

[54] **MEANS TO SELECTIVELY WET WEB MATERIAL**

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[63] Continuation of Ser. No. 678,600, Oct. 27, 1967, abandoned.

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[51] Int. Cl. **B05c 1/06**

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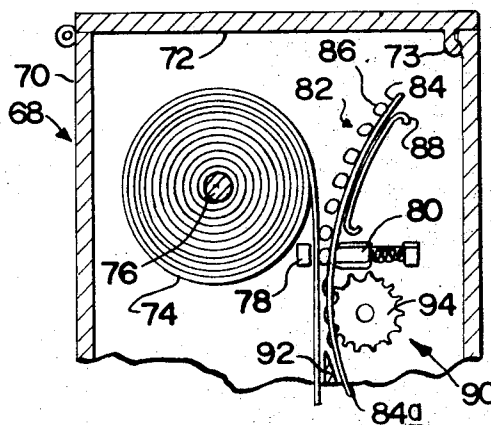
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Primary Examiner—Morris Kaplan

[57] **ABSTRACT**

Means to selectively wet a web include a continuous support carrying a plurality of frangible pods which each contain wetting agent, means to incrementally feed such pod whereby to locate such pod at a transverse edge of a web section to be wetted, means to fracture the pod at such location and means to effect relative motion of the web across the fractured pod and in the longitudinal direction of the web.

17 Claims, 17 Drawing Figures



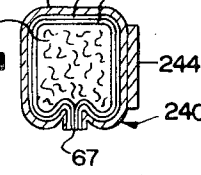
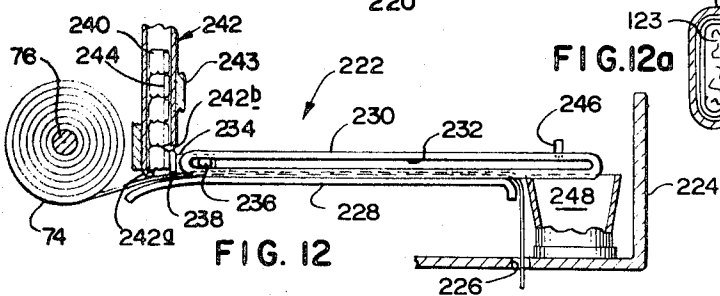
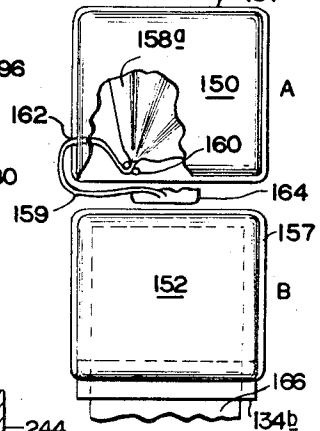
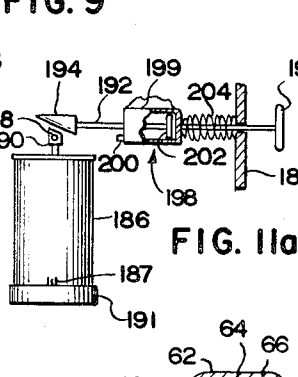
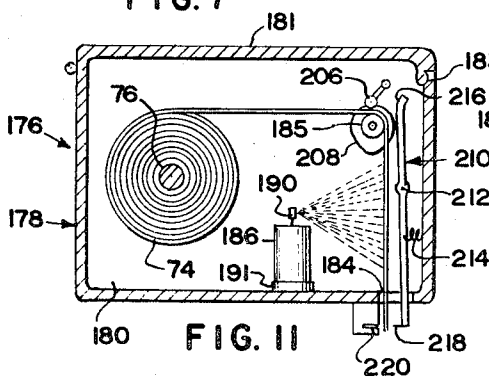
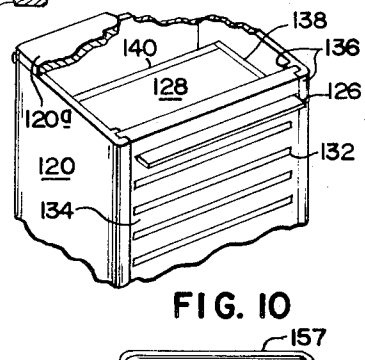
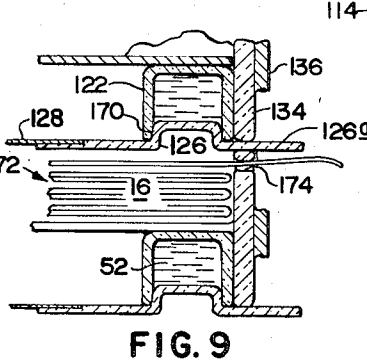
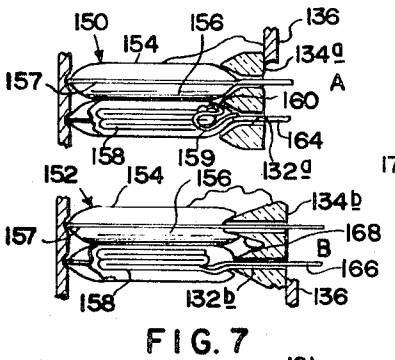
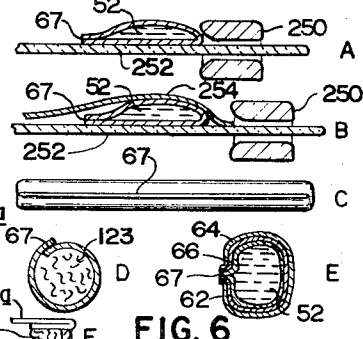
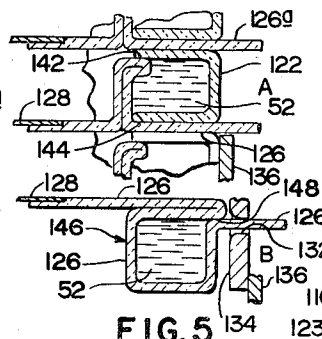
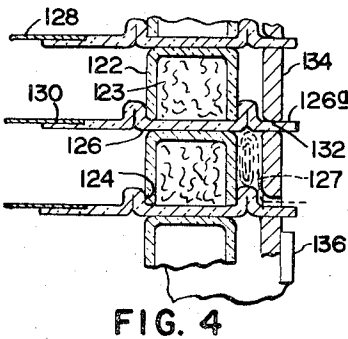
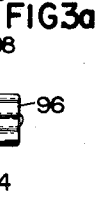
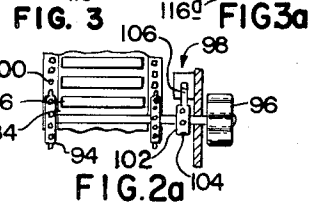
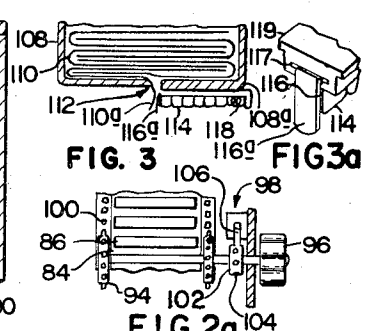
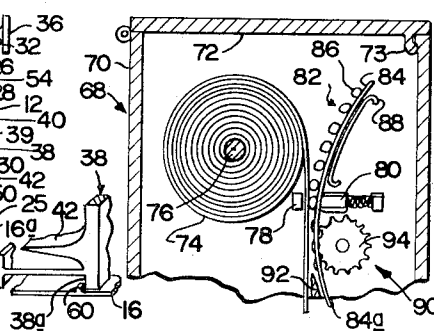
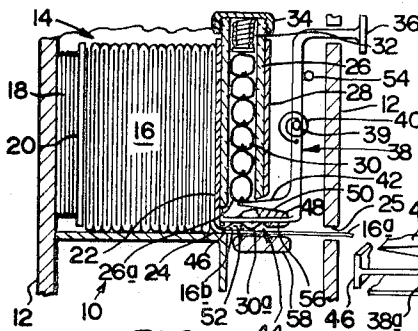


