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PRESSURE-SENSITIVE TAPE DISPENSING MACHINE

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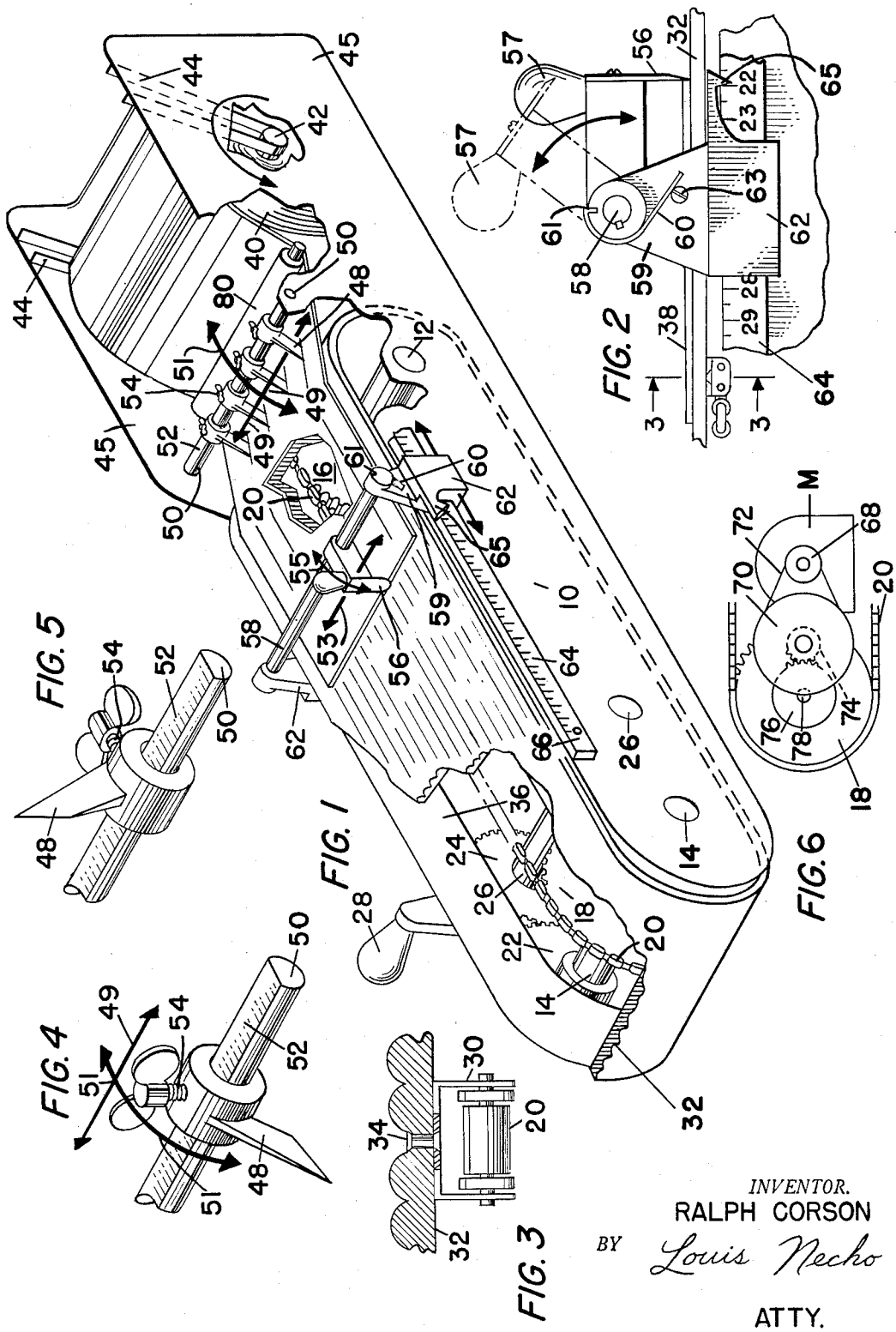


FIG. 1

FIG. 2

FIG. 5

FIG. 6

FIG. 4

FIG. 3

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PRESSURE-SENSITIVE TAPE DISPENSING MACHINE

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1 Claim. (Cl. 164—38)

My invention relates to a machine for dispensing pressure-sensitive or adhesive tape in strips of the desired width and length.

The object of the invention is to produce an improved machine of the type set forth.

The nature of the invention will be understood from the following specification and the accompanying drawings in which—

Fig. 1 is a perspective view of a tape dispensing machine embodying my invention.

Fig. 2 is an enlarged, fragmentary view showing details of construction.

Fig. 3 is an enlarged fragmentary, sectional view on line 3—3 on Fig. 2.

Fig. 4 is an enlarged, fragmentary perspective view of one of the slitting blades and its mounting, the same being shown in its cutting position.

Fig. 5 is similar to Fig. 4 but showing the blade moved to a non-cutting position.

Fig. 6 is a fragmentary and diagrammatic view of a motor drive for propelling the tape.

The dispensing machine illustrated includes a housing 10 in which are journalled shafts 12 and 14 which carry, respectively, sprockets 16 and 18 over which travels an endless chain 20. The shaft 14 also carries a gear 22 which meshes with a gear 24 carried by shaft 26 and rotatable by means of handle 28. To the chain 20 are secured spaced brackets 30 to which is secured an endless belt 32 by means of rivets or the like 34. By this arrangement, when the handle 28 is turned, the chain 20 and the belt 32 carried thereby are moved accordingly. It will be noted that the belt travels endlessly over tracks 36 which are part of, or are carried by, the housing 10. The belt 32 is adapted to receive the adhesive, or pressure-sensitive tape 38, from a supply roll 40 wound on a shaft 42. The shaft 42 is supported by, and is freely rotatable in the bight portion of U-shaped channels or slots 44 carried by, or formed in, the walls 45 of the housing as shown in Figure 1. The upper surface of the belt is preferably corrugated or ribbed as best shown, in an exaggerated manner, in Figure 3.

