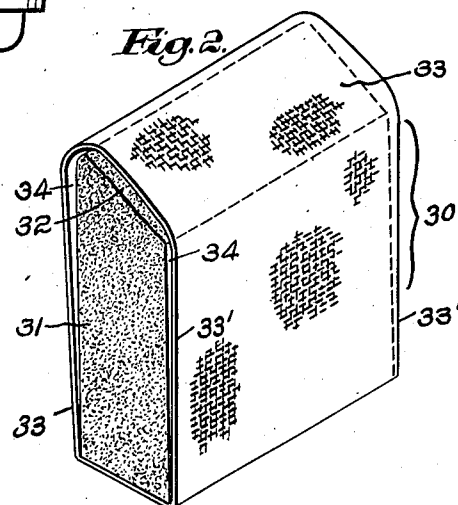
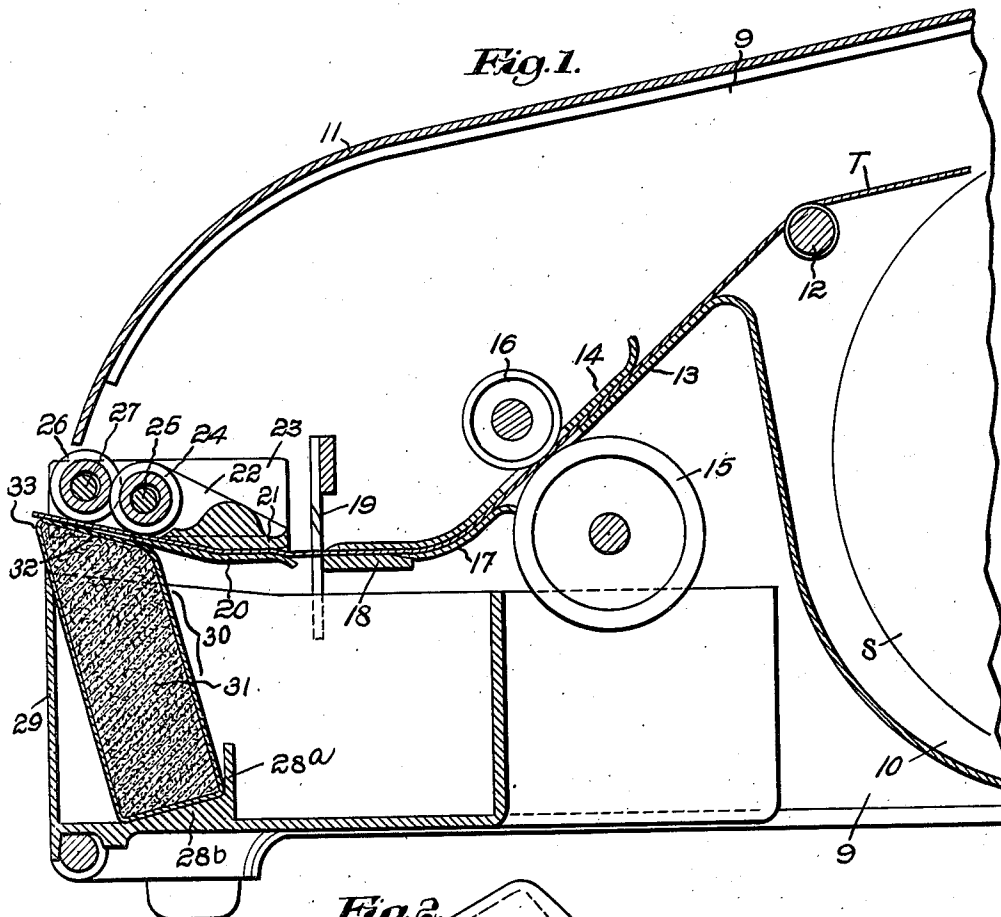


May 2, 1944.

