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2,861,539

TAPE DISPENSER WITH TAPE-HEATING MEANS

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2 Sheets-Sheet 1

Fig. 1.

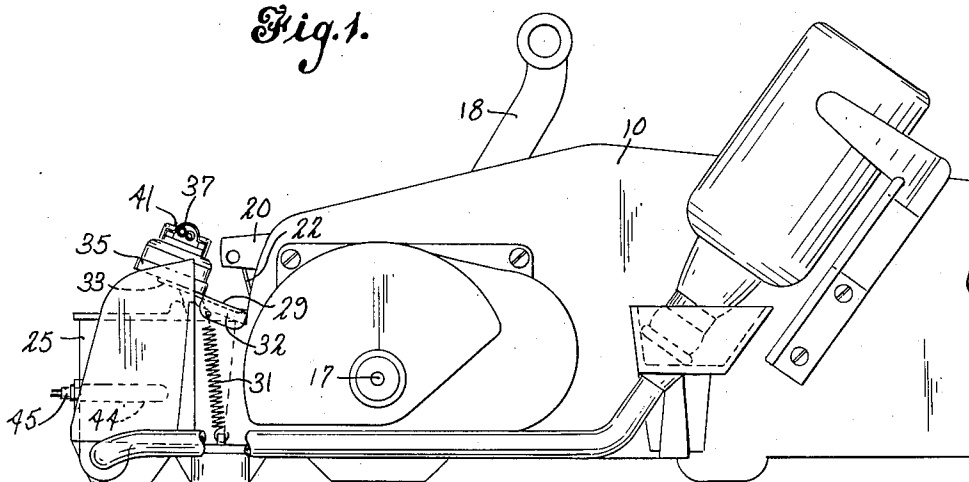
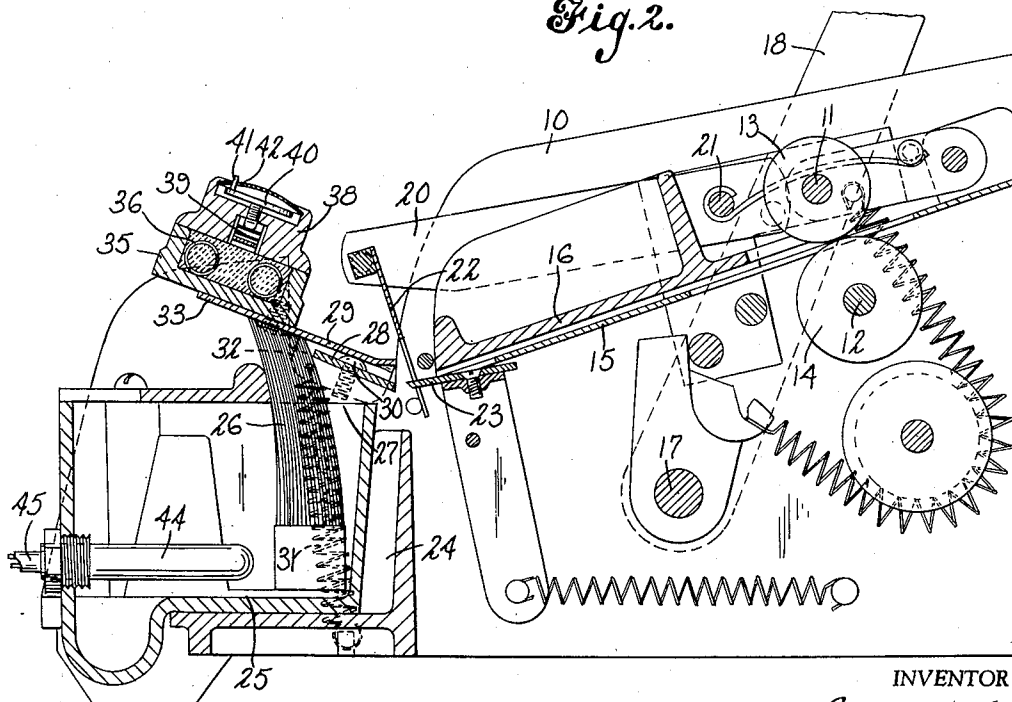


Fig. 2.