The tape is slit into strips of uniform, or of different, widths by means of a number of slitters 48, one of which is shown in Figs. 4 and 5. Slitters 48 are slidably mounted on a fixed shaft 50 and are held in the desired positions by means of set screws 54 which engage a flat 52 formed for the purpose on shaft 50. By moving one or more of slitters 48 in the direction of arrow 49, the width of the strips into which the tape is cut can be varied. When it is desired to dispense with one or more of the slitters, its set screw is loosened and the slitter is moved upwardly, in the direction of arrow 51 to the ineffective position of Fig. 5.

To cut the tape, or the strips into which it has been slit, transversely, I provide a cutter 56 which is slidable on shaft 58 and which is provided with a handle 57. Shaft 58 is journalled in bracket 59 and is normally biased into the upper, or broken line, position of Fig. 2 by means of

a spring 60, one end 61 of which is secured to shaft 58 and the other end of which engages a stop 63 on bracket 59. If desired two springs 60 will be used, one on each end of shaft 58. By this arrangement, cutter 56 is normally moved upwardly, in the direction of arrow 55, or out of contact with the tape and must be manually brought down and moved along shaft 58, in the direction of arrow 53 to cut the tape transversely. Brackets 59 are carried by carriages 62 which travel on tracks 64 on either side of the housing. Either, or both, of tracks 64 may be calibrated as shown in Fig. 1. By moving the cutter carriages 62 back or forth along tracks 64, the length of the tape or strips is determined. For example, if handle 28 is turned until the edge of the tape reaches the end of the scale, or zero point 66, on carriage 64, and if the cutter indicator 65 is moved until it registers with a numeral on the scale, as shown in Fig. 2, the length of the tape cut by knife 56 will correspond to said numeral.

The operation is as follows—

When maximum tape width is desired, the slitters 48 are moved to the upper, non-engaging position of Fig. 5. When the tape is to be slit longitudinally, the slitters needed are first adjusted longitudinally of shaft 50 to produce strips of the desired width and are moved to their tape engaging positions as shown in Figs. 1 and 4. The required length of tape is then withdrawn from the supply roll in the manner above set forth. The knife 56 is then pressed against the tape and moved longitudinally of shaft 58 to cut the tape, or the strips into which the tape may have been slit. The severed tape or strips will remain adhered to the belt ready for use as needed. After the severed portions are used up the operation is repeated to produce severed portions of the same, or of different, lengths and widths.

If desired, I can substitute a motor drive for the manually operated handle 28. For example, and as diagrammatically and fragmentarily shown in Fig. 6, I use a motor M to drive a pulley 68 of the desired diameter. The pulley 68 drives a pulley 70 by means of a belt or the like 72. The shaft of pulley 70 also carries gear 74 which meshes with a gear 76 on shaft 78 which takes the place of shaft 14 and carries sprocket 18. When the motor is energized, the chain 20, and hence the belt 32, will be moved accordingly. The motor may be started and stopped manually or it may be provided with an adjustable limit switch. It will be understood that the showing of Fig. 6 is purely illustrative and that any suitable gear reduction may be used.

In order to insure proper adhesion of the tape to the belt, I provide tension roller 80 which bears down on the tape with a predetermined pressure, and the tension applied to the tape is preferably adjusted according to the tacky quality of the tape. Roll 80 is loosely placed on the sheet material to be slit and applies pressure which is a function of its weight. By changing the weight of the roller, the pressure applied can be varied.

Because the endless belt is ribbed, as shown in Fig. 3, the sheet of material itself, and the strips severed therefrom, will only engage the surface of the belt tangentially of the crowns of the corrugations as shown, in the broken line in Fig. 3. This reduces the contact between the tacky side of the strips and the surface of the belt and facilitates removal of the strips while retaining them in position with sufficient firmness to prevent their accidental removal. The device described is intended for use in a shipping or packaging room, so as to provide a ready supply of adhesive strips of a width or length corresponding to the size of the particular run of packages. When a run of package of a given size is being worked on, the operator adjusts the cutters to the desired position and with every turn of crank 28, or with every operation of motor M, a supply of strips will be made available on

the surface of the belt and all the operator needs to do is to actuate the belt when the supply of strips is associated. When packages of another size are to be worked on, the operator need only readjust the cutters and proceed as above set forth. The provision of ribs on the surface of the belt also makes it easier for the operator to grasp the ends of the strips than if the strips engaged a flat belt across their entire undersurface.

What I claim is:

A pressure sensitive tape dispensing machine including an elongated housing, an idler shaft at one end of said housing for receiving a roll of sheet adhesive material, an endless belt adapted to receive the sheet material from said roll, means for actuating said belt, a fixed shaft located above the path of movement of said sheet near one end of said belt, cutters carried by said shaft for slitting the sheet material moving thereunder into strips of predetermined widths, a movable shaft, located above the path of movement of said belt, a cutter carried by said movable shaft and movable transversely of said belt for severing said strips, and a floating roll disposed transversely of, and resting on, said sheet material between said fixed shaft and said idler shaft, the surface of said belt being ribbed longitudinally of its path of movement to reduce the contact between the underside of the said strips cut from said sheet and the surface of said belt.

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