March 20, 1962 M. H. WOLZE 3,026,397

ADHESIVE TAPE CONDITIONING MEANS

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Fig. 1.

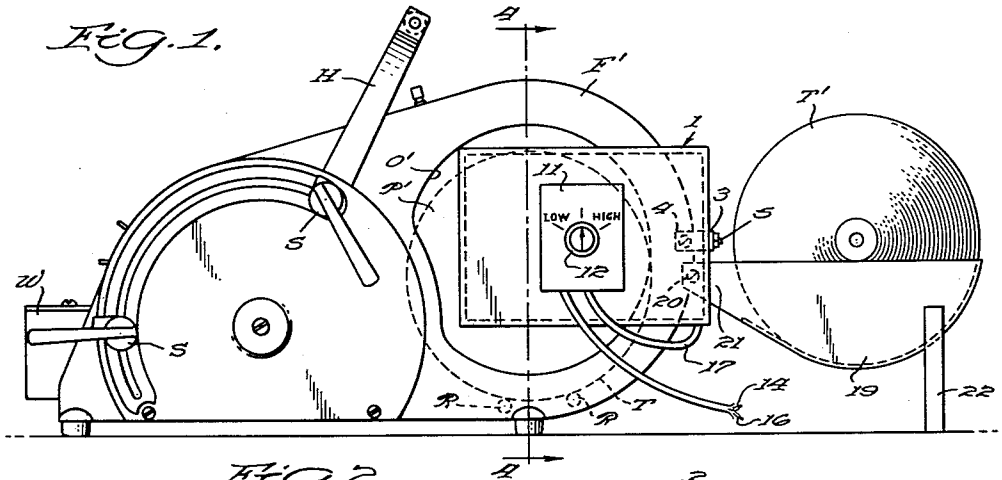
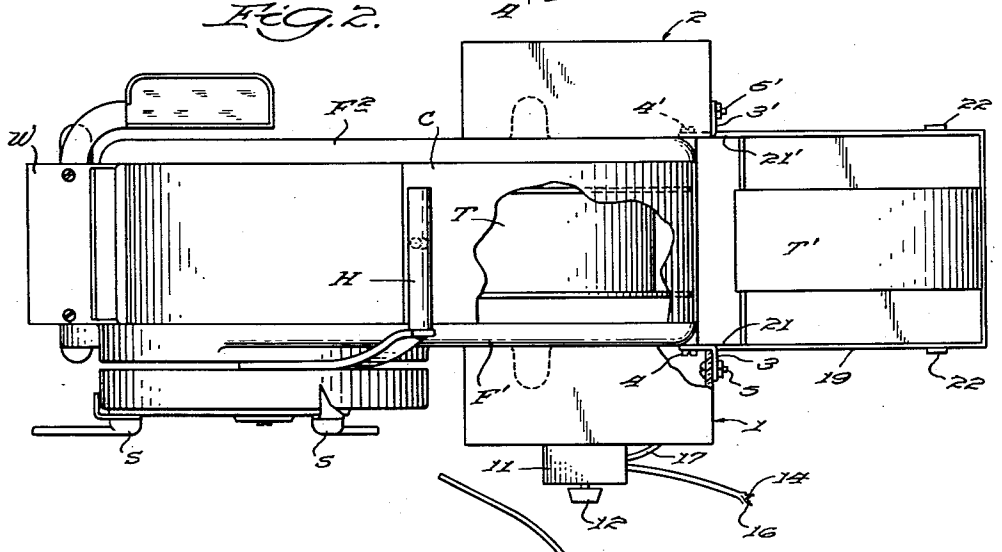


Fig. 2.



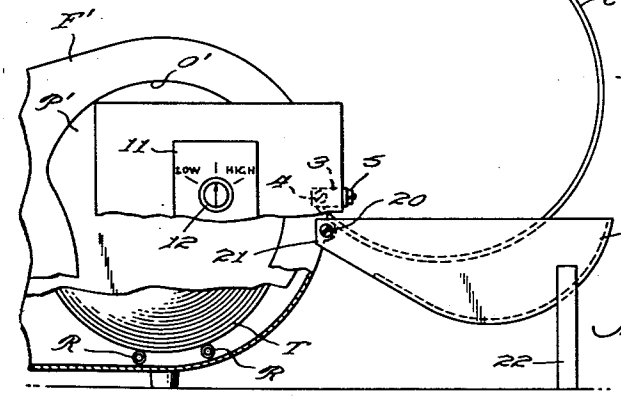


Fig. 3.

