustrated in Fig. 1, the fabric F which is to be coated is unwound from a supply roll 2 and is led through a bath 3 of waterproof adhesive held in a tank or receptacle 4 which is steam jacketed so that the adhesive is maintained in a melted condition. Immediately after the fabric emerges from this bath it passes between upper and lower squeeze rolls 5 and 6, and at this point it meets a web of paper P which is unwound from a supply roll 8. The webs of paper and fabric adhere strongly to each other due to the presence of the adhesive between them, and the combined web then is cooled sufficiently to cause the adhesive to harden or set. This cooling action may be produced by running the composite web over a cooling drum 9, after which it is wound up into the roll 10. If desired this web may be slit to divide it into strips of the proper width before it is wound, or the roll 10 may be transferred to a slitting machine where this operation may be performed.

It will be observed that this process produces, with a single handling of the materials, a tape having a fabric body carrying a coating of waterproof adhesive on its outer surface and backed up by a web of paper which is even more effective in preventing the adhesive from sweating through to the back of the tape during the applying operation than is the usual back filling customarily applied to the fabric. At the same time the paper has sufficient strength so that a somewhat lighter fabric may be used while still producing a final product having a given tensile strength. Since the paper and fabric are combined with the waterproof adhesive which also coats the outer surface of the fabric, an exceptionally firm union is produced between the webs. A good grade of paper, such as a kraft paper, preferably is used, and it is desirable also that the paper be fairly well filled in order that it may better resist any tendency of the adhesive to sweat through to the back of the tape.

In some cases it is desirable to apply a thicker coating of adhesive on the outer surface of the fabric than can be conveniently put on by the method above described. Also, it is desirable for some purposes to use an adhesive for combining the two webs which is different from that used for the coating. These conditions can readily be met by the process illustrated in Fig. 2 in which the fabric F is coated on one side with an adhesive just before it passes between the squeeze rolls 11 and 12. Immediately after receiving this coating, and as the fabric passes between the rolls, it meets the web of paper P which comes in contact with the coated surface of the fabric and therefore is combined securely to it. The adhesive may be applied by means of any convenient mechanism, that shown comprising a lifting roll 13 running in the bath of adhesive 14 and delivering adhesive to a transfer roll 15 which,

in turn, delivers it to the applying roll 16. The adhesive is supported in a tank 17, similar to the tank 4, which may also be steam jacketed so that the apparatus can handle adhesives which must be melted in order to be applied.

After leaving the squeeze rolls 11 and 12 the composite web travels over suitable guide rolls to a second adhesive applying mechanism, which may be like that just described, including a tank 18 and suitable lifting, transferring, and applying rolls which serve to roll a coating of adhesive on to the surface of the fabric F opposite to the backing P. The coated web next passes over a cooling drum 19, through a slitting mechanism indicated in general at 20, and is finally rolled up, as indicated at 21.

In this process also all of the operations required to produce the final product are performed continuously and with a single handling of the materials. According to a preferred method, the adhesive coating applied to the outer surface of the fabric F will have a lower melting point than that relied upon to secure the two webs to each other. For example, the outer coating may consist of a mixture of glue with an asphalt emulsion and may have a melting point of, say, 150° F., while the adhesive which combines the two webs may consist simply of a suitable asphalt composition having a higher melting point, say for example, 180° F. In such a product the danger of having the adhesive strike through to the back of the tape during the applying operation is reduced because of the high melting point characteristics of the intermediate film of adhesive.

The invention thus provides both a new product and also a simple method of manufacture which reduces the expense involved in making tapes carrying waterproof adhesives. It should be understood that in referring to a waterproof adhesive, the term "waterproof" is here used in the ordinary sense of that term, as distinguished from its scientific sense.

While I have herein shown and described preferred embodiments of my invention and typical methods of procedure, it will be understood that the invention may be embodied in other forms without departing from the spirit or scope thereof.

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

1. A reinforcing and sealing tape comprising a strip of fabric, a paper backing for said strip united thereto by a waterproof adhesive, a coating of waterproof adhesive on the surface of said fabric opposite to said backing, both of said adhesives being normally non-tacky but being adapted to become tacky when heated to temperatures substantially above normal, and the adhesive between said backing and said fabric having a higher melting point than that of said coating.

2. A reinforcing and sealing tape comprising a strip of fabric, a paper backing for said strip united thereto by a water proof adhesive, and a coating of a different water proof adhesive on the surface of said fabric opposite to said backing, the first of said adhesives having a higher melting point than the second.

3. A reinforcing and sealing tape comprising a strip of fabric, a paper backing for said strip united thereto by a water proof adhesive having an asphalt base, and a coating of water proof adhesive on the surface of said fabric opposite to said backing, said coating consisting chiefly of a mixture of asphalt and glue, and the adhesive between said backing and said fabric having a higher melting point than that of said coating.

WILLIAM W. McLAURIN.