R. W. HOITT
 DRY-GUMMED TAPE DISPENSING APPARATUS AND MOISTENER
 AND DELIVERY MEANS THEREFOR
 Filed April 5, 1943

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2 Sheets-Sheet 1



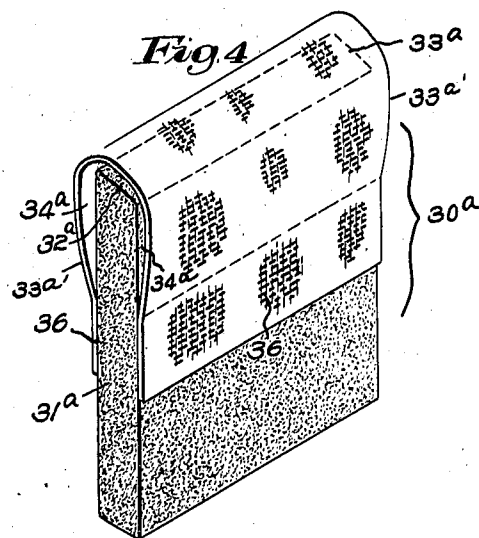
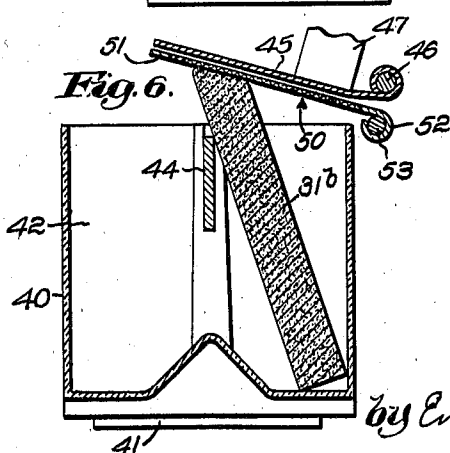
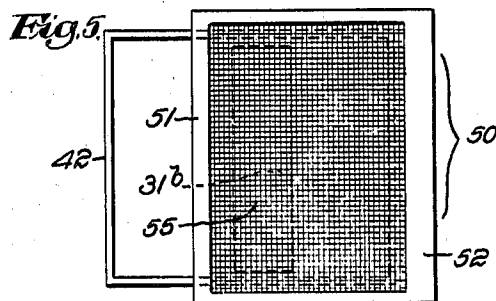
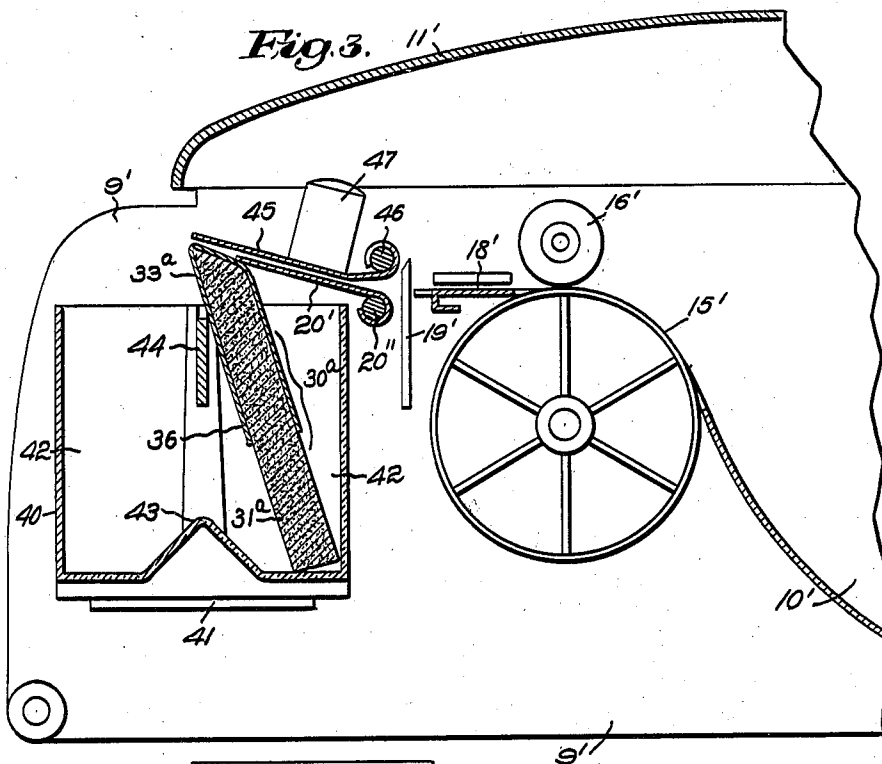
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2 Sheets-Sheet 2



Inventor:
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 Attys.

UNITED STATES PATENT OFFICE

2,348,067

DRY-GUMMED TAPE DISPENSING APPARATUS AND MOISTENER, AND DELIVERY MEANS THEREFOR

Robert W. Hoitt, Nashua, N. H., assignor to Nashua Gummed and Coated Paper Company, Nashua, N. H., a corporation of Massachusetts

Application April 5, 1943, Serial No. 481,868

14 Claims (Cl. 91—38)

My present invention relates to the coating or moistening of flexible strips and delivery of the same, particularly dry-gummed adhesive fabric or paper tape, labels and the like, as for packaging, labeling, binding and other purposes. Chiefly it aims to provide in machines and apparatus for dispensing lengths of such material in moistened adhesive condition, improved delivering means including novel moistener elements for conducting moistening liquid to and applying it uniformly over a gummed face of the tape or label.

Apparatus and devices of the general class with which the invention is mainly concerned typically include those of my prior Patent 2,305,424, of December 15, 1942, and of various patents to T. R. Gautier such as 2,082,733, of June 1, 1937; 2,126,680, of August 9, 1939; 2,192,132, of February 27, 1940; 2,224,100, of December 3, 1940; 2,290,041, of July 14, 1942; and others.

In the drawings illustrating by way of example certain embodiments of the present invention.

Fig. 1 is a longitudinal sectional view of the main forward or delivery portion of a strip server or tape dispensing apparatus equipped with the novel moistener means;

Fig. 2 shows in perspective the moisture-conveying or applicator element proper of Fig. 1;

Fig. 3 is a view similar to that of Fig. 1 of a corresponding portion of another dispenser including a modified construction of capillary moistener in accordance with the invention;

Fig. 4 shows the moistener element proper of Fig. 3 separately, similar as in Fig. 2; and

Figs. 5 and 6 illustrate a further modification of moistener and delivery means also representative of the invention, in plan and in part vertical section respectively.

