Sept. 22, 1970 V. J. BARATTA 3,530,494

RIBBON OF BANDAGES AND DISPENSER

Filed April 25, 1968 2 Sheets-Sheet 1

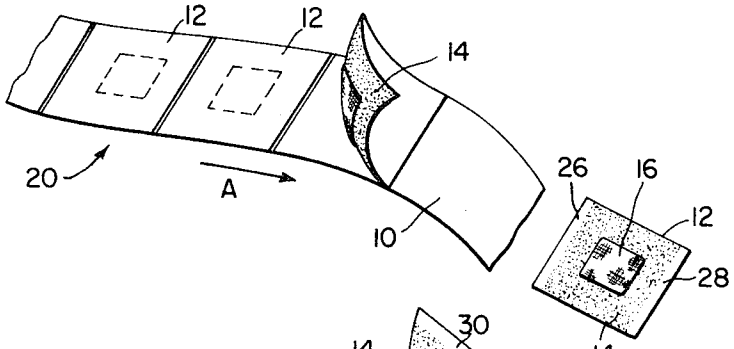

FIG. 1

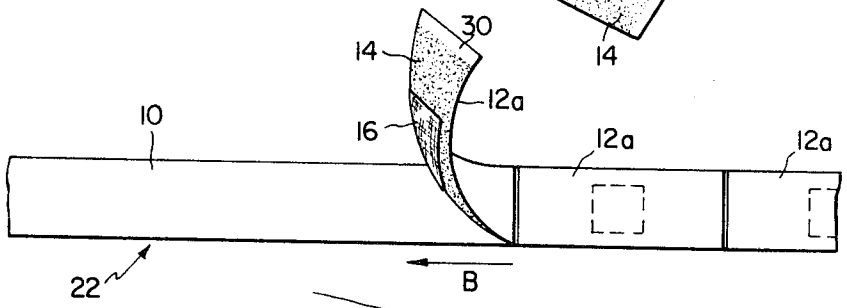

FIG. 2

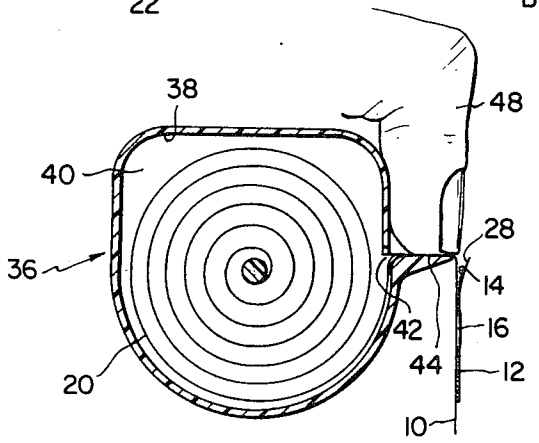

FIG. 3

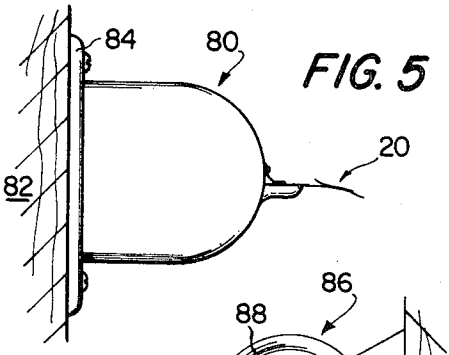

FIG. 5