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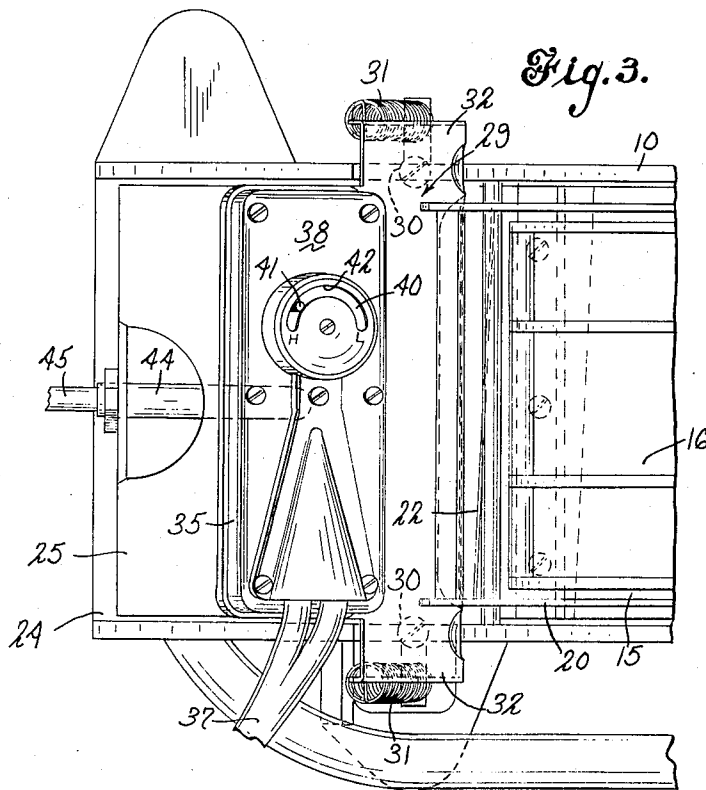
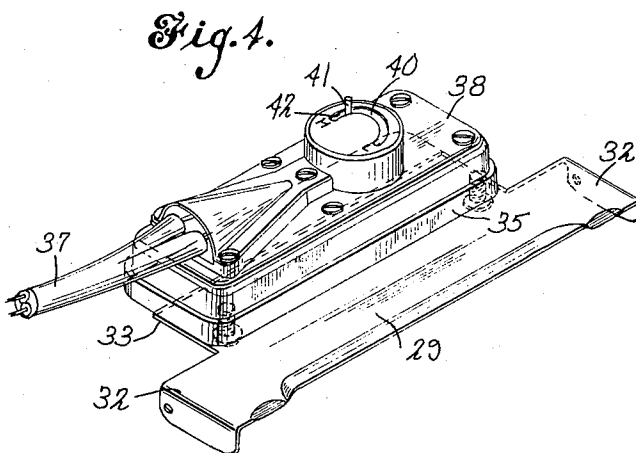
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TAPE DISPENSER WITH TAPE-HEATING MEANS

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2 Sheets-Sheet 2



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TAPE DISPENSER WITH TAPE-HEATING MEANS

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This invention relates to tape-dispensing mechanisms and more particularly to dispensing gummed tape. Such tape is provided with an adhesive upon at least one of its surfaces and it is necessary to moisten the adhesive before applying the tape to the package or carton with which it is to be employed.

In devices of this kind means are usually provided for feeding the tape over a moistened element such as a brush, for example, which projects upwardly from a tank containing liquid moistening material, usually water. The tape is fed over the moistening element which is kept moist by the water in the tank and thus the gummed surface of the tape which is in contact with the brush is properly moistened for application to the package or carton.

It has been found, however, that it is at times difficult to apply the precise amount of moisture to the tape required to moisten it and certain aids may be employed for assisting the moistening process. For example, the water in the tank may be heated and thus the moistening process is aided and the moistening will be more uniformly effected regardless of changes in temperature in the room in which the device is employed.

It has also been found that the moistening of the tape will be facilitated if heat is supplied to the brush when the dispenser is in use so that the brush and the gum upon the tape will be warmed to some extent and will receive the moistening materially more readily.

According to the present invention the tape itself is heated during its passage over the moistening element by heat applied to the surface of the tape opposite that in contact with the moistening element so that the area of the tape which is receiving the moistening material will be heated at the time it is being moistened.