Referring now more particularly to Figs. 1 and 2, the means of the invention is there illustrated in association with a strip server or tape dispensing machine which may be regarded as typical of the class concerned. Sufficient of the machine as a whole is shown in Fig. 1 for present purposes. In general the machine may be similar to that of the above mentioned Gautier Patent 2,192,132, by way of example, reference to which patent may be made for a more detailed illustration of the feeding, measuring, severing and associated mechanism. In general, the machine comprises spaced side frames, one of which is seen at 9, providing at their rear portion a support or well 10 for a supply of the dry-gummed tape or strip material generally in the form of a roll S, the machine desirably having a top cover

such as indicated at 11. The tape T from such supply is adapted to be advanced past suitable guides such as the roll 12 and underguide 13, between the latter and an overguide 14. In this particular type of machine the tape is fed or thrust forwardly by and between lower and upper cooperating feed rolls 15, 16, along further guide means 17 and past suitable severing means shown as comprising fixed and movable blades as indicated at 18, 19. Forwardly beyond the severing means, in the direction toward the delivery end of the machine, the tape is moistened upon its gummed face, herein the underface and is delivered to the operator in moistened adhesive condition ready for application, through the medium of the novel means of the present invention.

In some instances the tape may progress directly from the severing means to the moistening elements to be described. In the example of Fig. 1 the tape is forwarded and directed for presentation to the moisture-applicator as by an underguide 20 and a cooperating vertically movable top guide 21, having vertical flange portions 22 horizontally pivoted upon the side flanges or a stationary part thereon such as the block 23. As in said Gautier Patent 2,192,132 the horizontal pivot for the top guide 21 may be coaxial with or serve also to position forward guide means overlying and cooperating with the moistener element or applicator proper. In this instance such means comprises a rear roller 24 loosely received on a pin 25 of such lesser diameter than that of the axial bore of the roller as to afford the latter capacity for vertical movement whereby it may float or rest by gravity on the upper face of the tape as the latter is advanced with its gummed under face in moistening relation with the applicator element. A further or auxiliary guiding and presser means, herein also of the rotary type, is provided at the tape delivery point, just beyond the described rotary guide 24. Such front guide may comprise a roller element 26, formed of one or more individual longitudinal units, loose on a bearing pin 27. Here again the bearing apertures in such roller or roller units 26 are of larger diameter than the positioning pin 27, affording the guide a vertical floating movement so that it may rest by gravity on the non-gummed upper face of the underlying tape.

For the supply of moistening liquid, generally water, the machine is equipped with a reservoir or tank 28 supported by the side frames, preferably removably as upon bosses, guides or the like, whereby it may be withdrawn for replen-

ishment, the reservoir having a circumferential vertical wall including a front portion 29 and being open at the top at least at its forward portion adjacent said front wall.

The applicator or moistener proper, indicated as a whole by the numeral 30, is removably set into the reservoir in generally upright and preferably somewhat forwardly inclined position in which it may be supported and positioned as by vertical ribs or flanges 28a at the lower inner faces of the tank side walls and by an underlying step or the like 28b appropriately inclined to position the applicator 30 with its upper portion resting against the front wall 29 of the tank or other suitably located positioning means thereon.

In accordance with the invention this moisture-conveying and presenting element or applicator 30 comprises a mass or block of artificial cellulosic sponge-like material 31. Preferably it has a small and fairly uniform cellular structure in which the individual cells are for the most part incompletely walled and hence intercommunicate from one to another in a manner affording more or less direct paths along which moisture may be conducted by capillary action through the entire extent of the moistener mass. One example of such material which I have found especially adaptable to the purpose is that supplied by Du Pont under the commercial designation or trade name "Cellulose sponge."

As more clearly seen separately in Fig. 2 this capillary material in accordance with the invention is provided in the form of the block 31 of generally rectangular conformation. This block or moistener mass 31 as a whole is proportioned in width to that of the strip or tape to be moistened, as for example approximately 3 to 3½ inches in width or somewhat more for the 3 inch tape of the larger machines, with correspondingly lesser widths in the machines and devices for dispensing the narrower tapes such as 2 inch, 1 inch, etc.

While in some instances the upper face of the moistener block may be perpendicular or substantially so with relation to its front and back faces, generally it is somewhat bevelled at the appropriate angle, usually in the neighborhood of about 25° to 45° to present an upper face 32 in conformity with the tape path which desirably has somewhat of a forward and upward tilt as represented for example in Fig. 1. The artificial sponge-like material concerned is extremely light. For example in a moistener or applicator 30 for a 3 inch tape, wherein the moistener body may have the dimensions of approximately 4¼ x 3 x ¾ inches, the weight is but about ⅓ oz. In its dry condition the moistener body is relatively compact and its surfaces have a somewhat harsh texture to the touch. Upon wetting, as by inserting into the filled tank, this applicator body expands materially, particularly in the direction of its least dimension, that is, in the fore and aft direction with relation to the machine. In its wet condition it becomes softer, but attendant on its expansion the cells or mouths of the numerous capillary passages which open at the top face of the moistener body tend to open or expand.