FIG. 8
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MEANS TO SELECTIVELY WET WEB MATERIAL

This is a continuation of application Ser. No. 678,600, filed Oct. 27, 1967 now abandoned.

The subject apparatus and related product are primarily intended for installations such as in cabinet form attached to or inset within the wall of an appropriate room. In certain instances, however, they are adapted to a compact portable structure and to be carried, for example, on the person or in a hand-bag or the like.

In the field to which the apparatus of the present invention relates, several serious drawbacks are believed to have existed heretofore, namely: 1. The provision of wetted sheets only. 2. The evaporation or contamination of the liquid due to exposure. 3. The general lack of neatness and the soilage of parts. 4. Attendant complicated time-consuming operations. Depending upon intended usage, previous devices have in general been defective in at least one of the foregoing respects. The subject apparatus and product overcome these deficiencies by providing in a single compact unit one or more of the following: A wetted sheet, interspersed with a plurality of dry sheets for optional usage. The dispensal of liquid in individual measured increments from a sealed container or plurality of containers opened exclusively for the operation, thus contributing to general neatness and safe-guarding against such factors as evaporation of the liquid; the clogging of orifices and the entrance of contaminants to the liquid; means providing a more effective simple, continuous and trouble-free operation.

In accordance with the foregoing considerations, objects of the invention are to provide apparatus for dispensing, optionally at the will of the operator, an encapsulated cleansing or freshening fluid contained within a plurality of openable or frangible liquid containers to given portions of sheet materials such as so-called cleansing or toilet tissues or the like and the release of the liquid thereto in given increments under applications of mechanical force or other release treatment; to provide an interchangeable or replaceable unit for incorporation with said apparatus comprising a plurality of capsules containing a cleansing liquid, the capsules being releasably contained in an enclosure or releasably attached to holding means and adapted to be fed individually to a cleansing or toilet tissue, or the like; to provide means enabling an introduction of the liquid to the sheets directly from the capsules or from encapsulated liquid-impregnated applicators formed, for example, of resilient substances when the capsules are subjected to a stressing, unsealing, shearing, piercing, peeling action, or other releasing treatment; to provide means effecting the fracture or separation of bonded surfaces of a container enclosing a wetted sheet material and the withdrawal of said sheet material as a substantially continuous operation; to provide means adapted to produce an application of a mechanical stress or the like to an encapsulated liquid or applicator of the character described so as to open the capsule followed by movement of the capsule or applicator, or both, across a surface of the sheet material; to provide means producing an application of the liquid under pressure from a container, the application being of controlled duration in spray form and applied in substantially conic form of given angular characteristics and

over a distance such as to provide a given wetted area of the sheet material; to provide means for incorporation with the aforesaid means, unit and apparatus adapted to dispense unwetted sheet materials intermediate of the provision of said wetted sheet materials; to provide liquid restricting means for incorporation with said sheet materials adapted to wetting; to provide an encapsulated cleansing substance incorporated with a cleansing sheet material, or the like; and to provide apparatus including a related renewable capsule unit adapted to use with cleansing materials comprising a plurality of individual cleansing sheets, a continuous folded sheet, a plurality of interleaved sheets, roll-sheet material having semi-perforated separations, or continuous sheet in roll form adapted to a cutting or shearing of leading areas.

Other objects of the present invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the apparatus possessing the features, properties and relation of components which are exemplified in the following detailed disclosure and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing wherein like reference characters refer to like parts throughout the several views and wherein:

FIG. 1 is a diagrammatic side-elevation view of one form of the apparatus and incorporated liquid-container unit of the invention;

FIG. 1a is a detail of FIG. 1 illustrating the addition of indexing means;

FIG. 2 is a diagrammatic side-elevation view of another form of the apparatus with an incorporated modified liquid-container unit;

FIG. 2a is a fragmentary front view of the liquid-container mounting unit of FIG. 2, including, additionally, an actuating knob and detent means for establishing the position of each liquid-container with respect to a sheet material and compressive means for releasing the liquid;

FIG. 3 is a diagrammatic plan view of another form of the apparatus and liquid-container unit particularly adapted to interleaved sheets;

FIG. 3a is a fragmentary perspective view of a cartridge-type container unit of FIG. 3;

FIG. 4 is a diagrammatic side view in cross-section of one type of liquid-container embodying an applicator, a sheet material releasably bonded to the container, and associated mounting and liquid spreading means;

FIG. 5 is a modification of the structure of FIG. 4 in which, in "A," the liquid containers, per se, provide the mounting means, and in "B" the containers and sheet material are an integral structure;

FIG. 6 illustrated various forms of suitable liquid-containers;

FIG. 7 is a diagrammatic side view of two forms of container and mounting means therefor in which a wetted sheet material is adapted to be manually withdrawn therefrom as a single continuous operation;

FIG. 8 is a plan view of the assemblages of FIG. 7 embodying, in "A," a modification of the contained sheet material;

FIG. 9 is a modification of the structures of FIGS. 4 and 5 in which a plurality of sheets adapted to be dispensed in a dry condition are interspersed with the sheets to be wetted by opening of the containers;

FIG. 10 is a fragmentary perspective view of a cabinet of a type generally suitable for mounting the container and sheet material structures of FIGS. 4 through 9;

FIG. 11 and 11a are diagrammatic side views of modified sheet material and liquid dispensing means; and

FIGS. 12 and 12a are diagrammatic side views of still another modification of a liquid-impregnated applicator hermetically sealed in a capsule, including mechanism for rendering the applicator functional by opening the capsule and drawing the applicator across a surface of a sheet material so as to wet the surface.

