

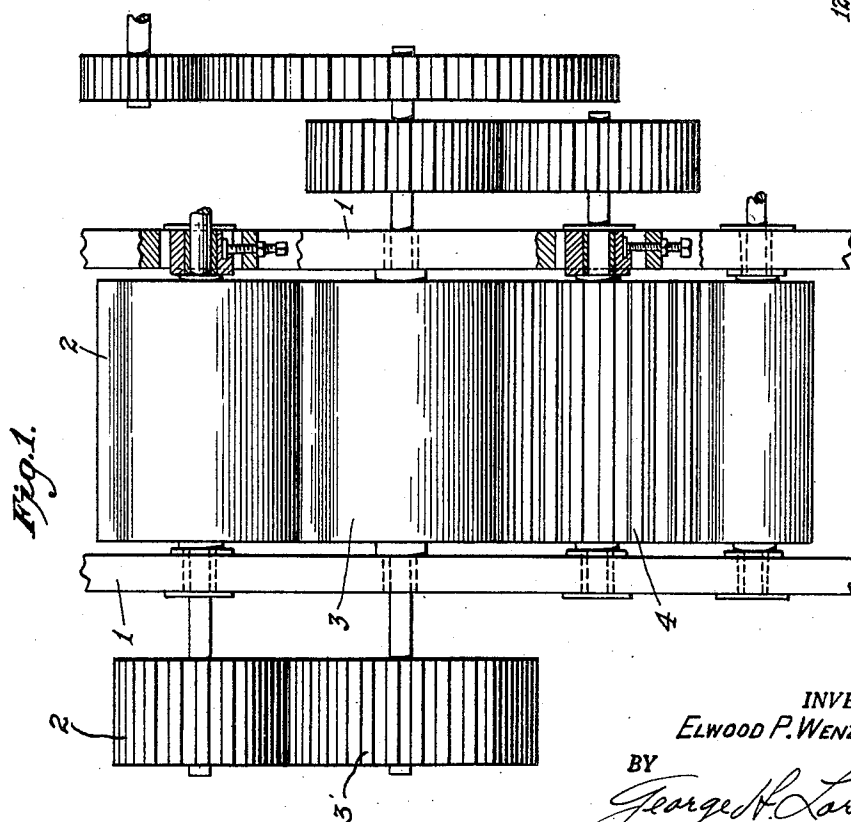
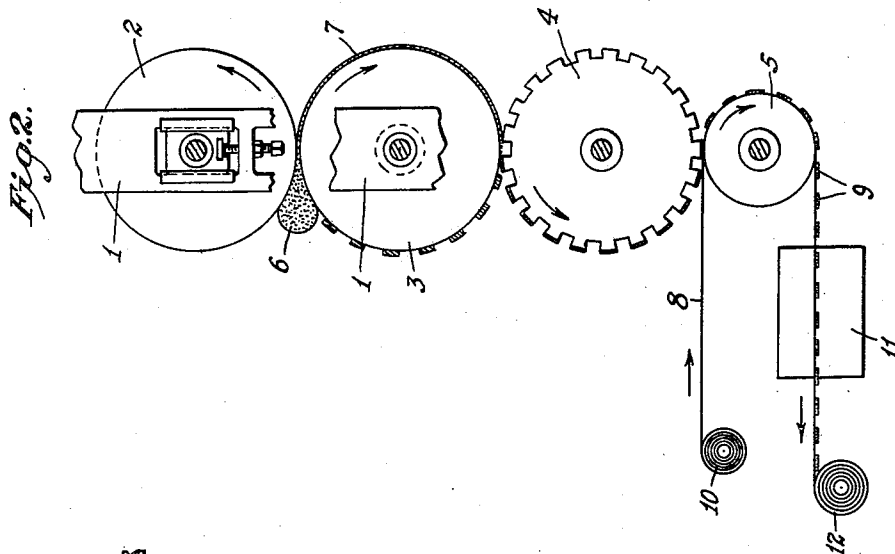
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SEGREGATED ADHESIVE TAPE CALENDAR

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SEGREGATED ADHESIVE TAPE CALENDER

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1 Claim. (Cl. 91—50)

This invention relates to apparatus for manufacturing pressure sensitive adhesive tapes such as surgical tapes.