Thus there is presented at the top of the moistener mass a surface which is non-smooth and is interrupted by the large multiplicity of the capillary openings or pores. These are found to have an objectionable tendency to re-

tard or interfere with the passage of the tape T across and in moistening relation with the applicator. A similar condition prevails at the rear face of the moistener body. Hence the leading edge of the tape, if permitted directly to contact the moistener body, is likely to catch in or be deflected by some one or more of the numerous surface irregularities, causing the tape to buckle or balk, and objectionably interfering with and hindering its desired free feeding action.

Accordingly the invention further provides means for conforming and adapting the applicator body for conductive supporting and moistening cooperation with the under or gummed face of the tape in a manner to afford a free and non-interrupted forward movement for the tape in the course of the moistening and delivering action. In this connection it is noted that the underguide for the tape extends into close proximity to the applicator or actual contact with it. As illustrated for example in Fig. 1 the guide 20 not only continues fully to the applicator 30 but laps over onto the latter. Accordingly the tape is conducted and positively directed to and onto the moisture-applying surface of said element 30.

For purposes as above mentioned the capillary conductive mass 31 of the applicator is provided with smooth but porous or moisture-permeable means adapted to assist the passage of the tape and to receive and transfer moisture from the applicator mass to the gummed face of the advancing tape. Such means may be variously constructed and arranged to present a smooth flat or conformant moisture-bearing face to the tape. In the illustrated embodiments it comprises a section or layer of cloth or other fabric, fine metal screen, wire gauze or other smooth foraminous material. This guiding and moistening means may be carried by or mounted on the capillary body 31 as a member of the assembly or unit comprising the applicator 30 as a whole, as for example in Figs. 1 to 4, or it may be independently arranged as for instance in the embodiment of Figs. 5 and 6. In either instance it is disposed so that the appropriate area of it is interposed in moisture-receiving and transferring relation between the capillary body 31 and the tape. Such area in the operative condition of the parts is in sufficiently close conformant proximity to the adjacent surface of the capillary body to effect the stated transfer of moisture and the described conductive guiding of the tape relative to and across said surface, being generally in at least partially contactive contiguity to said body or in what is commonly referred to as a surface engagement therewith opposite the co-operable and herein overlying tape-depressing and guiding means such as the rollers 24, 26 of Fig. 1.

Where a cloth is employed, such fabric may be woven or knitted of various materials, including silk, rayon, mercerized or other cotton, and combinations of the same or of other fibres. In the instance of a woven fabric, a medium fine to fine weave is preferred, as with a count of about 60 to 90 by about 60 to 90 and wherein the warp and filling strands may be of 50's to 100's cotton yarn or equivalent sizes or denier of other threads or yarns. As to warp and filling arrangement the woven fabric may be of substantially any preferred structure, whether plain, basket or other weave, including the patterns known as satin weaves, either as in sateen or as in satin. Where as in such latter weaves one or the other

of the component strand elements presents predominantly longer portions at a given face of the fabric, such fabric desirably is so arranged on or relative to the moistener body 31 that in the operative position of the latter the longer strand portions substantially parallel the direction of the tape feed.

Also suitable for the purpose are the relatively fine knitted fabrics, such as hosiery fabrics of medium to fine gauge or loop structure, as produced on full-fashioned machines of about a 39 to 45 gauge, that is, 26 to 30 needles per inch, and corresponding circular knit fabrics. By reference herein to fabrics, whether woven or knitted, as medium fine to fine I intend structures which present some interstices or pores through which the moisture may pass but which nevertheless are smooth to the touch. These contrast on the one hand with fabrics having any such degree of openness as is generally termed "open-mesh" in the textile art, as characterized by an interrupted or non-smooth feel, and, on the other hand, as contrasted with fabrics of such compact structure as to present little or no inter-strand space available for passage of moisture. In this connection it is noted that in the hosiery trade of recent years a 39-gauge full-fashioned machine has come to be considered as coarse, a 42-gauge as medium, and a 45-gauge as fine. But as above noted, a fabric of a 39-gauge machine, or even substantially coarser, generally is suitable for the purposes of the invention, particularly with the heavier grades of tape to be moistened and dispensed, so long as the apertures and the general surface structure is such as to promote an easy uninterrupted passage of the leading edge of the tape in contact with the fabric.

Referring again to Figs. 1 and 2, I have there represented a tape guiding and moisture-transferring member 33 formed of a fabric such as above described. In this instance it is constructed as a sleeve or wrapper of tubular form into which the moistener block or body 31 is inserted endwise, narrow face first; or a strip of the fabric may be placed about the block 31 and its ends seamed together or otherwise joined to provide a tube. With the moistener block in its upright position substantially as when installed, its relatively narrow lateral sides are exposed at the respective ends of the sleeve, the latter otherwise enclosing the moistener body, extending across its top surface, vertically along its front and rear faces and continuously beneath its bottom face.