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Fig. 4.

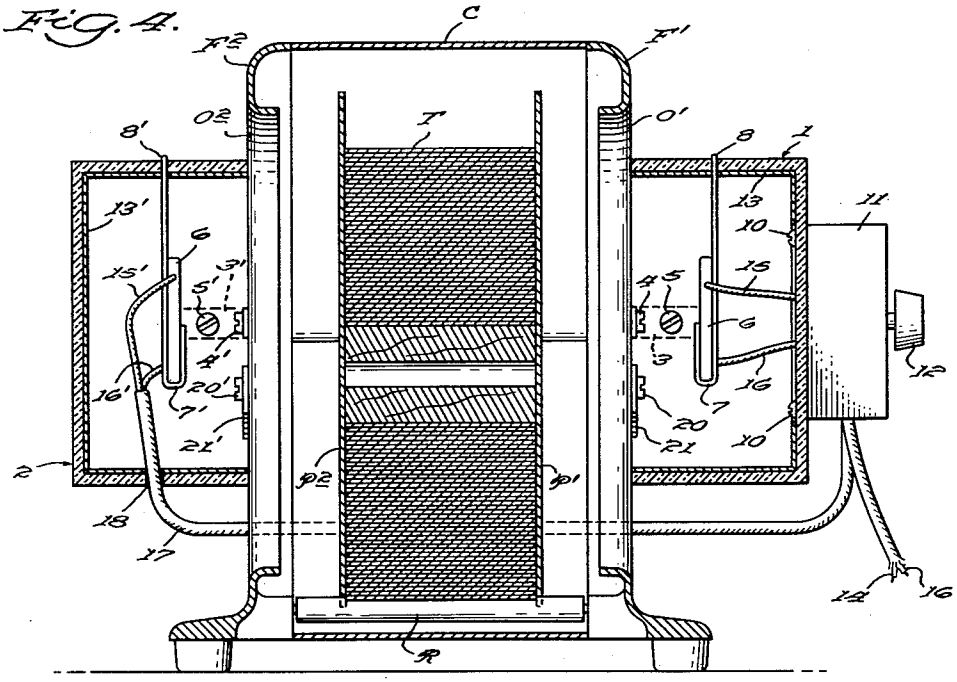
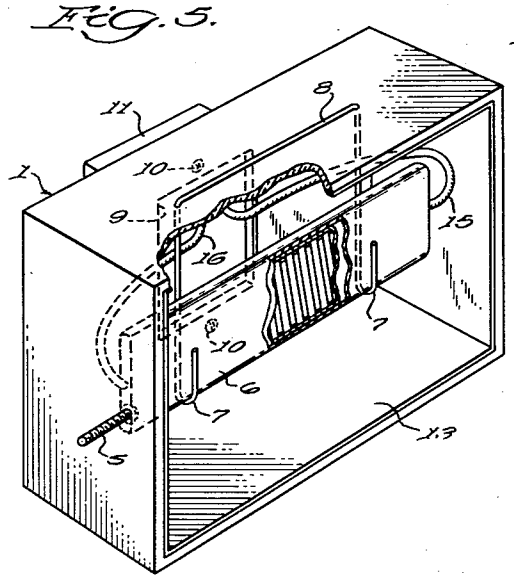


Fig. 5.



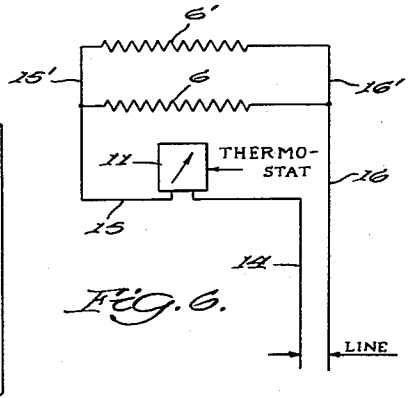


Fig. 6.

