Aug. 28, 1951 B. C. MARCIN 2,565,509

MANUFACTURE OF TAPES AND SHEETS WITH ADHESIVE COATINGS ON OPPOSITE SIDES THEREOF

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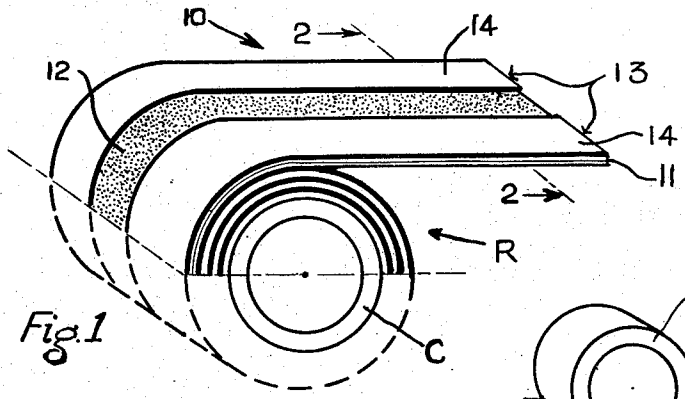


Fig. 1

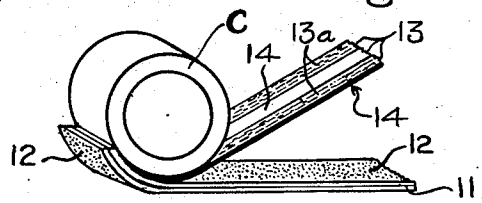


Fig. 1a

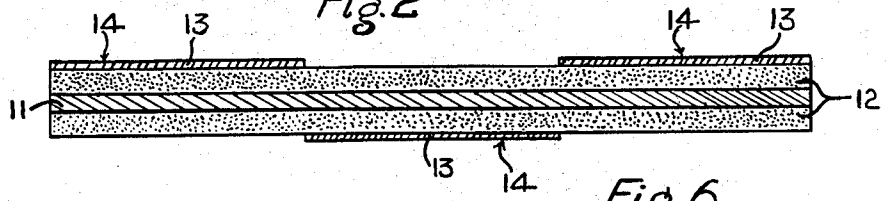


Fig. 2

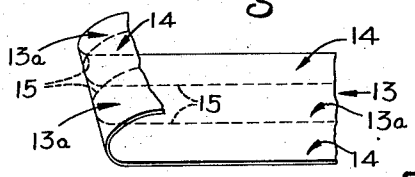


Fig. 6

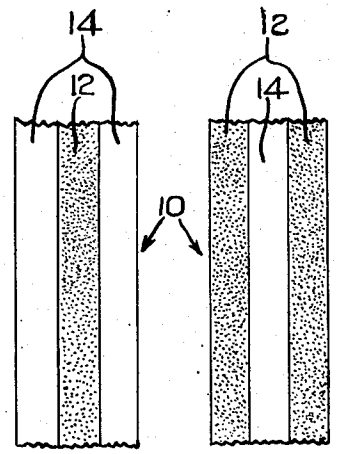


Fig. 4 Fig 5

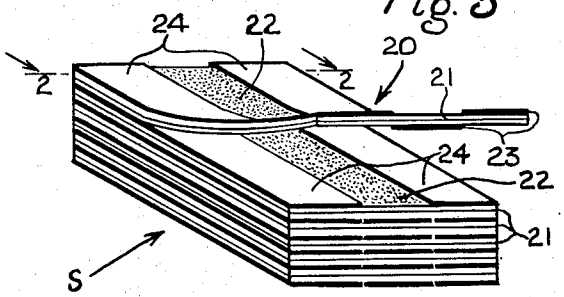


Fig. 3

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MANUFACTURE OF TAPES AND SHEETS WITH ADHESIVE COATINGS ON OPPOSITE SIDES THEREOF

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9 Claims. (Cl. 154—118)

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This invention relates to tapes and sheets having adhesive surface coatings, and more particularly is directed to such tapes and sheets formed with adhesive surface coatings carried on opposite sides thereof constructed and arranged with an improved attached interleaf or liner to provide an assembly permitting such sheets to be superimposed in stacks and such tapes to be wound in rolls without interfering with their adhesive effectiveness or use, yet facilitating the separation or peeling from the stacks or rolls to serve as a convenient means in wrapping, mounting, masking and like purposes and the novel method of forming such assemblies.