As previously mentioned, the block or mass of spongy cellulosic material 31 is relatively compact in its dry state and is subject to considerable expansion, particularly in the direction of its lesser dimension, upon being wetted. Accordingly the fabric member such as the sleeve 33 is formed with an internal diameter proportioned initially to receive the dry block rather loosely, in some such manner as represented in Fig. 2, somewhat diagrammatically. As seen particularly at the upper side and top portion in that figure adequate space is provided, as at 34, 34, for expansion of the moistener body 31. By reason of such expansion and so long as said body is supplied with liquid from the reservoir, the fabric sleeve 33 is filled out, tautening across the upper surface of the block and presenting a smooth guiding, supporting, and moisture-transferring medium for engagement with the underface of the tape, substantially as represented in Fig. 1.

A construction for the applicator or moisten-

ing element 30 as in Figs. 1 and 2, including the tubular formation for the fabric overlay 33, has the advantage among others that it may be adjusted circumferentially of the enclosed moisture-conducting mass 31. Thus fresh areas of the fabric may from time to time be presented in cooperative moistening and guiding relation with the moistener and the tape respectively. The tubular member 33 leaves the entire lateral faces of the block 31 exposed for direct access by the liquid of the reservoir 28, particularly at the lower, base or immersing portion of the applicator as a whole.

Where the block-covering interposed element such as 33 of Figs. 1 and 2 is a textile or wire fabric its lateral or free edges are fashioned or finished to afford a non-raveling edge or border formation. This may be accomplished by forming the sheet or web member 33 of a ribbon or band of so-called narrow-ware, having a natural formed selvage along both edges which parallel the tape path, or one edge of the fabric may have a true selvage, the other being otherwise finished or treated to avoid fraying or raveling. The latter may be effected by forming a turned or other hem, seam or the like. The edge finish desirably is such as to present no undue thickening or other irregularity as might interfere with the passage of the tape. As true-selvaged fabrics woven or otherwise fashioned to the desired width are usually relatively expensive, it is found generally preferable to employ strips of fabric cut to size from larger webs and having either or both their free-edge portions, such as 33', 33', Fig. 2, treated with a plastic, cementitious or other agent or otherwise fashioned or finished to provide a sealed edge of a non-fraying or non-raveling character. What is here stated as to the sealed or finished edge structure for the foraminous guide element is applicable also to the other illustrated embodiments to be described, noting for example edges 33a', 33a' of Fig. 4.

Referring now to Figs. 3 and 4, I have there sufficiently represented another tape dispenser or strip server of the general class here concerned and also incorporating tape moistening and delivering means in accordance with the invention. As in the previous figures such machine typically includes a frame 9', a cover 11', a tape supply support 10', lower and upper feed wheels 15', 16', tape guiding means 18' and severing means 19'.

A tank or reservoir for moistening liquid is represented at 40, being removably supported on projections such as 41 on the machine frame. The tank in this instance comprises opposed front and rear compartments 42, 42 defined as by a transverse rib 43 centrally disposed at the bottom of the tank, and by a divider and applicator supporting plate or the like 44, which may be removable. The applicator, indicated as a whole by the numeral 30a, is adapted to stand in the somewhat inclined position substantially as seen in Fig. 3, with its upwardly projecting portion resting forwardly against said support 44. The rib 43 as shown is of inverted V-shape, its oppositely inclined upper faces serving to direct the applicator base or immersing portion into operative position in one or the other of the compartments 42. Since the latter and the tank as a whole are symmetrical the applicator 30a may be deposited in either compartment and the tank assembly then inserted into the machine with the then occupied compartment rearmost,

For conducting the tape from the severing means 19' to and preferably directly onto the applicator the machine is provided with an under guide 20' which may be fixed on the machine frame or pivotally mounted as at 20''. The co-operable upper guide and tape depressor or guiding means in this instance comprises a plate 45 adapted to overlie and rest by gravity upon the upper face of the advancing tape, opposite the applicator 30a, such top guide desirably being pivotally supported as upon a cross pin 46 at its rear portion. It may further include a combined weight and manipulating finger piece 47.

Noting now more particularly Fig. 4, the block or body 31a of the applicator unit or assembly 30a may be of generally similar spongy artificial cellulosic material as in Figs. 1 and 2. As there, it includes a moisture-receiving or admitting portion to be immersed in the supply liquid of the tank 40 and a moisture-accumulating and delivering portion, whereby the moistening liquid is conducted by capillary action and presented adjacent the tape path. As in the previous instance the upper and herein relatively narrow face 32a of the block may be bevelled at the appropriate angle to conform it to the tape path when the applicator is installed in the tape conditioning or dispensing apparatus, preferably in a somewhat forwardly inclined position as in Fig. 3.

The applicator 30a, as in Figs. 1 and 2, is adapted to rest with its lower or butt end at or near the bottom of the tank, in this case being positioned in and by the rear corner angle of the latter. If desired the bottom face of the applicator block may also be bevelled in general conformity with the plane of the tank floor, the arrangement preferably being such, however, that the bottom face of the block 31a is held out of full flatwise contact with the lower wall portions of the tank, thereby insuring access for the liquid to the capillary passages at the base of the block. For that purpose, laterally interrupted inclined positioning lugs, feet or the like may be provided beneath the applicator, such as indicated in Fig. 1.