Pressure sensitive adhesive tapes or sheets in which the pressure sensitive or normal tacky adhesive mass is applied over pre-determined areas only of the backing instead of being applied continuously over the entire backing are known to have certain advantages. It is a comparatively simple matter to so apply the adhesive mass if the segregated or partial areas carrying the adhesive mass extend longitudinally or parallel to the length of the sheet or strip. On the other hand, if it is desired to provide segregated areas of adhesive, such as stripes running transversely of the length of the strip or sheet of tape, the problems are manifold. In such instances it is particularly difficult to provide areas such as stripes of adhesive in sharply defined lines with clear cut edges and to provide such areas of uniform thickness of adhesive.

It is the purpose of this invention to provide an apparatus by means of which segregated areas such as stripes of adhesive may be applied crosswise to a backing in clearly defined lines of uniform depth. Other novel features and advantages will be apparent from the following description given in connection with the drawing in which:

Figure 1 is an end elevation of a calender or apparatus constructed in accordance with this invention, and;

Figure 2 is a schematic side elevation illustrating the rollers for applying the adhesive mass to the backing and the associated mechanisms for completing the tape.

As can be seen from the drawing, the preferred apparatus comprises in effect a modified four roll calender, although a modified three roll calender will derive some benefits of this invention. In the preferred form a modified four roll calender is employed comprising side frames 1 between which the rolls are mounted. The upper roll 2 has a smooth surface and is adjustable vertically in the side frames by means of any suitable adjustable bearings such as may be purchased upon the open market. Associated with the upper roll is a second or lower smooth surfaced roll 3 also journaled in the side frames but in fixed bearings. Beneath the second roll is a third roll 4 also journaled in a side frame and mounted for vertical adjustment as is roll 2 by suitable adjustable bearings which may be purchased upon the open market. Roll 4 has an interrupted surface such as flutes or teeth of pre-

determined dimension or width and shape which preferably extend the full length of the roll and the roll is adjusted relatively to the film carrying roll 3 so as to contact the film carried thereby and pick off portion of the coating where the teeth engage the film. A fourth roll or pressure roll 5 is also journaled in the side frames beneath the roll 4 and is adjustable vertically in suitable bearings as are rolls 2 and 4. Roll 5 has a smooth surface and may be of somewhat smaller diameter than rolls 2, 3 and 4, which are preferably of the same diameter. Rolls 2, 3 and 4 are also heated as is customary in calenders of this type, whereas roll 5 may or may not be heated as desired. All rolls are preferably positively driven by suitable gear drives (some of which are not shown).

In operation the adhesive mass or compound 6 is fed into the bite of rolls 2 and 3 at proper temperatures and is formed as a thin film 7 upon the surface of roll 3 heated to proper temperature due to the fact that roll 3 is driven at a slightly higher speed than roll 2 by means of gears 2' and 3' on their respective roll shafts, roll 3 being driven by the usual drive illustrated diagrammatically. Roll 3 is also maintained at a different temperature than roll 2 as is common in calenders. The thickness of the film or coating 7 will be dependent upon the adjustment of roll 2 relatively to roll 3. The film formed upon roll 3 is partially picked off of roll 3 by the teeth of roll 4 and is transferred to the surface of the backing 8 as segregated areas or stripes 9 of the desired thickness, the backing being fed from a storage roll 10 in between the rolls 4 and 5. After being coated the backing 8 passes through a cooling chamber 11 and is reeled upon a wind up reel 12 from which it may be taken to the slitters as is usual in the manufacture of adhesive tapes. By means of the foregoing apparatus a tape or strip of any desired width and length may be produced with sharp clearly defined stripes of adhesive thereon of any desired thickness running transversely to the length of the tape.

Obviously the size and shape of the flutes and teeth may be changed to meet particular desires and conditions and other changes may be made without departing from the spirit and scope of this invention as defined in the appended claim.

I claim:

In a calender for applying normally tacky pressure sensitive adhesive mass to segregated areas of a backing with the adhesive mass areas extending across the width of the backing, the

combination of a pair of adjacent smooth-surfaced calender rolls adjustable relatively to each other and between which the adhesive mass is fed, one of said rolls being operated at a higher speed than the other of said rolls to form a continuous uninterrupted film of the adhesive mass upon the surface of the roll being operated at the higher speed, a third roll adjustable toward and from said adhesive film-carrying roll, said third roll having an interrupted surface with high portions thereof extending parallel to the axis of said roll and to the width of the back-

ing and positioned to contact the film upon said film-carrying roll and pick up portions of said adhesive film therefrom, and a pressure roll adjacent said third roll and positioned to support a backing between said pressure roll and said third roll and maintain the backing in contact with the high portions of said third roll whereby the portions of said film on said high areas of said roll will be transferred to said backing along areas extending transversely of the backing, each of said rolls being positively rotated.

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