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ADHESIVE TAPE CONDITIONING MEANS

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This invention relates to dispensing machines for delivering moistened, glue coated adhesive tape ready for application to a package or other surface and more particularly to a means used in connection therewith effective to maintain the tape conditioned to quickly absorb moisture and attain the desired tacky condition regardless of climatic conditions which normally adversely effect the capacity of the glue to absorb moisture.

In temperatures less than about 80° F., glue coated adhesive tape fails to absorb moisture and become effectively tacky as quickly as it does under warmer conditions. The lower the temperature, the slower the glue absorbs the wetting moisture supplied by the dispensing machine, making it necessary for the user or operator to hold the moistened tape in position on each package or other surface for a time which may be from a few seconds to as much as, say, thirty seconds with a consequent marked increase in the cost per package and a reduction in the output per operator. If the tape, before being moistened, is maintained at a temperature of, say, about 95°–100° F. or more, the moistening water renders the glue tacky almost instantly so that the tape can be applied to the package without the necessity of holding it in place for any period after being applied.

It is, therefore, the principal object of the invention to provide means attached to a dispensing and moistening machine for glue coated tape, which will maintain the roll of tape heated to a desirable temperature whereby the tape is conditioned for quicker moisture absorption and consequent more efficient use in applying the dispensed tape to packages and the like.

A further object of the invention is to provide means used in connection with the foregoing objective which employs the heat of the devices of the present invention to pre-heat a roll of tape in addition to the tape in the machine and thus condition a second roll for subsequent use in the machine when the roll then being used is exhausted.

Another object of the invention is to provide a thermostatically controlled heating means for a machine for dispensing moistened glue coated tape which is attachable to the opposite sides of the portions of the machine frame structure in which the tape roll is housed, which means is effective to maintain the roll of tape at a desired temperature greater than about 80° F.

With the foregoing objects in view, together with such additional objects and advantages as may subsequently appear, the invention resides in the parts, and in the construction, combination and arrangement of parts described, by way of example, in the following specification of a presently preferred embodiment of the invention, reference being had to the accompanying drawings which form a part of said specification and in which drawings:

FIG. 1 is a side elevational view of a typical machine for moistening and dispensing pre-determined lengths of glue coated tape from a roll contained within the machine and showing one of the heating assemblies and the holding means for a reserve tape roll,

FIG. 2 is a top plan view of the machine shown in FIG. 1, certain portions of the machine frame and tape roll cavity cover being broken away for clearness of illustration,

FIG. 3 is a fragmentary side elevational view of the rear end of the machine shown in FIGS. 1 and 2, the cover of the tape roll containing cavity or compartment being shown in partly opened position and portions of the machine frame and heating devices being broken away to show interior construction,

FIG. 4 is an enlarged scale, transverse sectional view taken on the line 4, 4 of FIG. 1,

FIG. 5 is an enlarged prospective view of the one of the heating elements which carries the controlling thermostat, the view being taken from the side thereof which is disposed adjacent to the dispensing machine frame, and

FIG. 6 is a circuit diagram of the tape roll heating means.

Referring to the drawings, the invention is shown applied to a tape dispensing machine comprising a frame structure including side members F1 and F2 forming a cavity or compartment in which a roll T of glue coated tape is mounted on rollers R, R and having means operated by the handle H for leading the tape between pinch roll feeding means, thence over a moistening pad contained in a trough W and out of a slot in the left hand end of the machine as viewed in FIGS. 1 and 2. The extent of movement of said handle means is limited by adjustable stops S, S and the tape feeding means also includes cut off means not shown. Opposite the tape roll containing compartment, the frame members F1 and F2 have large, oppositely disposed openings O1 and O2, respectively, and sheet metal plates P1 and P2 are notched to rest on the rollers R, R and rest against the side of the tape roll. A hinged sheet metal cover C affords means of access to the roll containing compartment.