Referring now to the drawing, the apparatus 10 of FIG. 1 comprises a cabinet 12 formed, for example, of a metal or a plastic of suitable characteristics having a chamber 14 mounting a plurality of sheets 16 of a so-called cleansing-or toilet-tissue material, or the like. The sheets are biased by a compression spring 18 and a pressure-plate 20 toward a partition or web 22 having an aperture 24 formed therein through which the sheets are adapted to be drawn, as by manually pulling upon a leading portion 16a which extends through an aperture 25 of the cabinet. A elongated cartridge or magazine 26 is mounted for insertion or removal in guide means formed, respectively, by the web 22 and a complementary flange 28. A plurality of long, slender, somewhat-rectangular, openable liquid-container 30 such, for example, as those shown in FIG. 6, "C" and "E," is mounted for slidable movement within the cartridge. The liquid-containers are biased toward a substantially open end 26a of the cartridge by a compression spring 32. They are so mounted in the cartridge that their openable portion faces substantially toward the open end 26a of the cartridge. A closure cap 34 is threadedly-engaged at one end of the cartridge. The open end 26a is closed, as supplied and prior to loading, by any suitable closure means such as a small piece of pressure-sensitive tape thereacross, the tape being removed before the cartridge is inserted.

Means are provided for manually feeding each container, individually, to a leading area of a single sheet of the paper, at the will of the operator, immediately followed by dispensal of the contained liquid of an individual container 30 to this area. This is accomplished by pressing the button 36 of the modified bell-crank 38 inwardly, that is, from right to left as shown. The bell-crank 38, mounted for rotation at 39, is thereby caused to rotate in a counterclockwise direction, against the applied bias of the torsion-spring 40. In so doing, the retaining finger element 42 of the bell-crank is moved to the right thus permitting the foremost liquid container 30a to enter the cavity 44, just beyond the open end 26a of the cartridge.

Continued pressure upon the button 36 causes the compression-applying cross-bar or "crusher" 46, which projects from the bell-crank through the instrumentality of a pair of arms 48 (one only shown), to bear forcibly against the liquid container 30a, now positioned in the cavity 44, and to push it, from left to right as shown, against an anvil 50. The container is unsealed

or otherwise opened, depending upon its type, and its liquid 52 and other content, if any, such as an applicator, is applied to a surface of the sheet at 16b. The button 36 is then released permitting the bell-crank to return to its initial position, under the bias of torsion spring 40, against the stop pin 54. The sheet is then pulled manually in an outward direction through liquid-spreading means forming the aperture 56, as provided between the anvil 50 and the predeterminedly-spaced complementary support or compressive element 58. A given surface area of the sheet is thereby moistened. The exhausted container is either flattened unobtrusively against the sheet surface or is automatically removed, as by a small doctor-blade (not shown) positioned adjacent to the inner extremity of the cabinet aperture 25. It will be understood that the elements 38, 50, 58, etc., shown in side-elevation, extend inwardly of the plane of the drawing so as to be disposed transversely across and preferably slightly beyond the sheet 16.

During operation of the button 36 and bell-crank element 38, as above described, the remaining liquid-containers are prevented from moving forward to any substantial degree, at first due to the impeding presence of the foremost liquid container 30a in the cavity 44 and, thereafter, by return of the finger element 44 to its initial retaining position. Upon completion of the foregoing operations, the wetted sheet is severed, as by semi-perforations provided for the purpose, or by other means to be described and a new leader portion remains positioned for a succeeding operation. The apparatus is then in a condition either to withdraw a succession of dry sheets by merely pulling upon the leader and drawing them out of the chamber 14, or to provide an additional wetted sheet or sheets in the manner just described, the chosen procedure being at the discretion of the operator.

As shown, the apparatus of FIG. 1 may be considered either as a side-elevation view or as a view in plan. In either instance, the supply of sheet material can be in the form of the continuous, folded or accorded type shown or, alternatively, a roll of sheet material with portions rendered separable to provide separate sections by semi-perforations extending thereacross at measured intervals. If FIG. 1 is regarded as a plan view, the supply of sheet material could be of an interleaved type, a slight enlargement of the aperture 24 and supplemental guide means adjacent thereto being provided. Correct metering of the sheet material 16 so as to insure deposition of the liquid adjacent to a leading surface area of each section can be insured by providing printed indexing marks, visible just beyond aperture 25, or by an indexing device, such as that exemplified in FIG. 1a wherein a small lug 60 on the paper surface is brought into contact with extended portion 38a of the bell-crank.

The liquid containers employed herein, with the exception of the showings of FIGS. 11 and 11a, involve predeterminedly singly openable enclosures, substantially impervious to escape of the contained liquid and to an entrance therewithin of a gas or vapor. The present invention does not reside primarily in use of novel materials for achieving container impermeability, nor in novel applicator materials, cleansing papers and liquids or the like, per se, but rather in container structures and adaptations relating to the selective provision

of wetted and unwetted sheet materials of the character and in the manner described. To avoid repetition of language in conjunction with the several examples given, an outline of materials generally appropriate for container, applicator and cleansing- or toilet-tissue structures will be given as well as suitable liquids for use therewith, it being understood that such an outline is not to be construed in a limiting sense.

The cleansing sheet material, depending upon strength and usage requirements, may for example: be of a single or multi-ply structure; be highly or moderately absorptive; be a lamination of absorbent and non-absorbent layers; be a lamination of papers including a wet-strength layer as, for example, through the introduction of a melamine formaldehyde resin; be composed of two or more separate superimposed sheets; include a liquid-barrier or excess-liquid-absorption portion; include a functional ingredient, such as an emollient, a soap, etc.; have an attached tab or other means for advancing or drawing the sheet material; be in roll, continuous, folded, interleaved, semi-perforated, sectional, or other form. Where an additional strength of the material may be necessary for advancing a wetted sheet, a narrow longitudinal marginal strip or border of essentially non-absorbent material may be provided along the sides. Such a border would also enable the formation of a notch therein or a lug or transverse strip therebetween of increased strength, for indexing purposes. The border would also serve to confine the liquid. Although it is contemplated that, in general, the cleansing sheet is of a paper composition, it is to be understood, especially with respect to the embodiments of FIGS. 7 and 8, that it may, for instance, be classified as a cloth or a pad.