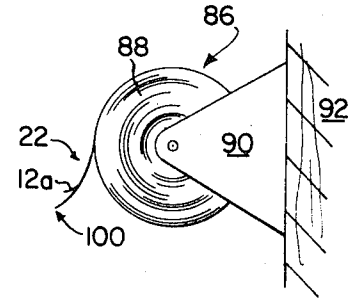

FIG. 6

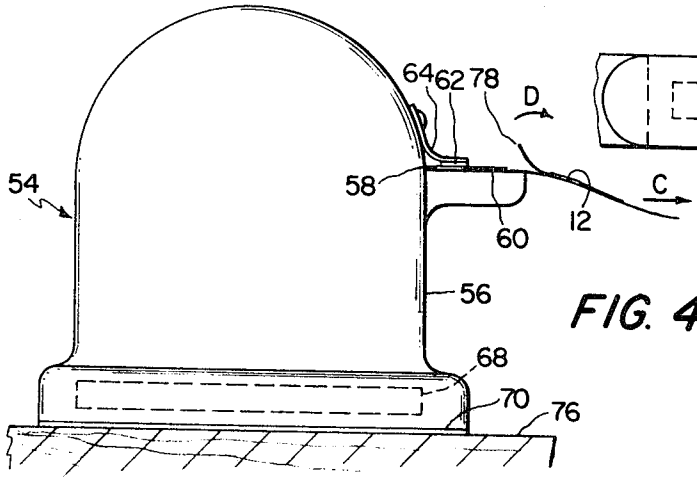

FIG. 4

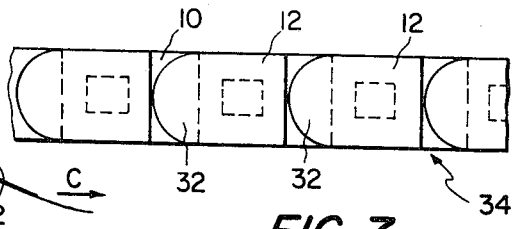

FIG. 7

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RIBBON OF BANDAGES AND DISPENSER

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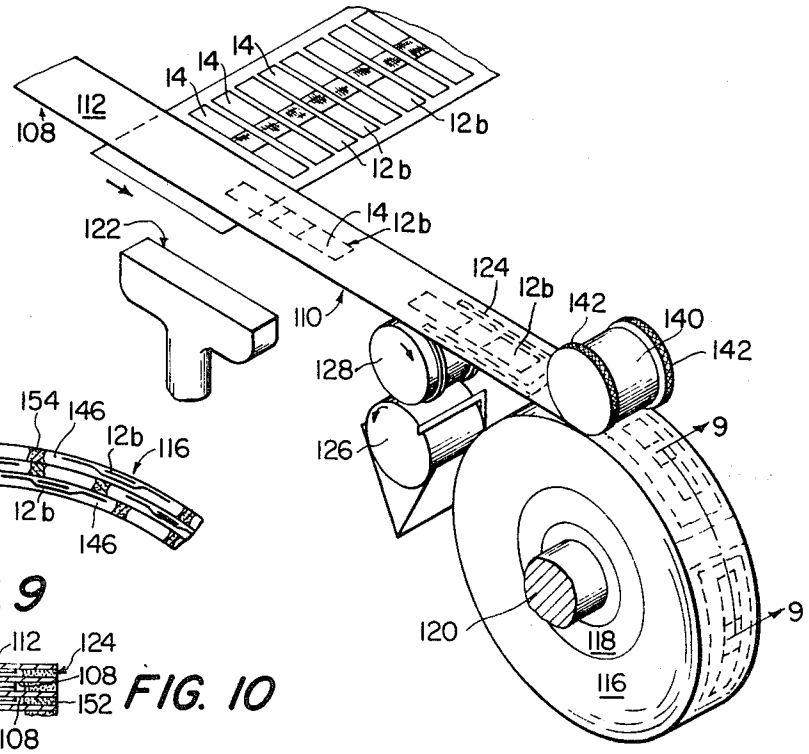