Among the objects of the invention is to provide adhesive sheets and tapes and the method of the character described which shall comprise of few and simple parts, which shall be easy, simple and inexpensive to manufacture, which shall make a smooth compact stack or roll, which shall be readily separated into individual units or unrolled in convenient form for various applications, which shall provide an improved form of interleaving means or liner adapted to be inserted and attached between double adhesive coated surfaces of superimposed sheets in stacks or tape wound in rolls, and which shall be practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out. The invention accordingly consists of features of construction and method, combinations of elements, arrangements of parts and steps in the method which will be exemplified in the construction and method hereinafter described and of which the scope of the application will be indicated in the following claims.

In the accompanying drawing in which is shown various possible embodiments of the invention:

Fig. 1 is a perspective view of a roll of tape constructed to embody the invention showing a portion of the tape partially unwound for use,

Fig. 1*a* is a perspective view showing the winding assembly of the adhesive carrier and the interliner forming the tape into a roll as shown in Fig. 1 embodying the improved method,

Fig. 2 is an enlarged cross sectional view taken on lines 2—2 in Fig. 1, or lines 2—2 in Fig. 3,

Fig. 3 is a perspective view of a stack of adhesive sheets constructed to embody the invention showing the top laminated unit being partially peeled off for use,

Figs. 4 and 5 are fragmentary plane views of opposite sides of an adhesive carrier with the

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improved three-strip interliner attached as used in the assembly shown in Figs. 1 and 3, and

Fig. 6 is a fragmentary perspective view of an interliner perforated longitudinally for providing three weakly attached strips before winding with the adhesive carrier corresponding to that shown in Fig. 1*a*.

It is proposed in practicing the invention herein, to provide a novel method, an improved construction of interleaf or liner, hereinafter referred to as an interliner, and an assembly arrangement thereof with adhesive carriers wherein, 10 denotes generally a tape wound in a roll R embodying the invention. Said tape 10, as here shown, may comprise a laminated structure formed with a base layer 11 of sheet cellophane (regenerated cellulose or cellulose acetate), paper, rubber or any suitable textile material, having double surface adhesive coatings 12, that is, applied on the opposite sides thereof, said adhesive coatings 12 being of any well understood composition, such as for example, of the pressure sensitive type and forming with said base layer 11 an adhesive carrier.

On said adhesive coatings 12, there is mounted spaced supplemental base strips 13 of thin sheet cellophane, paper, rubber or any suitable textile material, each having a so-called "repellent" or non-adhesive film surface 14 on the exposed side thereof to prevent the carrier adhesive coatings 12 from adhering or becoming attached when pressed thereagainst. At least one of said supplemental base strips 13 is applied to partially cover each of the opposite carrier adhesive coatings 12, an underside 13*a* of each strip 13 opposite to "repellent" surface 14 being thus permanently secured in the assembly to the coating 12 by a method and in the manner hereinafter more fully described. The strips 13 may be in edge abutment lengthwise the tape 10 and are arranged in staggered position, that is, where secured in place they are in lateral offset non-registering alignment as is clear from Fig. 2.