The applicator assembly unit 30a of Figs. 3 and 4 comprises also a moisture transferring and tape guiding means 33a of cloth or other fabric or pervious sheet material such as previously described. Such means in this instance covers or encloses the moistener block 31a but partially, at an upper portion thereof. It here comprises a strip of the described material of a length to extend across the upper surface 32a and downwardly along the opposite front and rear faces of the block to an extent adequate for attachment of the fabric or cover element in a manner offering no material obstruction of or interference with the supplying of the liquid by capillarity to the projecting portion of the block.

Such attachment may be by stitching, stapling, riveting or otherwise consistent with the conditions stated. A preferred manner of so fabricating the cloth or fabric 33a to the block 31a is by cement or similarly bonding the parts along the lower transverse areas of the fabric, as at the dotted zones indicated by the numerals 36, 36 in Fig. 4. The cement, glue or other bonding agent for the purpose may be selected from those of a character such that after application and setting or polymerizing thereof will maintain the bond despite immersion of the bonded areas of the applicator in the supply liquid over extensive use periods.

Various agents are suitable for the purpose, including certain of the so-called waterproof glues and cements and others which of themselves may be more or less water-soluble but which are adapted to unite or react with the nitro-cellulosic or other artificial spongy component material of the moistener body 31a to provide a union which is substantially non-soluble in water or highly resistant to weakening under water immersion.

Further by way of example, I have found well-suited for the purpose certain nitro-cellulose emulsions, such for instance as commercially available by the trade designation "Emulsion No. 19"; also adhesives of the waterproof type, including that known commercially as "Le Page's Plastic resin glue, Waterproof No. 700."

In view of the expansive action of the spongy material of the block 31a when the latter is wetted to or approaching the point of saturation, as referred to in connection with Figs. 1 and 2, the tape-guiding and moisture-transferring envelope member 33a is fabricated to the initially dry block 31a in a manner to afford sufficient looseness or clearance between the parts, as at 34a, Fig. 4, to accommodate such expansion. With a given fabric for the member 33a and a given volume content for the block or body 31a the appropriate excess fabric area between the bonded zones 36, over the corresponding surface area of the block itself, may be determined with sufficient accuracy.

One convenient manner of providing the desired expansion allowance is by means of a template or like temporary spacing arrangement, such as an inverted U-shaped spacer adapted to seat over the upper portion of the moistener block 31a, above the attaching zones 36, temporarily to occupy the space such as indicated at 34a. In the fabricating operation the cloth or other fabric layer 33a of the approximate length desired is placed over the top of the block having such template or the like spacer means in position thereon, the lower depending portions of the fabric then being sealed to the block as at the bonding zones 36. Such spacer or filler means is then withdrawn laterally of the formed applicator, leaving the calculated clearance, or initial excess material for the envelope member 33a, as appropriate to the particular instance.

With relation to the embodiments either of Figs. 1 and 2, or of Figs. 3 and 4, the fabric for the guiding shield and moisture-transferring element 33 or 33a may be of an elastic or somewhat yielding character, at least in one direction, such as the hosiery or other knitted silk and other fabrics previously mentioned. The inherent resiliency or stretch capacity of such fabrics may be availed of, so that the fabric may be less loosely applied, or to afford a margin of safety in the event of an abnormal expansion of the block material or to relieve excess stress at the bonded zones 36. It will be understood that in such case the fabric will be disposed relative to the moistener block to present its major elasticity circumferentially in the tubular element 30 of Figs. 1 and 2 and correspondingly with respect to the inverted-U form for the member 33a of Figs. 3 and 4, that is, in general conformity with the direction of travel of the strip or tape to be moistened.

The applicator structure such as represented in Figs. 3 and 4 has the advantage of economy in the quantity of the fabric or like required for the envelope member 33a, together with that, among others, of exposing and presenting sub-

stantially the entire surface area of the lower or immersible portion of the moistener body 31a for direct entrance of the liquid supply at the capillary pores and passages.

The cellulosic or other capillary artificial spongy material such as that previously identified as available in its initial manufactured condition usually comprises a sizable slab or mass, from which the blocks for the particular applicators of the invention are cut or stamped out to the desired shape and dimensions. Where either or both ends of the individual blocks are to be bevelled wastage may be avoided by alternating the straight and the inclined planes of separation for a series of the blocks from a given mass, or inclining the cut lines alternately in opposite directions where both ends are to be non-perpendicular.

The artificial or manufactured material such as here concerned is selected of a relatively fine grade or size as to its pore formation, such as to insure the desired moisture-conductive effect by capillary action. The resulting blocks or bodies such as 31, 31a or 31b are, as stated, light in weight in the dry state but are adapted to absorb many times their own weight of water. Hence when saturated in the supply liquid of the tank or reservoir they are non-floating, and stand firmly in the desired upright or slightly inclined position in the tank as shown in the drawings. Further, the character of this cellulosic or like artificial capillary material is such that in the fabricated applicators of the invention the body or block has sufficient structural substance, as contrasted for example with natural sponge, as to maintain symmetrically in its saturated condition substantially its shape and contour as in the dry state and to offer considerable resistance to deforming pressure. This self-supporting capacity is augmented, in the applicators constructed as in Figs. 1 to 4, by the envelope or shield member at least partially enclosing them circumferentially, such member when tautened tending to assist in defining the shape or contour of its carrying block and to reinforce it structurally. In the attached form of Figs. 3 and 4, particularly when a bonding agent of the plastic or resinous type is employed, the resulting unions usually present zones of substantial hardness and rigidity, further assisting in the respects mentioned. It is also noted that the fabric guide layer, when of a length to extend down into the liquid supply may itself be subject to a capillary action aiding in the conduct and presentation of the moisture to the tape. The permeable or porous character of this tape-contacting element in any instance, including the example of Figs. 5 and 6 to be described is such as to maintain a substantially continuous film-like supply of moisture at the path of the strip or tape.