FIG. 8

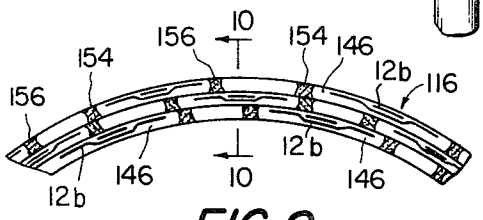

FIG. 9

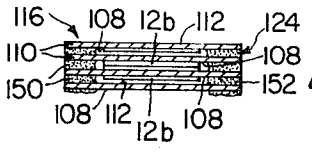

FIG. 10

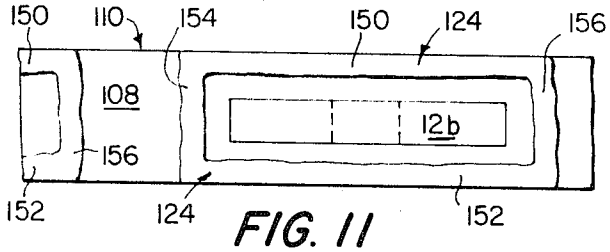

FIG. 11

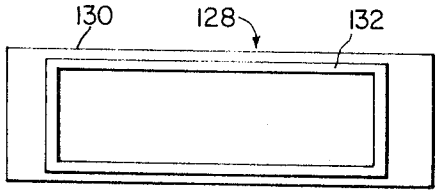

FIG. 12

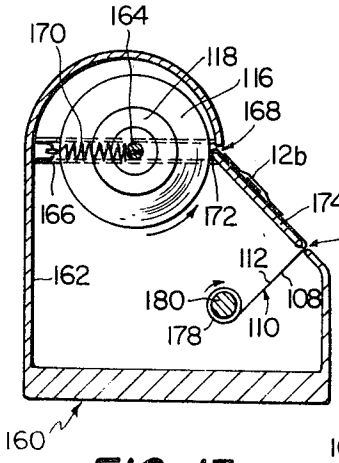

FIG. 13

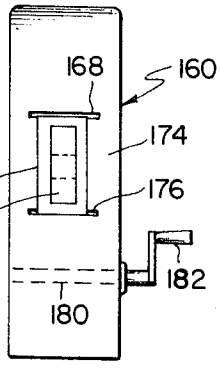

FIG. 14

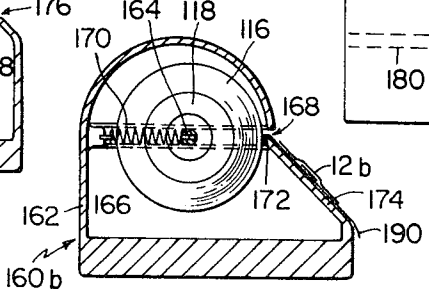

FIG. 16

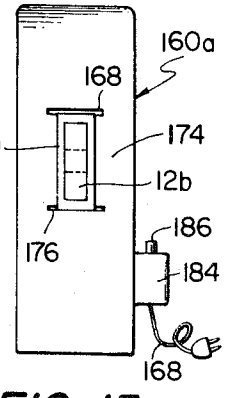

FIG. 15

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3,530,494

RIBBON OF BANDAGES AND DISPENSER

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Int. Cl. A61b *19/02;* B65d *83/00;* B65h *5/28*
U.S. Cl. 206—63.2 6 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to adhesive bandage strips having a bandage pad secured to an adhesive coating on a surface of the bandage strip and having a backing paper or material to protect the adhesive until the bandage is ready for use, and in particular, this invention contemplates a series of such bandages on a single backing ribbon defined as a carrier ribbon so that each bandage may be easily removed from the carrier ribbon for application. Carrier ribbons may be of indeterminate length, and may be in combination with dispensers particularly adapted for holding the ribbon while a bandage is stripped off. In some forms of the invention, the carrier ribbon is adapted to be coiled spirally about itself and sealed or fastened with a seal around each bandage individually, such seal holding coils of the carrier ribbon together with bandages between them in sterile chambers so that as the leading edge of the carrier ribbon is unreeled, the seal will be broken individually for each separate bandage as desired so that the bandage can be kept sterile until the seal between coiled portions of the carrier ribbon is broken so that the bandage may be stripped off.

This invention relates to surgical dressings and more particularly to adhesive bandage wherein the soft absorbent bandage pad is attached to an adhesive coated bandage strip. Adhesive bandages of the type to which the invention relates are used in the treatment of cuts, burns, abrasions, and the like. They consist usually of a strip of surgical adhesive tape with a soft absorbent pad or dressing disposed on the adhesive face thereof, said adhesive coating extending beyond edges of the pad to secure the pad in place in use, and a protective facing material overlying the pad and the adhesive coating, and designed for removal just prior to application of the bandage in use.