The present invention comprises a pair of open sided, box-like frame members **1** and **2** formed of rigid, heat insulating material. The member **1** is mounted with the open side thereof disposed opposite the opening O1 in the frame member F1 by means of an angle bracket **3** having one end thereof attached to the rear portion of the side face of the frame member F1 by a screw **4** and the other end thereof connected to the end wall of the member **1** by a screw and nut **5** projecting through the rear end wall of the member **1**. The interior of the member **1** houses an electrical resistance element **6** supported therein by the hook ends **7**, **7** of a hanger wire **8** which extends along the top wall of the member **1** and thence downwardly through openings therein. The mounting for the member **2** over the opening O2 in the frame member F2 and the means of supporting the resistance element therein are identical with that described in connection with the member **1**, wherefore, the numerals relating to said parts are the same as those used in connection with the member **1** with the addition of the exponent " ' ". Preferably, the members **1** and **2** are each lined with a heat reflecting surface such as aluminum foil indicated at **13** and **13'**.

The outer face of the member **1** has an opening **9** extending therethrough and over this opening screws **10**, secure a manually adjustable thermostat **11** having a hand knob **12** by which it may be adjusted to determine the points at which it will supply current to or cease to supply current to the heating elements **6**, **6**. An electrical lead **14** extends from a source of energy to one side of the thermostat **11**. From the thermostat, leads **15** and **15'** extend, respectively, to the same ends of the heating elements **6** and **6'**. Return leads **16** and **16'** connect the other end of each of the heating elements with the line or source of energy. The leads **15'** and **16'** which connect the heating element **6'** with the leads **14** and **16** are contained within a sleeve **17** which extends through an opening **18** in the bottom face of the member **2**.

With the current turned on, the heating elements **6** and **6'** produce sufficient heat which is reflected by the linings **13** and **13'** toward the tape roll and maintain the temperature of the tape roll at a temperature which is not

less than about 95° F. The exact temperature is not critical and the judgment of whether the thermostat needed adjusting or not would be determined solely by the action of the moisture on the tape as it was dispensed from the machine. If the tape was slow to reach the desired tacky condition, the thermostat would be turned up from time to time until the tape achieved the desired tacky condition immediately upon being moistened.

To facilitate the use of the machine and to insure that a roll of tape which is at least nearly suitably heated is ready for use when a roll in the machine is exhausted, the machine is provided with a flat sided, trough-like member **19** secured to the rear end of the frame structure by screws **20** and **20'** passing through ear portions **21** and **21'** at the forward end of the trough member. The trough member further is provided with a pair of depending legs **22, 22** which engage the bench or table on which the machine is mounted and holds the trough in a desired horizontal position. As shown in FIG. 1, this trough is adapted to hold a roll of tape T' which through heat reflected from the heating elements is gradually at least partially warmed up and heated ready for insertion in the machine when the roll of tape being used has been exhausted. When a roll T' is placed in the machine, another roll is placed in the trough to be thus preliminarily warmed up for subsequent use.

Thus there has been provided a means useful in connection with tape dispensing machines for glue coated tape which maintains the tape in condition for most efficient use. While in the foregoing specification there has been disclosed a presently preferred embodiment of the invention, it will be appreciated that the invention is not to be deemed to be limited to the exact form thus disclosed by way of example. Accordingly, it will be understood that the invention includes as well, all such changes and modifications in the parts, and in the construction, combination and arrangement of parts as shall come within the purview of the appended claims.

I claim:

1. In a dispensing machine for tape having an adhesive facing of normally dry, water soluble glue; said machine having a frame enclosing an area in which a roll of tape being dispensed from the machine is contained, the improvement which consists in a tape roll holder means attached to the machine adjacent to said area and in which a spare roll of tape is contained, and heating means attached to said frame at each side of said area effective to maintain said first named roll of tape at a temperature at which the rate of water absorption by the glue is maintained at a maximum value and in which said heating means simultaneously effects preheating of said spare roll of tape preliminary to placement thereof in said area for dispensing.

2. An adhesive tape heating means as claimed in claim 1 in which said heating means comprises a pair of open sided, box like members each containing an electrical resistance heating element, and means for mounting said members on the machine frame at each side of said area with the open sides of said members juxtaposed to the machine frame.

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