The tape 10 is formed as above described and shown in the drawing is seen to comprise a laminated structure with base layer 11 of the adhesive carrier having a double faced adhesive coating 12, and with the supplementary strips 13, permanently secured to the underside 13*a* thereof, each of said strips 13 being provided with a repellent surface 14. Because of this multi-strata structure of tape 10, base layer 11 may be made of very thin stock, that is, about half the thickness of that usually found necessary or required in single faced adhesive coated tapes of com-

mercial well understood construction. The supplementary strips 13 may be made about half the thickness of base layer 11 since its only function beside stiffening or bracing the structure of tape 10 is to form a base for repellent surface 14 which extends longitudinally over the effective portion of adhesive coatings 12.

While material used as surface film 14 on strips 13 is here designated as repellent, actually it merely has the properties or characteristics of being incapable of adhering to the adhesive coatings 12 when pressed thereagainst, or has very weakly adhering properties thus permitting readily peeling off of wound superimposed portions of the tapees 10 from the roll R.

In Fig. 3 the invention is shown embodied in making stacks S from sheets 20 instead of being formed of a continuous tape 10 and wound on a roll R as shown in Fig. 1.

The sheets 20 of the stacks S may be similar in laminated construction to tape 10 above described, that is, forming an adhesive carrier comprising base layer 21 and double faced adhesive coatings 22 with interliner strips 23 permanently attached to provide exposed repellent surfaces 24 similar in all respects to the assembly of base layer 11, coatings 12, interliners 13 and repellent surfaces 14 of tape 10 described above.

The coiled or roll R formation of tape 10 and the stack S formation of sheets 20 may be used to suit requirements or the desire of the user, the stack S assembly shown in Fig. 3 being in the nature of precut units, while the roll R of tape 10 being suitable where variable lengths are to be utilized.

The interliners 13, and 23, with the repellent surfaces 14 and 24, respectively, comprise a plurality, this is, two or more, longitudinally extending separable strips which may be inserted in position as shown preferably and in the most simplified manner as a unitary elementary interleafing means with alternate film surfaces 14 or 24 of the adjoining strip 13 or 23, respectively, facing in opposite directions.

In Figs. 1, 2, 4 and 5, are shown examples of three-strip interliners 13 and 23, for providing two spaced longitudinally extending areas of repellent surfaces 14 and 24, respectively, facing up from the adhesive carrier of a horizontally disposed tape 10 and sheet 20, respectively, and an intermediate repellent surface 14 and 24, respectively, facing down from said adhesive carrier in lateral offset relation to the up facing repellent surfaces 14 and 24, respectively.

The practical application of the invention will now be apparent. With the construction, arrangement and assembly above described and shown in the drawing for wound tape 10 on roll R or sheets 20 in stack S, a desired length of tape 10 or top sheet 20 may be readily peeled off and removed, the tape 10 being first severed in the well understood manner.

The cut tape 10 or sheet 20 peeled off may be used for sealing wrapper closures or joints, mounting photographs or the like on supporting surfaces by inserting the same between the back of such photograph and the supporting surface, joining superimposed sheet to serve the function of staples, and for other like purposes.

The tape 10 on roll R and sheet 20 in stack S provides a compact body which forms a supply source of desired units readily and conveniently for practical use.

The novel method of assembling roll R or stack S embodying the invention, as is clear from Figs. 6 and 7, comprises the step of inserting a multi-strip as here shown as a three-strip interliner 13 or 23 between adhesive carriers forming the tape 10 or sheet 20, respectively.

In case of the assembling roll R with the three-strip interliner 13, the latter may have its leading end inserted between core C for wound roll R and the adhesive carrier formed of base layer 11 provided with the adhesive 12 on opposite sides thereof, said carrier together with the interliner 13 so inserted, is then tautly wound up so that the repellent surface 14 of each interliner strip lies between two superimposed coiled sections of adhesive carrier with the repellent surface 14 facing a longitudinal area of one (first) of said sections and the repellent surface 14 facing the longitudinal areas of the other sections in a laterally offset spaced relation to said first area. This winding presses the superimposed sections together and permanently attaches strip undersurfaces 13a of the interliner 13 opposite each repellent surface 14 to the contacting adhesive carrier.