Adhesive bandages as described are generally packed in individual sterile envelopes sometimes having means such as a tear string or a tear strip to adapt the envelopes for easy removal of the bandage. After removal of the bandage, the backing paper or material must then be removed so that the bandage can be utilized.

It is an object of this invention to provide a plurality of such bandages readily available for use, eliminating the tedious steps of breaking the envelope and removing the backing paper, an operation which usually requires both hands of the doctor, nurse or technician (hereinafter called the "operator").

The object of this invention is achieved by providing a continuous ribbon of backing material of indeterminate length on which a successive series of badages may be stored in a sterile manner, and which requires only the lifting or stripping of a bandage from the backing material in one deft motion to render the bandage immediately available for use.

It is also a part of this invention to provide storing and dispensing means for such a ribbon of bandages which will help in keeping the bandages sterile and minimize mechanical contamination.

It is a further object to provide such dispensing means

which will include means to hold the ribbon while the bandage is being stripped off.

Bandage ribbons and devices made in accordance with the invention are particularly adaptable for use in a hospital, laboratory or physician's office where an operator such as a doctor, nurse or technician, in the course of treating the patient, will require a quick bandage to cover, for example, a puncture from a hypodermic needle. Prior to my invention, it was necessary for the operator to fumble first with the envelope of the bandage and then to remove the backing paper. With my invention, all the operator need do is strip a bandage from the sterile ribbon.

Other objects and advantages of the invention will be apparent from the following description. The invention is illustrated in the accompanying drawings in which:

FIG. 1 is a perspective view of a length of bandage ribbon of the invention showing one bandage completely removed and one bandage partially removed;

FIG. 2 is a top plan view of a bandage ribbon of the invention showing a bandage during a bandage stripping operation;

FIG. 3 is a sectional view of a dispenser of the invention;

FIG. 4 is an elevational view of another dispenser of the invention shown on a table;

FIG. 5 is a dispenser substantially similar to that shown in FIG. 4 shown on a wall mounting with parts broken away;

FIG. 6 is yet another form of dispenser used in combination with the invention;

FIG. 7 is a top plan view of a third form of bandage ribbon;

FIG. 8 is a perspective view of another form of the invention, partly in diagram form, showing the manner of fabrication of the ribbon of bandages illustrated in the figure;

FIG. 9 is a sectional view along the lines **9—9** in FIG. 8;

FIG. 10 is a sectional view along the lines **10—10** in FIG. 9;

FIG. 11 is a bottom plan view of the carrier ribbon of the invention as shown in FIG. 8 after a bandage strip has been affixed and prior to coiling the carrier ribbon;

FIG. 12 is a plan view of the cylindrical surface of roller as shown in FIG. 8 flattened out for illustrative purposes;

FIG. 13 is a sectional view of another form of dispenser of the invention;

FIG. 14 is a front elevational view of FIG. 13 showing a manual reeling crank;

FIG. 15 is a front elevational view similar to FIG. 14 showing another form of dispenser with a motorized reeling unit; and

FIG. 16 is a sectional view similar to FIG. 13 of another form of dispenser.

Similar numerals refer to similar parts throughout the several views.

As illustrated in FIG. 1, the ribbon of adhesive bandages of the invention comprises a carrier ribbon **10** and a plurality of bandage strips **12**. Each bandage strip **12** has at least a portion of one surface coated with adhesive **14** and a bandage pad **16** secured to the adhesive **14**.

In FIG. 2, we see a carrier ribbon **10** and a plurality of bandage strips **12***a* having bandage pads **16**. It is to be noted that the ribbon of bandages **20** as shown in FIG. 1 has a relatively wider ribbon **10** than the ribbon of bandages **22** as shown in FIG. 2, and also that the bandage strips **12** are square with the bandage pad **16** relatively centrally located whereas the bandage strips **12***a*, as shown in FIG. 2, are generally oblong with a bandage pad **16** almost as wide as the strip. This is by way of illustration

that the ribbon of adhesive bandages of the invention may be of any size and carry a plurality of bandages of various shapes.