The liquid-container, where enclosing either a liquid alone or a liquid-impregnated applicator, may be composed of any of a considerable choice of substantially gas- and vapor-proof materials. One preferred example, shown in detail and in exaggerated thickness in FIG. 6 "D" and in FIG. 12a, comprises a paper, e.g., a kraft-paper forming an outer layer 62, an intermediate metallic layer 64 such as a thin layer of an aluminum foil, and an inner layer 66 of a thermoplastic resin, such as polyvinyl acetal or polyvinyl chloride. Release of the contents is provided by separation of the joined layers at 67, under applied stress. In general, the containers may be heat sealed or bonded along marginal portions. Where sealed portions are designed to be unsealed for rupture, stripping and the like relative to other still-bonded portions, heat-sealing at a relatively lower temperature may be employed for this purpose. In another example a weaker bonding material, a strip coat or a weaker wall portion such as a semi-scored area may be employed. Other materials suitable for container structure comprise the thermoplastics polyethylene, cellulose acetate and polypropylene, other metallic foils, such as a lead foil, and other forms of paper. The containers are not limited to a three-layer structure and may, by way of example, in certain instances employ a greater number of layers, a different arrangement of the above-mentioned three layers, a two-layer structure, or even a single layer. Thus, the principal body structure of the containers of FIGS. 3, 3a, 4, 5 "A" and 9 may be composed of a substantially rigid material, e.g., a polystyrene, and produced, for instance, by an

injection-molding method. On the other hand, the containers illustrated in FIGS. 1, 2, 2a, 5 "B," 6, and 12 are, in general, to be considered as composed of flexible materials and therefore collapsible. The walls of the containers of FIGS. 7 and 8 are also preferably flexible but could, if desired, be of an essentially rigid category. The sheet which seals the rigid containers of FIGS. 3, 3a, 4, 5 "A" and 9 is preferably formed of a flexible gas- and vapor-proof material similar, for example, to those above described.

Where a liquid-impregnated applicator is mentioned as contained in the capsule and is shown specifically, as in FIGS. 4, 6 "D," and 12a, it may be composed of any material adapted to the purpose as, for example, a cotton, woolen or synthetic-fiber pad or batt. On the other hand, it may be formed of a woven cloth or felt. A desirable feature of the applicator is that it shall be of a highly-resilient composition or construction such that it will "spring" partially outwardly of the container when the latter is opened, as by unsealing, fracture or the like, so as to most effectively make contact with the surface of the sheet material to be coated with the liquid.

The liquid, either encapsulated or under compression in the multi-application container of FIGS. 11 and 11a, is selected according to the intended usage of the wetted sheets. Thus, for example, where simple cleansing is the object, it may be composed essentially of water or of water and alcohol. In a wider range of contemplated usage it may also include such substances as the following: a humectant, e.g., glycerin or propylene glycol; an emollient, for example, a derivative of lanolin; an appropriate antiseptic or germicidal substance, or a bacteriostat such as hexachlorophene; a mineral oil and emulsifying agent; a stabilizing agent; and a fragrance-producing substance. Where an appreciable viscosity is desired as, for example, to improve the spreading properties of the liquid, the latter may incorporate a substance such as carboxymethyl cellulose or some other appropriate similarly-functional substance.

Referring to the apparatus 68 of FIG. 2, there is shown a cabinet 70 including access means in the form of a hinged cover 72 with latch 73. Within the cabinet is a supply of sheet material 74 such as a roll of cleansing paper carried upon a spindle 76, the latter being mounted for rotation. The paper 74 is guided between a fixed pressure plate 78 and a spring-loaded pressure plate 80 and passes through an aperture (not shown) formed in the bottom of the cabinet wall where its leading end may be grasped manually and the paper drawn from the roll and cabinet as required. A container supply unit 82 in the form of a strip 84 to which are bonded a plurality of liquid containers 86 composed of any of the types shown in FIG. 6, "A," "C," "D" or "E," is also guided between the compressive means 78 and 80 by the guide 88. While the compressive member 80 is shown to be spring-loaded, this is not essential.

The strip 84 is composed of a flexible material such as a paper of a width exceeding the length of the carried liquid containers. Its width is such as to provide longitudinal margins adapted to be contacted by metering means 90 for advancing the strip in measured increments, whereby each liquid container is brought into a

compressed condition, in contact with the paper 74 between the compressive elements 78 and 80. The liquid containers may be of any suitable collapsible type, e.g. those of FIG. 6, "A," "C," "D" and "E," and are so arranged on the strip 84 with their separable portions so disposed, that when they are opened, under compression, their content is brought into contact with the facing surface of paper 74. Upon manually drawing upon the leading portion of the paper to advance it by a given amount a section thereof is wetted by passing it across the liquid, per se, or the wetted applicator. Assuming the paper to be sectioned, for example, by transverse semi-perforations, a thinned transverse line, or other suitable means, its correct position for applying the container content to a leading surface area of a section can be obtained by bringing a positioning index mark of the paper adjacent to a location just externally of the cabinet exit aperture. When all of the containers of the strip unit 82 have been utilized, the strip may be advanced to a removable disposal bin (not shown) within the cabinet, as guided by means 92.

The mechanism illustrated for advancing the liquid-container supply unit 82, as described, includes a pair of sprockets 94, manually rotatable in given steps by a knob 96 in conjunction with detent means 98, so as to engage the perforations 100 extending along the margins of the support strip 84. To initiate this operation, the strip leader 84a is first threaded on the sprockets. The detent element includes a wheel 102 having a plurality of predeterminedly-spaced recesses 104 disposed around its surface and a spring-biased engaging plunger component 106, the tip of which is adapted to releasably enter the recesses 104. Assuming the liquid containers to be correctly spaced apart on the carrying strip, when the knob 96 is turned by a given amount, as established by the detent means, each liquid container is brought to its correct position for compression.

While driving means of a given type have been described for advancing the unit 82, it will be understood that other means for the purpose could be employed. Thus, for example, the strip leader 84a could project through an aperture of the cabinet and be drawn upon manually. Or rotatable means for frictionally engaging the strip margins could be utilized. Again, the supply of paper 74 might be repositioned to the left and downwardly so that the paper passes around the compressive element 78 at a pronounced angle. The supply unit 82 could then be in the form of a linear strip of a rigid metal or plastic, slidably mounted in suitable guide means, and introduced between the compressive elements in a linear movement. In such an event, the strip unit could aptly be termed a cartridge. As in the instance of the apparatus of FIG. 1, it will be apparent that the cabinet could be repositioned so that the paper and strip unit are fed laterally or even upwardly, rather than downwardly, as illustrated.