This winding operation is continued until the entire roll R is completely wound to incorporate the interliner 13.

In assembling the stack S, interliners 23 are interposed between the superimposed base layers 21 coated with adhesive surfaces 22 which form adhesive carriers. By alternately placing one interliner 23 over each adhesive carrier to cover same and then another adhesive carrier on the covered interliner 23 and continuing this alternating operation the stack S is formed.

The superimposed adhesive carriers and the interposed interliners 23 are next firmly pressed together until each strip undersurface of the interliner 23 opposite each repellent surface 24 is permanently attached to the contacting adhesive carrier.

In assemblies above described, the tape 10 and sheet 20 are formed and may be readily peeled off to provide a section of units formed of an adhesive carrier having at least one strip of the interliner 13 and 23, respectively, permanently attached on opposite sides thereof, and also leaving effective a longitudinal area of adhesive surface on said adhesive carriers.

By using an interliner 13 or 23 of weakly attached readily separating strips as shown in Fig. 6 by providing perforations denoted at 15 the method above described is most conveniently carried out and eliminates any necessity of providing close alignment of said interliner 13 or 23 alternately interposed between the adhesive carriers for forming roll R or stack S, respectively.

The interliner 13 or 23 may be made either of separate individual edge abutting strips each having a repellent or film surface 14 or 24, respectively, said strips being properly positioned and arranged to alternately provide said surfaces 14 or 24 facing in the same direction on being inserted between the adhesive carriers forming tape 10 or sheet 20, or said interliner 13 and 23 may comprise strips 14 and 24, respectively, arranged as above described which are weakly attached together so that the ready separation of strips on peeling of the tape 10 from the roll R on the sheet 20 from the stack S is not interfered with.

Fragmentary plan views of the opposite sides of an improved multi-strip interliner 13 or 23 comprising of three strips, are shown in Figs. 4 and 5.

If desired, sides 13a of the interliner strips 13 or the corresponding side of strip 23 may be coated

with a suitable adhering surface material on the sides thereof opposite the repellent surfaces 14 and 24, respectively, for increasing the attachment of the strips 13 or 23, respectively, to their respective adhesive carriers when assembled as above described and shown.

It is therefore seen that there is provided an improved method and articles of manufacture in which the several objects of the invention are achieved and which are well adapted to meet the conditions of practical use.

As various other possible embodiments of the invention may be made in the above invention and as various changes may be made in the embodiments and method above set forth, it is to be understood that all matters herein set forth and shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In a method of the character described for assembling repellent adhering means between superimposed portions of a carrier coated on opposite sides thereof with adhesive to form a laminated construction, the steps of inserting a multi-strip-forming interliner having adhesive repellent surfaces between said superimposed portions with the repellent surface of one strip of said interliner facing a first longitudinal area of coated adhesive on one of said portions, and the repellent surface area of an adjacent interliner strip facing a longitudinal area of coated adhesive of another of said portions in laterally offset spaced relation to said first area, and pressing said superimposed portions and interliner together for permanently attaching surfaces of said interliner strips opposite the repellent surfaces against abutting adhesive areas of said carrier portions so that peeling off of one of said superimposed carrier portions with adhesively attached interliner strips leaves effectively adhesive longitudinally extending coated areas of the portion coated carrier underlying said peeled off portion.

2. A method of the character described for assembling a compact body of superimposed portions of an adhesive coated carrier with an interposed repellent adhering means comprising the steps of inserting between superimposed carrier portions said repellent means in the form of longitudinally extending edge abutting strip-forming interliner having alternate strips thereof surfaced to provide non-adhering properties with respect to the adhesive on said carrier with the non-adhesive surfaced interliner strips facing in one direction spaced longitudinally extending areas of coated adhesive on a first of said superimposed carrier portions and with the non-adhering surfaced interliner strips facing in the opposite direction spaced longitudinally extending area of coated adhesive of a second of said carrier portions in lateral offset spaced relation to said first mentioned longitudinally extending adhesive area, and pressing said superimposed carrier portions and interposed strip-forming interliner together and permanently securing alternate interliner strips facing in said one direction to the second of said carrier portions and the other of said strips to the first of said carrier portions so that on peeling separation of said carrier portions each thereof with attached spaced strips leaves effective adhesive longitudinally extending coated areas on both carrier portions between the attached strips thereof.