It is also to be understood that a number of bandages of different widths may be contained in lateral arrangement on a single ribbon, or that bandages of different lengths may be arranged in a longitudinal relationship on a single ribbon. In the usual practice, however, a ribbon 10 would contain a plurality of bandages of the same size arranged longitudinally and separately on the ribbon. The word "separately" or "separate" is used to define that although the bandages are held together on the carrier ribbon **10**, they are indeed separate from one another as a single bandage may be stripped off the ribbon **10** without affecting the position, placement and mounting of the next succeeding bandage or of any other bandage on the ribbon.

A bandage strip **12** may have its surface completely covered with adhesive **14**, or a portion of the surface with the adhesive coating may be left free of adhesive in order to assist the operator in starting the peeling or stripping of the bandage strip **12** from the ribbon **10**. This is illustrated in FIG. 1 of the drawings at reference numeral **26** which shows a leading edge of a bandage clear of adhesive and at reference numeral **28** which shows a trailing edge of a bandage strip **12** clear of adhesive. Again in FIG. 2, reference numeral **30** shows a leading edge clear of adhesive and reference to leading and trailing edges of bandage strips **12** and **12***a* as well as any other bandage strip of the invention is a term relative to the direction in which the bandage ribbon is unreeled or many be drawn from a dispenser. Such direction for the ribbon in FIG. 1 is designated by arrow A and for the ribbon of FIG. 2 is designated by arrow B. Thus, a clear portion of surface free of adhesive on any bandage strip of the invention may be provided at any portion of the bandage strip to serve as a starter for stripping. I prefer that the clear portion be either at the leading or trailing edge of the bandage strip or at both the leading and trailing edges of the bandage strip.

I may also provide a tab **32** at either the leading or trailing edge of a bandage strip **12** as shown in FIG. 7 of the drawings. The tab may have adhesive coating between it and the carrier ribbon **10**, or the tab may be free of adhesive coating to assist in starting. It is understood that FIG. 7 of the drawings may represent ribbon of adhesive bandages **34** depicted therein as having a tab **32** at any portion of the bandage strip **12**, it being understood that such tab **32** could be at the leading edge or the trailing edge or any other portion of the bandage strip **12**.

In FIG. 3 of the drawings, I show a ribbon of adhesive bandages such as ribbon **20** enclosed in a hand held dispenser **36**. The dispenser **36** has a main frame or body portion **38** adapted to be hand held. It has a storage area **40** which may serve as a means for rolling or reeling a length of bandage ribbon **20** within the container **36**, and there are dispensing means such as the opening **42** through which the bandage ribbon **20** can be pulled for dispensing and use. Adjacent the dispensing means there is a holding means such as a platform **44** over which the bandage ribbon **20** may be drawn. The operator would hold end **46** of bandage ribbon **20** in his right hand to draw it from the dispenser **36**, holding the dispenser **36** in his left hand. When a sufficient quantity of ribbon was drawn out to provide for separating a bandage strip **12** from the leading end of the bandage ribbon **20**, the left thumb **48** of the operator could squeeze the ribbon **20** as shown in FIG. 3, holding it firmly in place. The operator would then take his right thumb and forefinger and start to peel a bandage strip **12** off at the point designated by reference numeral **50** while still holding the main portion of the ribbon of bandages **20** with his left thumb. Thus, in one easy motion, an entire bandage strip **12** is stripped off ready for use from the ribbon **10**.

In FIG. 4, I show a dispenser **54** having a main frame or housing **56** which would contain means for storing or reeling a ribbon of bandages such as ribbon **20**, a dispensing outlet **58**, and friction braking means comprising a platform **60** and a brake mechanism including a brake shoe **62** and a brake arm comprising operating means such as a spring or torsion device as shown at reference numeral **64**. The frame or housing would also contain a weighted portion **68** and perhaps a friction type bottom **70** which would be comprised of felt or other friction material. The operator would grasp the leading end of the ribbon **20** as shown at reference numeral **72** and pull it in the direction of arrow C until a sufficient quantity was exposed. The force of the spring or torsion means, in cooperation with the weighted dispensing housing **54**, would be sufficient to permit the ribbon **20** to be withdrawn without dislodging the dispenser when on a table top **76**. Yet, the force of this arrangement must be sufficient to hold the ribbon **20** firmly against the peeling pull of the operator when a bandage strip **12** is stripped off starting at reference point **78** in the direction of arrow D.