Turning now to Figs. 5 and 6, I have there represented a further embodiment of the invention wherein the tape-guiding shield and moisture-transferring means is mounted independently of the capillary moisture-conductive element proper. In this instance the reservoir 42 and other parts including the upper guide and tape depresser 45 may be regarded as similar to corresponding parts in Figs. 3 and 4 unless otherwise stated. In Fig. 5 the depresser is assumed to be turned back or removed, more clearly to show the normally underlying applicator means.

The capillary element 31b of Figs. 5 and 6 comprises a mass, body or block of the cellulosic or other artificial spongy material such as previously

described, and is shaped and proportioned similarly as in the preceding figures, with dimensions as appropriate to the particular tape handling device, machine or apparatus with which it is to be employed.

Interposing the moistener block 31b and the opposed guide and depresser 45 is a combined tape guide and moisture-transfer means indicated as a whole by the numeral 50. It will be understood that such over-guide 45, here shown as a pivoted or other plate, may be of the roller type such as in Figs. 1 and 2, or otherwise. Said means 50 as illustrated comprises a plate-like member or grid including a generally rectangular frame 51, see particularly Fig. 5, having a down-turned lip or bearing formation 52 at its rear portion movably or otherwise associated with a supporting pivot pin or the like 53 on the machine frame or other convenient and normally stationary part. This frame 51, which may be a light-weight casting, metal stamping or formed from a wire or other stock bent or otherwise fabricated to shape, supports the tape-guiding and moisture-transferring sheet or web of the suitable perforate or moisture-permeable material such as herein earlier described.

In the particular example selected for illustration in Figs. 5 and 6, I have represented (more or less diagrammatically and not to scale) a medium fine to fine perforated metal or wire mesh material 55 as the moisture-transferring and tape guiding means proper, on at least the forward area of the frame 51, opposite the capillary body 31b. Rearwardly of such area this moisture-transferring and shielding guide element 55 may be imperforate but desirably, from manufacturing and other considerations and to insure uniform uninterrupted travel for the tape, the smooth mesh or perforate structure may encompass substantially the entire otherwise open area defined by the frame 51. Its material desirably is of a corrosion-resistant character. In some instances this member or element 55 may be fabricated of a metal sheet or plate provided with a multiplicity of fine and closely spaced perforations, of the order of about 900 or more per sq. in.

Where a woven wire or other mesh structure is employed such as illustrated by way of example in Fig. 5, a somewhat greater degree of openness or total aperture area for the passage of moisture may be had, consistent with the conditions of smoothness and free guiding capacity relative to the leading edge of the tape, as previously described. Examples of mesh or screen-like materials suitable for the purpose include non-corrosive wire of about No. 26 to 32 B. and S. gauge arranged to present approximately 1800 to 3600 meshes per sq. in., such for instance as in the medium fine to fine wire fabric for screening pulverized ore.

The moisture transfer and tape guiding means 50 such as that of Figs. 5 and 6 may as there shown be pivotally or otherwise yieldably supported so as to rest or float, by gravity with or without supplementary spring means, upon the capillary block 31b, with its moisture-permeable portion in supported engagement with the latter. If preferred for certain types or models of tape-dispensing devices and machines such means may however be fixed with respect to the tape path, the block or mass of cellulosic or other artificial capillary material being then arranged and of a shape and size to bear yieldably, under its own expansive action or otherwise, against

the opposed perforate moisture-transfer means. Where such means is supported independently of the capillary body, either fixedly or in a manner to float or bear yieldably upon it the problem presented by the expansive action of such body on wetting or saturation is automatically taken care of, as compared with constructions such as in Figs. 1 to 4 wherein the permeable guide member envelops at least an upper portion of the block 31 or 31a.

It will be understood that various structural features as represented by way of example in the several embodiments or modifications of the accompanying drawings are in general interchangeable as between the different forms, both as to the particular perforate material employed for the moisture-transferring shield and tape-guiding element of the applicator means as a whole, and in other respects such as the type of associated guiding and depresser means, which latter in some tape or label moistening or delivering and moistening apparatus and devices may be dispensed with, as in those of the manual "wipe-across" and the "pull-out" or hand draft types.

My invention is not limited to the particular embodiments thereof herein illustrated and described by way of example, its scope being pointed out in the following claims.