In FIG. 3, there is shown, in plan, a portion of an enclosure or cabinet 108 in which is a supply of interleaved sheets 110, a leading portion 110a of the forward sheet of which extends outwardly through the cabinet aperture 112. A plurality of substantially non-deformable containers 114, preferably of a type shown in FIG. 6 "F" containing a liquid-impregnated applicator and having an impervious flexible sheet or membrane 116 sealed across an open side, are slidably and

releasably carried as by flange and groove means 117, in a cartridge 119, the later, in turn, being removably mounted in the forward wall 108a of the cabinet. The containers are preferably biased to the left in the direction of the leader 108a by a compression spring 118. To render the liquid applicator functional, the sealed membrane 116 is peeled from each container, when foremost, by manually pulling the tab 116a thereof. A surface of the chosen sheet 110 is brought into contact with the exposed liquid application and subjected to wetting by manually withdrawing it from the cabinet in a direction such as to pass across and in contact with applicator. As will be apparent, metering means of a type generally similar to that described relative to the cartridge means of FIG. 2 or of another category could be employed for advancing the cartridges of FIG. 3.

The constructions of FIGS. 4, 5, 7, 8 and 9 are identified with a mounting holder, magazine or cabinet of a type exemplified by the cabinet 120 of FIG. 10. The cabinet includes access means such as a hinged cover 120a. In FIG. 4 there is illustrated a plurality of open-mouthed containers 122 composed of a substantially rigid material, such as a metal or, preferably, a plastic, e.g., methyl methacrylate, a polystyrene, etc. Each container holds a liquid-impregnated applicator 123, preferably of a resilient or "springy" type previously described. Across the opening of each container is releasably bonded, at portions 124, a short length or section of a flexible sheet material or membrane 126 adapted to provide a seal against transmittal of a gas or vapor. The sheet material 126 may, appropriately, be of a structure previously described with respect to FIGS. 6 "E" and 12a. Or, for example, it may comprise a suitable paper, coated, on that surface facing the container, with a so-called "hot-melt" adhesive composition. One such composition adapted to the purpose is sold by the United States Envelope Corporation, Springfield, Massachusetts, U.S.A. and is termed "MX 517-20". It is to be noted that the opening of the container 122 faces the sheet material 126.

A section 128 of a sheet material, such as a paper adapted to moistening or wetting and of a length suitable to the intended usage, is attached at 130 by any appropriate adhesive means to the sheet material 126. A second coiled sheet material 127, adapted when uncoiled, to overlie the sheet 12, provides an optional construction. Leaders 126a project through slot-like apertures 132 of a web preferably composed of a plastic such as a polystyrene or the like. Means forming the apertures 132 serve to spread the released liquid. When each leader 126a is drawn upon, the sheet 126 is caused to separate from its bonded condition with the container at sealed portions 124; the entire composite sheet is pulled from the cabinet, and its wetted portion 128 is adapted to be utilized for a cleansing or other purpose, as above described. A particular multi-layered construction of the membrane 126 is not shown in the examples of FIGS. 4, 5 and 9, it being understood, from the foregoing description, that several varieties thereof are suitable for usage. The panel 134 is of an interchangeable or discardable type, slidably mounted within slotted or grooved mounting means between the flanges 136. As shown in FIG. 10, the sheet section 128 may be provided at each longitudinal edge with a mar-

ginal strip 138 and at a trailing end with a strip 140. These components may be regarded as optional, depending upon required liquid and sheet material characteristics, the strip 138 providing the liquid-confining and sheet-strengthening functions and the strip 140 providing a liquid-absorbing or trapping function, previously described.

The modification of FIG. 5 "A" includes an open-mouthed container 122 having its opening disposed substantially at 90° with respect to that of FIG. 4 in a direction extending toward the sheet material 126. The latter is bonded to the container at portions 142 and 144 as by a sealing or bonding composition of the type hereinbefore mentioned with respect to the structure of FIG. 4. The containers hold a sealed-in liquid 52. When the leader 126a is manually drawn upon, the liquid is dispensed to the adjacent surfaces of the sheet sections 126 and 128. In this example the containers may be taken as constituting elements of the panel 134 itself, although they could be employed in conjunction with additional panel means, as in the structure of FIG. 4. After withdrawal, the section 126 may be retained as a tab or the like to facilitate usage or separated. This applied also to the structures of FIGS. 4, 5 and 9. It is contemplated that the sections 126 may, advantageously, be composed of a material, e.g., a paper, disintegratable in water and merely have a coating, such as elsewhere mentioned herein, impervious thereto. The entire sheet material would thus be readily disposable after use.

In FIG. 5 "B," the container 146, enclosing the liquid 52, is of a collapsible category, formed entirely of angled lengths of a sheet material of a type previously described relative to the sheet material 126. When its leading portion 126a, extending through the aperture 132 of the panel 134, is manually drawn upon, the bonded portions at 148 are separated and the liquid is distributed across the upper surfaces of sheets 126 and 128 during their passage through the aperture 132, the surface of sheet 128, when moistened, being that functionally usable. The section 126 is optionally retained or separated, as previously mentioned.

The constructions of FIG. 7, "A" and "B," include the sealed containers or capsules 150 and 152, respectively, each formed of a pair of superimposed gas- and vapor-impermeable sheets or sections 154 and 156, sealed along facing, contiguous marginal portions at 157, in the manner previously described. A folded sheet material 158, impregnated with a cleansing or refreshing liquid, is contained therein. In FIG. 8, the container structures are similar to those of FIG. 7 except that the contained sheet material 158a is corrugated rather than folded. In the example of "A," a pull-cord 159 is attached to an end of the sheet 158, passes around guide means 160, through a sealed perforation 162 adjacent to the joining line 157 of the sections, and is attached to a draw tab 164. In the instance of "B," the draw tab 166 is releasably attached directly to an end of the sheet material 158 and passes outwardly between the leading marginal portions which are hermetically sealed thereto. In both instances, when mounted the leading edges of the containers are in contact with modified web or panel portions 134a and 134b, respectively, having exit apertures or slots 132a and 132b formed therein through which the draw tabs

164 and 166, respectively, extend. It is to be noted in "B" that the panel 134b includes a cutting-edge type of rupturing means 168 adapted to bear forcibly against an end of the container 152 to penetrate and separate the leading edge portions thereof when the tab is manually drawn upon. Each of the two structures described permits the contained wetted sheets to be withdrawn from their containers and through the respective slots 132a and 132b of the panel in a single continuous movement, without the necessity of employing both hands to open a container and unfold a contained sheet. It will be apparent that the containers of FIGS. 7 and 8 may be in the form of a plurality of units mounted, for instance, in a cabinet such as that of FIG. 10. On the other hand, they may be mounted in a small enclosure having a capacity of one or more units and including release and aperture means of the general type shown. In the latter instance they would be adapted to carrying on the person.