In FIG. 5 I show a dispenser **80** which is substantially similar to dispenser **54** except that it is mounted on a wall **82** by means of a fastening bracket **84**.

In FIG. 6 I show another wall mounted dispenser **86** which is simply a reel **88** mounted on a bracket **90** on a wall **92**, the reel **88** holding a quantity of adhesive bandages as in a ribbon **22**. In stripping a bandage strip **12** from the devices as shown in FIGS. 3, 4 and 5, the ribbon of bandages **20** is held firmly, either by the thumb **48** or the brake shoe **62**, and it is preferable to strip starting from the trailing edge of the bandage strip **12** as shown in the drawings. In the form of invention shown in FIG. 6, the operator would grasp the leading end of ribbon **22** as at reference numeral **100** in one of his hands and start to strip bandage strip **12***a* from the leading edge with his other hand pulling away from the first mentioned hand. In this manner, the ribbon **22** may be withdrawn by the same hand which holds it firmly against the stripping of the bandage strip **12***a*.

In FIGS. 8 through 11, I show another form of the invention in which a series of bandage strips **12***b*, which are similar to bandage strips **12***a*, are placed on a bottom surface **108** of a carrier ribbon **110**. Carrier ribbon **110** also has a top surface **112**.

Bandage strips **12***b* may be placed on the bottom surface of the carrier ribbon in any manner or means known to the art, either by hand or by machinery. The bandage strips **12***b* will adhere to the bottom surface **108** of carrier ribbon **110** by means of the adhesive **14** of the bandage strip. The bottom surface **108** of the carrier ribbon thus serves as a backing material for the adhesive **14** of bandage strip **12***b* until it is ready to be stripped off for use.

In FIG. 8 of the drawings, I have illustrated in diagrammatic form one method of preparing the ribbon of adhesive bandages in spiral form **116** comprised in the form of invention illustrated in FIGS. 8 through 11. A carrier ribbon **110** is fed through an assembly line comprising one or more pieces of machinery in which there is included a take-up reel **118** suitably mounted on a shaft **120**. The machinery is also provided with a finger **122** adapted to push a single bandage strip **12***b* upwardly so that it be affixed to the bottom surface **108** of carrier ribbon **110**. Means is provided to supply a series of bandage strips **12***b* to that portion of the machinery at which the finger **122** is stationed so that the finger may operate to supply bandage strips **12***b* to the bottom surface **108** of carrier ribbon **110**. An adhesive **124** is applied to bottom surface **108** of carrier ribbon **110** by means of a fountain roller **126** and print roller **128**. The adhesive **124** is placed on bottom surface **108** so that it will provide a complete seal around each bandage strip **12***b*. This is done by providing the adhesive print roller **128** with a circumference **130** having a printing portion **132** which, when flattened out as shown in FIG. 12, will appear as a rectangle and will be larger than the size of the outside perimeter of bandage **12***b* so that the adhesive **124** will be

placed around the perimeter of bandage strip **12***b* in such a manner and location that when it becomes a securing means around the bandage, it will enclose the bandage within a chamber **146** located between said securing means and a bottom surface **108** of carrier ribbon **110** and a top surface **112** of carrier ribbon **110**. The bandage within the chamber may subsequently be sterilized by any means known to the art. The chambers **146** will be formed as the carrier ribbon **110** moves forward with bandage strips **12***b* surrounded by adhesive **124** until it reels upon itself to form a coil or spiral of bandages **116** as shown in the right hand portion of FIG. 8.