3. An interliner for insertion between layers of sheet material having adhesive coating on both faces thereof, comprising sheet material formed of a plurality of longitudinally extending separable strips in edgewise abutment relation, each strip having an adhesive repellent surface on one face thereof and an adhesive adhering surface on the opposite face thereof, said surfaces of the strips being arranged with respect to each other to position alternate adhesive repellent surfaces facing in one direction and alternate adhesive adhering surfaces in the same direction therebetween.

4. A laminated adhesive construction of the character described comprising superimposed carrier portions having adhesive areas on opposite faces thereof, a multistrip interliner interposed between said carrier portions, said interliner formed of longitudinally extending edge-abutting separable strips having surfaces thereof permanently secured to said carrier portions with alternate strips attached to one adjacent carrier portion and the other strips permanently secured to another adjacent carrier portion, and adhesive repellent surfaces on said strips opposite those attached to said carrier portions for peeling off one of said carrier portions with attached alternate strips of the interliner as a laminated structural unit having alternate effective adhesive areas on one face of the unit in offset relation with respect to adhesive areas on the opposite face thereof.

5. The laminated adhesive construction defined in claim 4 in which said carrier portions and interliner are in the form of continuous length of web sheet rolled up with said effective adhesive areas out of register and in non-adhesive contact with said repellent surfaces.

6. A laminated tape structure comprising a supporting sheet having longitudinally extending parallelly spaced apart adhesive coated areas on one face thereof and longitudinally extending parallelly spaced apart adhesive coated areas on the opposite face thereof in a lateral offset relation to said first mentioned coated areas, and interliner strip elements extending between said adhesive coated areas permanently attached to said supporting sheet on both of said faces, said interliner strip elements having adhesive repellent surfaces positioned to extend alternately between said adhesive coated areas.

7. In combination, a plurality of layers of sheet material having adhesive coating on both opposite faces thereof, and an interliner between each of said sheet material spacing the adhesive surfaces apart, said interliner including sheet material formed of a plurality of longitudinally extending separable strips in edgewise abutment relation, each strip having an adhesive repellent surface on one face thereof and an adhesive adhering surface on the opposite face thereof, said surfaces of the strips being arranged with respect to each other to position alternate adhesive repellent surfaces facing in one direction with alternately adhesive adhering surfaces in the same direction therebetween permanently attached to the adjacent adhesive surface of the sheet material.

8. A method of the character described for manufacturing a laminated body for supplying adhesive tape having effective longitudinally extending adhesive areas on both sides of the tape from a sheet material having an adhesive coating

on both sides thereof and an interliner formed of a plurality of longitudinally extending separable strips in edgewise abutment relation, each strip having an adhesive repellent surface on one face thereof and an adhesive adhering surface on the opposite face thereof, said surfaces of the strips being arranged with respect to each other to position alternate adhesive repellent surfaces facing in one direction and alternate adhesive adhering surfaces in the same direction therebetween, comprising the steps of inserting said interliner between said sheet material to form a superimposed structure of alternate sheet material and interliners, and pressing said superimposed structure together for permanently attaching said adhesive adhering surfaces of the interliner strips opposite the repellent surfaces to abutting adhesive coating of the sheet material.

9. The laminated adhesive construction defined in claim 4 in which said carrier portions and

interliner are alternately stacked with said effective adhesive areas out of register and in non-adhesive contact with said repellent surfaces.

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