The structure of FIG. 9 possesses features generally similar to those of FIG. 5 excepting that the open face of the container 122, containing a liquid 52, is so disposed as to face the sheet section 126 and the separably-bonded areas of container and sheet material at 170 are differently defined. A wider departure, however, is that a supply of sheet material, such as the continuous folded length of paper 16, is furnished in compartment or chamber means 172 thereof and adapted to be withdrawn in an unwetted condition through an aperture 174. Accordingly, the apparatus of FIG. 9 offers the choice of dispensing either moistened or dry sheet materials, as in the examples of FIGS. 1, 2 and 3, whereas those of FIGS. 4 and 5 are intended to provide wetted sheets, only, and may, for example, be self-sufficient or serve as adjuncts to a conventional dry sheet dispenser.

A somewhat different structure but one which in ultimate function is very similar to those heretofore described is exemplified by the apparatus 176 of FIGS. 11 and 11a. It includes a cabinet 178 having wall members 180, a hinged cover 182, releasably latched at 183 and having an exit aperture 184 formed, for example, in the lower wall. A roll of cleansing paper 74 is rotatably supplied on a spindle 76, is guided over a freely-rotatable pulley 185 and passes through the aperture 184. A replaceable, so-called pressurized container 186, having keying means 187 to establish its correct rotational position, releasably holds, under compression, a supply of a liquid adapted to the purposes previously described, the liquid being dischargeable through an aperture or nozzle 188 by depressing the cap 190 to open a valve thereof in a generally conventional manner. The container 186 is releasably held in a bracket 191.

Means for depressing the cap 190 as a controlled operation are provided. They include a rod component 192, mounted for longitudinal movement, having a tapered or acutely-angled cam member 194 fixed to one extremity and an actuating knob or button 196 attached to the other end. The rod 192 extends through the cabinet wall 180, whereby the button 196 is positioned exteriorly of the cabinet and is adapted to be manually depressed. When the button 196 is thus actuated, the cam 194 is caused to bear against the cap 190. The cap is so shaped, in a tapered manner, as to constitute a cam-follower.

Upon depression of the cam-follower 190, the liquid is emitted as a spray from the nozzle 188. A pneumatic control element 198 comprising a cylinder 199, having perforations in the ends thereof through which the rod 192 is adapted to move longitudinally, also includes an adjustable air valve 200. A washer or plunger element 202 is attached to the rod 192. Suitable gasket or washer means, not shown, are provided on the washer and adjacent to the apertures through which the rod passes to provide an air-tight construction. An extension spring 204 is attached to the rod 192 and wall 180, respectively. After the button 196 has been depressed to a defined limit, such as that established by the distance between the button and wall 180, return movement of the button, removal of the cam 194 from contact with the cam-follower, and ensuing cessation of the spray discharge is brought about by reason of the bias provided by the spring 204, under the influence of the pneumatic control 198.

With the nozzle 188 directed toward a section of the paper sheet material 74 extending between the pulley 185 and aperture 184, as provided by the keying means 187, a controlled deposition of the liquid occurs in response to depression of the button 196. Assuming, by way of example, a section of the paper 74 to measure approximately 4 1/2 by 4 1/2 inches; the nozzle 188 to produce a conical discharge of about 45° and to be spaced approximately 2 inches from the paper surface; and, assuming a prompt release of the button 196 and spring 204 and pneumatic control 198 to provide a discharge duration of approximately 1 second, a substantial coverage of the sheet surface is effected.

A mechanism for severing given lengths or sections of the sheet material upon their passage through the exit aperture 184 is shown. It comprises the rotatable spring-biased pressure pad 206 bearing against the sheet 74 at pulley 185, a cam 208 fixed to and rotatable with the pulley 185, the arm 210 pivotally mounted at 212, biased to rotate in a counterclockwise direction by the extension spring 214, the cam-follower 216 at one end of the arm, the cutting blade 218 at the other end of the arm, and the slotted block 220 adapted to cooperate with the blade in the severing operation. Inclusion of this mechanism is to be considered as entirely optional, inasmuch as a semi-perforated paper stock and indexing marks formed thereon for visual inspection may undoubtedly prove most satisfactory for establishing correct position and sectioning of the sheets. If desired, the cam element 194 may include a depending wiping element, such as a section of felt or the like, adapted to brush lightly across the nozzle 188 for cleaning purposes.

In FIG. 12 there is illustrated a modification 222 of the apparatus which provides either the translational movement of a freshly-opened, encapsulated, liquid-impregnated applicator across a given section of a sheet material to provide the section in a moistened condition or, optionally, lengths of the sheet material in an unmoistened state. The apparatus includes a supply of sheet material 74 of a type previously described, mounted for rotation on a spindle 76. A housing, shown only as a fragment 224 having an exit aperture 226, is to be assumed as enclosing the mechanism. The sheet material, as uncoiled, traverses a supporting platform 228 of a given length, passes around a curved extremity thereof, and advances through the aperture 226.

A pair of guide elements 230 (one only shown), each having an elongated slot 232 formed therein, is mounted at opposite sides of the platform 228. A bar element 234, of a length extending transversely at least across the supported sheet material, is mounted for movement longitudinally of and in slightly spaced relation to the sheet material by the rectangular pin or shaft means 236, slidably mounted in the slots 232. An actuating knob (not shown) is fixed to an extension of the shaft 236 which, it is to be assumed, projects through a slot, formed in the housing. The slot is of a length approximately equal to each of the slots 232 and is aligned therewith. The bar element 234, per se, or a plate 238 fastened to a face thereof, constitutes a permanent magnet.

A plurality of elongated containers 240, each enclosing a liquid or, as shown in FIG. 12a, a liquid-impregnated applicator and having a seal 67 which is separable under applied stress, is mounted in a cartridge 242, the latter, in turn, being replaceably mounted in holder or guide means 243. The lower extremity of the cartridge is substantially open, except for a short laterally-angled side portion 242a which serves to hold the foremost container at a given position, e.g., slightly above the plane of the supported sheet material. The opposite side 242b of the cartridge is shortened to permit a lateral or sideways release of the foremost liquid-container from the cartridge. The container 240 includes a strip 244 of a magnetizable or ferromagnetic material attached to that surface which is positioned to face the movable bar 234.