It is common in tape-dispensing machines of this character to provide a pressure plate and to feed the tape between this pressure plate and the moistening element which, as stated above, is illustrated in the form of a brush. This pressure plate is resiliently urged toward the brush so as to urge the gummed side of the tape in contact therewith. As illustrated, the heating means is conveniently mounted upon this pressure plate so that the tape is fed between the brush and the heating means in order that the portion of the tape in contact with the brush will be properly heated. The heating element applies heat to the pressure plate and, as this is usually made of metal, this plate will be heated and impart the heat to the tape passing below it.

In addition means is provided to regulate the heat developed by the heating element which in this instance is electrically energized. A thermostatic element of usual form is provided which may be manually regulated to cut off the heat when the heating coils reach a given temperature. Thus the amount of heat applied to the pressure plate and by this member to the tape may be regulated as desired. Means are also illustrated for heating the water in the tank in which the moistening element or brush is located and thus it will be seen that not only is

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heated water supplied to the moistening brush, but heat is also applied to the tape strip itself.

One of the objects of this invention is to provide a dispensing mechanism for gummed tape with improved means for moistening the tape during the feeding thereof.

A further object of the invention is to provide a mechanism for dispensing gummed tape wherein means are provided for heating the moistening material which is applied to the tape and also for heating the tape strip as it passes over the moistening element.

Still another object of the invention is to provide a mechanism for feeding gummed tape with a moistening element over which the tape is fed and a pressure plate urging the tape toward the moistening element with a heating element carried by the pressure plate to heat the tape strip over the area in contact with the moistening element.

A still further object of the invention is to provide a mechanism for dispensing gummed tape having a moistening element and means for feeding the tape with its gummed surface in contact with the moistening element with heating means on the side of the tape opposite that in contact with the moistening element to heat the tape strip and thereby facilitate the moistening thereof.

Still another object of the invention is to provide means for heating the moistening material applied to the tape as well as for heating the tape itself and for providing means for regulating the amount of heat applied to the tape.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a tape dispenser embodying the invention;

Fig. 2 is a longitudinal central sectional view of the mechanism;

Fig. 3 is a top plan view of the forward portion of the tape-dispensing mechanism showing the moistening and heating apparatus; and

Fig. 4 is a perspective view of the pressure plate with the heating element supported thereon.

To illustrate a preferred embodiment of the invention there is shown in the drawing a tape-dispensing mechanism comprising a frame in the form of a casing 10. The usual form of casing comprises spaced side walls between which may be mounted shafts 11 and 12 carrying feed rollers 13 and 14 respectively. Also provided in the frame is a support or table 15 over which the tape is fed by the feed rollers 13 and 14, it being understood that the tape passes between these rolls and between the table 15 and a cover member 16.

A shaft 17 is also rotatably mounted in the frame which is oscillated by a handle lever 18 and the usual mechanism (not shown) is provided to rotate the feed rolls 13 and 14 upon movement of the lever.

Also a knife carrier 20 is pivoted at 21 in the frame and from this carrier depends a knife or severing member 22 which cooperates with a shearing blade 23 to sever the tape at the proper time. It will be understood that the foregoing mechanism is of conventional form and similar to that shown in Patent No. 2,365,477, granted December 19, 1944. Therefore, no further description is necessary at this time.

The side walls of the frame member extend forwardly and between them is provided a well 24 supporting a receptacle or tank 25 within which moistening material such as water may be contained. Mounted in the tank is a moistening element illustrated as a brush 26, the bristles of which extend upwardly through an opening 27 in the receptacle so as to contact the lower or gummed surface of the tape and apply the moisture thereto. A

plate 28 carried by the frame holds the moistening brush in proper position, and the tape is fed between the plate 28 and a pressure plate 29 to be presently described.

The pressure plate 29 is shown more especially in Figs. 1, 3 and 4 and may rest upon the heads of screws 30 which secure the plate 28 to the frame. A coil spring 31 at each side of the frame is secured at its upper end to a laterally extending portion 32 of the plate 29, and secured at its lower end to the frame so as to urge the forward portion of the plate downwardly toward the upper end of the brush 26 so as to urge the tape to contact with the brush.

As illustrated, the forward portion 33 of the plate 29 is somewhat reduced in width, although this is not material to the invention, and upon this portion of the plate is provided a heating element.

As illustrated this heating element comprises a casing 35 within which are provided heating coils 36 adapted to be supplied with electric current through the cable 37 (Figs. 3 and 4). The casing 35 is in contact with the plate 29 and as both this plate and the casing 35 will preferably be of heat-conducting material, such as metal, heat developed by the coils 36 will be transmitted to the plate 29 and thereby to the tape strip passed between the latter plate and the moistening element 26.