I claim:

1. In a strip server, in combination with a frame, a support for a strip supply, and means for advancing the strip to a delivery station, moisture-applying means adjacent said station, said means including a liquid supply container, and an applicator receivable in the liquid and adapted to extend into proximity with the tape path, said applicator comprising an artificial porous body of irregular surface texture and of a capillary cellular structure thereby adapting it to conduct liquid from the supply, and a smooth-surfaced moisture-permeable member interposing the tape path and said body to transfer moisture from the latter to the tape and to guide the tape across the applicator toward the delivery station.

2. Adhesive tape delivering and moistening means for tape dispensing apparatus, said means comprising, in combination with a liquid reservoir, a block of artificial cellulosic porous material having substantial capacity for absorbing and conducting liquid by capillarity, and an associated moisture-permeable layer member adapted to receive moisture from said block and to present a film thereof and an uninterrupted supporting guide surface to the tape.

3. For use in moisture-coating dry-gummed flexible strips such as tape, labels and the like, an applicator comprising an artificial cellulosic porous capillary body having a portion for immersion in a moisture supply and an opposed moisture-delivery portion, and a smooth foraminous web-like member in substantially contactive conformant contiguity to the moisture-delivering portion of said body, said member adapted to transfer moisture therefrom to a strip passed across and in contact with said member and to promote uninterrupted passage for such strip.

4. A moistener unit for dry-gummed tape, label and like conditioning apparatus, comprising, in combination, an artificial cellulosic capillary body having a moisture-receiving portion to be immersed in a moisture supply and a moisture-delivering portion to project from such supply, and a guidant moisture-permeable tape-conform-

ing sheet member, disposed for transferring moisture from said delivery portion to a tape, label or the like passed across it.

5. Gummed tape dispensing apparatus comprising, in combination with means for advancing tape along a path from a supply, a liquid reservoir, a capillary moisture-conductive element consisting of a block of artificial cellulosic porous material set in the reservoir and projecting into proximity to the tape path, a sheet-material foraminous member in moisture-receiving engagement with said block, between it and the tape path, for guiding and moistening the tape advanced across it, and cooperating means engageable with the non-gummed face of the tape to press it into moistening relation with said sheet-like member at its opposite face.

6. An applicator for moisture-coating strips such as tapes, labels and the like, comprising an artificial cellulosic spongy capillary-structured block having a liquid immiscible portion and a moisture-delivering portion presenting a surface generally conformant to the strip face to be coated, in combination with a similarly conformant section of moisture-permeable material having a smooth surface for supporting and guiding the strip in moisture-coating movement across it and adapted for moisture-receiving engagement with said block at its opposite face.

7. An applicator according to claim 6 wherein the permeable guide section is formed of a medium fine to fine fabric.

8. An applicator according to claim 6 in which the permeable guide section is a textile fabric sleeve enveloping the block in the circumferential direction paralleling the movement of the strip to be moisture-coated.

9. An applicator according to claim 6 in which the permeable guide section comprises a length of textile fabric covering the strip-conformant surface of the moisture-delivering portion of the block and extending onto two opposite faces of the latter adjacent said surface and being bonded thereto along transverse zones spaced below said surface.

10. An applicator according to claim 6 in which the permeable guide section comprises a piece of foraminous sheet material in association with means apart from the block to position said sheet material in shielding and moisture-transferring relation to the block.

11. Gummed tape dispensing apparatus comprising, in combination with means for advancing tape along a path from a supply, a liquid reservoir, a block of artificial sponge-like material having a capillary cellular structure subject to expansion upon insertion in a liquid, said block positioned in the reservoir below the tape path and including a base portion laterally open to liquid entrance and being shaped for removable seating below the liquid level in the reservoir and an upper portion adapted in the seated position of the block to project above the liquid level and into proximity to the tape path, and web like cover-means adapting said upper portion for the passage of tape across it while transmitting moisture to such tape.

12. Applicator means for moisture-coating strips such as tapes, labels and the like, comprising an artificial cellulosic spongy block having a liquid immiscible portion exposed for liquid entrance and an opposite moisture-delivering portion presenting a face generally conformant to the strip face to be coated, and a moisture-transmitting guide element engageable with said face

of the latter portion in the operative wetted condition of the applicator means.

13. An applicator for moisture-coating strips such as tapes, labels and the like, comprising an artificial cellulosic capillary-structured expansible block having a liquid immersible portion and a moisture-delivering portion presenting a surface generally conformant to the strip face to be coated, and a flexible moisture-pervious fabric sleeve enveloping the block along top, bottom and two opposed side faces, said sleeve proportioned and arranged relative to the block to have a calculated clearance or fullness in the initial dry condition of the block and to be tautened by the block when the latter is substantially saturated.

14. An applicator for moisture-coating strips

5 such as tapes, labels and the like, comprising an artificial cellulosic capillary-structured expansible block having a liquid immersible portion and a moisture-delivering portion presenting a surface generally conformant to the strip face to be coated, and a piece of flexible moisture-pervious textile fabric overlying the top face and depending at an upper side surface portion of the block, a lower area of the depending fabric portion being 10 attached to the block for positioning purposes, the fabric being disposed in loose spaced relation to the block in the dry condition of the latter adequately to permit of expansion of the block under wetting.

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