In operation, the actuating knob is first pushed in a direction to cause compression of the foremost or bottom container of the cartridge by the bar element 234. More specifically the compression is brought about by pressing the magnet component 238 against the strip 244. The container is thereby opened, in a manner previously described, functionally exposing the liquid-impregnated applicator 123. The actuating knob is then moved in an opposite direction and, by reason of the magnetically attached bar and strip elements, the applicator is drawn across the supported section of sheet material 74 to moisten a surface thereof. When the applicator has performed its function and the container has been drawn slightly beyond the supported section of sheet material, it is brought into contact with a lug 246, thereby breaking the magnetically established bond, the container falling into the receptacle 248. As previously intimated, unwetted sheet sections are provided by merely drawing upon the sheet-material leader which extends beyond the aperture 226. Indexing means of a type previously mentioned and semi-perforations of the sheet material may, respectively, be provided for correctly positioning and separating the sheet sections. It will further be apparent that rack means could be attached to the movable bar 234 and actuated by a pinion as by a crank or the like. The device is not limited to magnet means to effect translational movement of the container, a hook or latching means being possible alternates.

Referring to FIG. 6 "A" and "B," modified forms of liquid-containers are shown, adapted to be drawn between compressive members 250 and to release their contents due to hydraulic pressure. The containers are mounted on sheet sections 252 which may, for exam-

ple, be assumed to be reinforced portions of the sheet material to be wetted by release and spreading of the liquid when the assemblies are drawn between the compressive members. The example of "B" includes the covering sheet 254, it being assumed that either this sheet or the supporting sheet 252 is permeable to the liquid to provide a moistened outer surface. The assemblies of "A" and "B" may, appropriately, be mounted in the cabinet of FIG. 10, the compressive means being incorporated with the panel 134 thereof.

It is to be understood, with reference to the cabinet of FIG. 10, that the panel 134, comprising the various arrangement of containers and liquid control means above described, is preferably of a disposable or "throw-away" type. As soon as the components of one panel are used up, a new "loaded" panel is slipped into place. Assuming the cabinet to be instead a small portable unit, its front is to be considered as protected by a removable cover.

The shapes and dimensions of the hermetically-sealed containers illustrated in FIG. 6 are intended to be examples only. Thus, for instance, the length of the container "D" may be approximately as indicated or shortened depending upon the nature of the unsealing means used therewith.

It will be appreciated that such factors as the properties of sheet materials to be moistened or wetted, that is, their absorption properties; the characteristics of liquids to be applied thereto, such as their viscosities; the liquid capacities of the containers; the liquid-spreading properties of means for the purpose; and the contemplated elapsed time between dispensal and spreading of the liquid require a careful consideration and balance.

In certain instances it may be advantageous to combine the apparatus exemplified herein with coin-operated release mechanisms. Inasmuch as such mechanisms are widely known and adapted to incorporation with rotatable or linearly movable means, it is to be understood that suitable means of this category may be thus combined with mechanisms of the subject invention.

Wherein a specific form of material, such as a sheet or a roll thereof, has been shown herein in conjunction with given apparatus, it is to be understood that an interchange of the form of supplied material is, in general, possible. Thus, for example, the folded and roll forms of paper supply of FIGS. 1 and 2 could be interchanged. Additionally, the location of elements, and the angles or paths of sheet movement are obviously subject to alteration. In the showing of FIG. 11, for example, the pressurized container could be so located as to apply the liquid to a length of sheet positioned externally of the cabinet.

Other means such as an interlock between liquid-dispensing and sheet-advancing components; a motor drive, etc., have been considered but, in general, in apparatus of the character described a simplification or reduction rather than a complication or augmentation of mechanisms is to be desired.

Where an initial and perpetuated sterile condition of the contained sheet material or other chosen liquid-impregnated item of FIGS. 7 and 8 is of importance as, for example, in hospital usage, a portion of the container such as a sealed extension or neck thereof could, ad-

vantageously, be provided to extend into and through the aperture 132a or 132b. This would insure that no direct contact of the sheet material with the surfaces forming the aperture would occur during its withdrawal. It is also to be understood that the containers 150 and 152 could, instead of the two-sheet structure enumerated, each be formed of a single or continuous wall member folded or molded into the shape of an enclosing body and having, for example, a preferentially openable or rupturable portion. The structures of FIGS. 4, 5 and 7 "A" and "B" are also adapted to modification which would provide sterile functional surfaces thereof, as by enclosing the sheet materials, to the left of the containers as illustrated, in individual automatically-removable sheaths or in a single sealed sterile chamber and providing an easily-frangible seal at the apertures 132, e.g., a releasable wax or the like.

In the example of FIG. 2, it might well be advantageous to guide the strip 84 to the right, sharply away from the paper 74, immediately following compression of a container 86 and release of the liquid, to prevent any chance of adhesion of the paper adjacent to the compression area. This would be accomplished by placing the guide 92 nearest to the compressive member 80, in place of the sprocket 94.

Wherein liquid-spreading surfaces are indicated, as at 132 of FIG. 5, it is to be understood that various configurations thereof are possible to achieve a correct spread or to prevent escape of the liquid. Thus, for example, a closer spacing of the surfaces may be provided adjacent to the ends of the aperture than at other portions intermediate thereof.

In adaptations such as those exemplified by FIGS. 1, 2, 11 and 12, it is to be understood that certain of the subassemblies may be mounted on a pivotal or slidable carriage or the like and be swung to one side as a unit to facilitate preliminary "threading" of a continuous length of paper. Although not shown, it is within the scope of the present invention to provide propulsive means for the sheet materials such, for example, as a pair of friction rollers in engagement therewith positioned adjacent to an exit aperture and having an actuating crank.

Since certain changes may be made in the above-described apparatus and product without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Apparatus for dispensing a web-material in either a wetted or dry condition comprising:
 - a housing having a supply of said material therein and including a slotted aperture through which said material is dispensed, and a movable cover member;
 - means to guide said material in a given path from said supply through said aperture;
 - a supply of wetting agent disposed in said housing and comprising a continuous web-support and frangible pods spacedly carried along the longitudinal extent thereof and wetting agent contained in said pods;

means to feed and guide said support and pods in a path at least in part longitudinally coextensive with and closely adjacent to said material;

each said means to guide including a stripper element disposed to guide said material and said support into diverse paths after travel in said coextensive path;

each said means to guide further comprising a back-up member for said material at said coextensive path;

said means to feed including means to index said support whereby to locate a frangible pod in the plane of said back-up member and its area of fracture contiguous said material;

a pressure plate disposed in the plane of said back-up member and on the side of said support remote from said pod;

means biasing said pressure plate so as to compress said frangible pod between said plate and back-up member so as to effect fracture of said pod; and

means to feed said material across said fractured pod whereby to effect wetting of the material.