A cover 38 is provided on the casing 35, and in this cover is provided a thermostatic element 39 to control the current supplied to the heating coils, the thermostat in turn being controlled by the manually rotatable disk 40. As shown more especially in Fig. 3, this disk has a pin 41 extending outwardly through a slot 42 in a part of the cover 38 so that it may be moved as permitted by the slot to regulate the thermostat and determine the amount of heat applied to the tape.

Also as shown more especially in Figs. 2 and 3, a heating element 44 is disposed within the tank 25, which heating element may be supplied with current through the cable 45 to heat the water or other moistening material within the tank. Thus not only is the tape heated so as to be conditioned to receive the moistening material, but the latter is also heated so that very effective moistening of the tape results.

It is believed that the operation of the device will be obvious from the foregoing description but it may be briefly described. When the lever 18 is moved forwardly, the feed rollers 13 and 14 which contact opposite sides of the tape strip will be rotated, thus feeding the strip forwardly over the table 15 and between the plates 28 and 29. The gummed side of the tape will be in contact with the moistening element 26 and the tape will pass between this element and the heating means or between this element and the pressure plate 29 upon which the heating element is mounted.

As the pressure plate is urged toward the brush, it will normally lie in contact with the brush when the tape is not being fed, and hence will heat the upper portion of the brush and the moisture therein so that the tape will be properly moistened. It will also heat the tape to some extent in its passage between the brush and the pressure plate 29 as the latter is heated also. It is, therefore, convenient to apply heat to the tape and brush by mounting the heating element upon the pressure plate, as illustrated.

While, as shown, the pressure plate is spring urged toward the brush, it may merely rest upon the latter by gravity provided the plate is weighted or is sufficiently heavy to maintain proper pressure of the tape against the brush. The heating element being mounted upon the pressure plate will, of course, add to its weight and, if desired, the springs 31 may be omitted and the pressure plate merely pivoted upon the frame to rest freely on the brush.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not

to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A dispenser for gummed tape comprising a frame, a moistening element carried by the frame, a pressure plate mounted in cooperation with said moistening element, means for feeding the tape over said moistening element and between it and the pressure plate, and electrical means for heating said pressure plate, said last-named means being supported on the upper surface of said pressure plate.

2. A dispenser for gummed tape comprising a frame, a moistening element carried by the frame, a pressure plate mounted in cooperation with said moistening element and urged to press the tape thereagainst into contact with the tape over the moistening element, means for feeding a strip of tape between the pressure plate and the moistening element, and an electric heating element mounted on the pressure plate to heat the tape over the area contacted by the moistening element.

3. A tape dispenser for gummed tape comprising a frame, a moistening element carried by the frame, means to feed the tape over said moistening element with the gummed side of the tape in contact therewith, and a heated pressure plate on the side of the tape opposite the moistening element urging the tape against said moistening element.

4. A tape-dispensing apparatus for gummed tape comprising a frame, a moistening element carried thereby, means for feeding a strip of gummed tape over the moistening element with the gummed side of the tape in contact with said element, a heated pressure plate spring urged toward said moistening element to contact the other side of the tape and urge the tape toward the moistening element.

5. A tape-dispensing apparatus for gummed tape comprising a frame, a moistening element carried thereby, means for feeding a strip of gummed tape over the moistening element with the gummed side of the tape in contact with said element, a heated pressure plate spring urged toward said moistening element to contact the other side of the tape and urge the tape against the moistening element, and thermostatic means for regulating the heating of the pressure plate.

6. A mechanism for dispensing gummed tape comprising a frame, a tank supported at the forward portion thereof to contain moistening material, a moistening element in the tank projecting upwardly therefrom, means carried by the frame for feeding a strip of tape over said moistening element, heating means for the tape on the side thereof opposite the moistening element, and means in the tank for heating the moistening material.

7. A mechanism for dispensing gummed tape comprising a frame, a tank supported at the forward portion thereof to contain moistening material, a moistening element in the tank projecting upwardly therefrom, means carried by the frame for feeding a strip of tape over said moistening element with the gummed surface in contact therewith, a spring-pressed pressure plate engaging the other surface of the tape to urge it toward the moistening element, heating means mounted on said pressure plate to heat the same and the tape in contact therewith, and heating means in the tank to heat the moistening material.

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