2. Apparatus as in claim 1 wherein said pod comprises a frangible cover membrane and the wetting agent is contained in an absorbent mass closed by said membrane.

3. Apparatus as in claim 2 wherein said slotted aperture substantially conforms to the configuration of the wetted material whereby to maintain said housing substantially sealed.

4. Apparatus as in claim 3 wherein the cover member is hinged and includes a locking element.

5. In apparatus for selectively and sequentially wetting incremental sections of material, the improvement comprising:

means for guiding such incremental sections of material along a given path;

means for storing a plurality of pods, each containing a quantity of fluid sufficient to wet one such incremental section of material;

means for selectively advancing such pods along a path convergent with respect to said given path to sequentially position such pods adjacent a lateral edge of a respective such incremental section of material;

means for selectively opening each such pod and engaging such opened pod against the adjacent lateral edge of one such incremental section of material to effect contact between the body of fluid initially sealed therein and such lateral edge of such one incremental section of material; and

means for distributing such fluid over the length of such one section including means for effecting relative motion between such open pod and such one incremental section of material in a direction generally parallel with the longitudinal axis of such one section to facilitate the wetting of the entire area of such one incremental section with such fluid.

6. The improvement of claim 5 wherein each such pod is adapted to be opened responsive to a predetermined compressive force being applied thereagainst and said opening and engaging means includes means for exerting such a predetermined compressive force against such one pod.

7. The improvement of claim 5 wherein a plurality of such incremental sections of material are interleaved one to the other.

8. The improvement of claim 5 wherein each such pod includes a fluid impregnated applicator and a fluid impervious membrane adapted to be selectively removed therefrom to effect the opening of such pod and to expose such applicator whereby it may be pressed against at least one of such incremental sections of material.

9. The improvement of claim 5 wherein said relative motion effecting means comprises means for precluding movement of such opened pod while such one incremental section of material is advanced thereacross.

10. The improvement of claim 5 wherein said relative motion effecting means comprises means for precluding movement of such one incremental section of material while such opened pod is advanced thereacross.

11. The apparatus of claim 5 including means for storing each such pod following distribution of its liquid, and wherein said means for advancing such pods along said convergent path includes means for selectively advancing each such pod along a path divergent from said given path and to said storing means following distribution of its fluid.

12. The apparatus of claim 11 wherein said means for advancing such pods along said convergent and divergent paths includes means for advancing one such pod along said divergent path away from said material while advancing a next succeeding pod along said convergent path into engagement with said material.

13. The apparatus of claim 5 wherein said means for advancing such pods includes means for advancing each such pod along a path divergent from such material following distribution of its liquid over such incremental section while another such pod is advanced along said convergent path into position adjacent the next succeeding incremental section of such material.

14. Apparatus for selectively and sequentially wetting sections of an elongated strip of material, comprising:

means for guiding such elongated strip of material along a given path; and

means for sequentially fracturing pods of a wetting agent against such material, for retaining each such fractured pod against such strip of material while an incremental section of such strip of material is advanced longitudinally thereacross to effect its wetting with such agent, and means for removing each such fractured pod from contact with such material following advancement of such incremental section thereof including means for repetitively indexing a continuous web support on which a plurality of frangible pods are spacedly positioned longitudinally therealong, each such pod containing a quantity of such wetting agent sufficient to wet one such incremental section of such material, along a given path to sequentially position such pods against and subsequently remove such pods from contact with such material.

15. Apparatus for dispensing a wetted material comprising:

a housing having a slotted aperture provided therethrough;

means within said housing for mounting a supply of such material in a substantially dry condition;
 means within said housing for mounting a supply of a continuous web support on which a plurality of frangible pods are spacedly positioned longitudinally therealong, each such pod containing a wetting agent suitable for wetting of such material following fracture of such pod;
 means within said housing for storing such fractured pod and its attached portions of such web support;
 means for guiding such material along a given path within said housing from its initial position therein through said aperture; and
 means for sequentially fracturing such pods against such material, for retaining each such fractured pod against such strip of material while an incremental section of such strip of material is longitudinally advanced thereacross to effect its wetting with such agent, and for subsequently storing such pods in said storage means including means for indexing said web support along a given path within said housing to sequentially position each of such pods against such material and subsequently advance each of such pods to said storage means.

16. In apparatus for selectively wetting sections of an elongated strip of material, the improvement comprising:

means for guiding such elongated strip of material along a given path whereby incremental sections of such strip of material may be selectively sequentially advanced lengthwise across a given point;
 means for storing a plurality of pods, each containing a quantity of fluid sufficient to wet one such incremental section of such strip of material, such pods adapted to make such fluid available exteriorly thereof responsive to a compressive force being applied thereagainst;
 means for selectively advancing such pods along a path convergent with respect to said given path, to sequentially position such pods adjacent said given point so that when such a force is applied to the one such pod located in such position the body of such fluid initially sealed therein will come into contact with the leading edge of one such incremental section of such elongated strip of material, for at least temporarily retaining each such pod in position after such body of fluid stored therein has

contacted such strip of material a sufficient period of time to permit one such incremental section of such strip of material to be longitudinally advanced thereacross to effect the wetting of its entire area with such fluid, and for subsequently advancing such pods along a path divergent from said given path; and
 means for exerting a compressive force against each such pod when disposed in said position.

17. In apparatus for selectively and sequentially wetting incremental sections of an elongated strip of material, the improvement comprising:
 a housing having a slotted aperture provided therethrough;
 means within said housing for mounting a supply of such material and a supply of a continuous web support on which a plurality of frangible pods are spacedly positioned therealong, each such pod containing a wetting agent in sufficient quantity to wet one such incremental section of such strip of material;
 means for guiding such material along a first given path within said housing from its initial position therein through said aperture;
 means for guiding such web support along a second given path within said housing, said support guide means serving to position a longitudinal section of such web support closely adjacent a longitudinal section of such material at a selected location within said housing as such web support is disposed along its said given path with the side of such web support on which such pods are mounted facing such material; and
 means for sequentially fracturing such pods against such material and for at least temporarily restraining movement of such web support along its said second path so as to retain each such fractured pod in position against said material a sufficient period of time to permit one such incremental section of such strip of material to be advanced longitudinally thereacross to effect the wetting of its entire area with such fluid including means for indexing such web support along its said given path within said housing to sequentially position such pods against selected longitudinal sections of such materials.

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