I may also provide knurling means such as the roller **140** having knurled portions **142** to knurl those portions of the carrier ribbon **110** which come together with some adhesive between them in order to enhance the securing means. The action of the finger **122** and the other mechanism diagrammatically illustrated in FIG. 8 is not explained because these components of packaging and labeling machinery are well known in the art, and need no further explanation, it being understood that the entire system can run off the main drive of one device or be a combination of several devices, and the particular form or system shown is for illustrative purposes only, it being further understood that the bandage ribbon **116** can be made in any manner, either manually or mechanically. The resulting coil **116** will contain a series of chambers held together by the securing means or adhesive **124**. Each chamber will be defined by adhesive sides **150** and **152** and adhesive ends **154** and **156**. The adhesive thus described will hold together a portion of a bottom surface **108** to a portion of a top surface **112** of the coiled carrier ribbon **110**. The bandage coil **116** can also be made with the adhesive sides **150** and the adhesive sides **152** in a continuous unbroken line for the entire length of the ribbon **110**. In such case, the ribbon would be sealed on both sides and each bandage strip **12***b* would be placed in a separate pocket by the provision of cross lines of adhesive **154** and **156**; or the cross lines **154** and **156** can be merged into a single line, it being understood that any arrangement of the securing means will be satisfactory so long as a bandage strip **12***b* is separately contained within its own chamber **146** and so long as the securing means has the quality of permitting the bottom **108** and top **112** surfaces of the carrier ribbon **110** to be separated by hand pulling.

While I have described the securing means as an adhesive such as a glue or a pressure sensitive type adhesive, or any other adhesive which could be used in making bandage packages, the securing means may also be by means of a heat seal, or by any other securing or sealing means which will permit the portions of the carrier ribbon **110** to be separated by hand pulling. Many of these means are well known in the art, and need no further explanation or description.

In FIG. 13 of the drawings, I illustrate a dispenser which may be used in combination with the bandage coil **116**. The dispenser **160** comprises a body portion **162** in which provision is made to mount a slideable shaft **164**. Shaft **164** is adapted to be slideably mounted on shaft guides **166** which may be formed into the walls of the body portion **162**. Reel **118** and its coil of bandages **110** is mounted on shaft **164** and shaft **164** together with its load is urged toward opening **168** by means of springs **170** if desired. The carrier ribbon **110** is drawn through opening **168** around a rounded edge **172** along a sloping front **174** and back into the dispenser **160** at an opening **176** to be reeled around a take-up reel **178** on a shaft **180**. Thus, as ribbon **110** is pulled away from the coiled bandages **116**, it will break the seal at rounded portion **172** of the dispenser **160** thereby exposing a bandage strip **12***b* as shown in FIG. 13. Just enough of the ribbon **110** is pulled away from the coil **116** to expose a single bandage **12***b* on the slope **174** of the device **160** leaving all of the rest of the bandage strips **12***b* within their sterile chambers **146** within the coil **116** within the dispenser **160**. The exposed strip **12***b* may then be stripped off for use. When another bandage strip is desired, shaft **180** is rotated in the direction of the arrow, causing ribbon **110** to move and causing coil **116** to rotate in the direction of its arrow, advancing another bandage strip **12***b* to the slope **174** for dispensing. This dispensing means may be either manual, mechanical, motorized or by any other means of advancing the ribbon **110** for dispensing.

In FIG. 14 of the drawings, I show a dispenser such as dispenser **160** having a mechanical mechanism as a dispensing means. The mechanical mechanism comprises a crank **182** which is connected either directly or through a gear or other transmission means to shaft **180**. Working the crank **182** will advance the ribbon **110**.

In FIG. 15 of the drawings, I show a dispenser **160***a* which has a motorized dispensing means **184**. Reference numeral **184** represents a motor, usually an electric motor of a one-revolution type which may be activated by means of a starting switch **186** to move the ribbon **110** the required distance to expose a bandage strip **12***b*. The motor is connected to shaft **180** and the type of motor, the means of connection, as well as starting and stopping means for such motor are not described as all are well known to the art, and it is within the ordinary knowledge of a person skilled in the art to provide such a system where a touch of a switch such as switch button **186** will advance the ribbon **110** for the length required to properly expose a bandage **12***b* on the slope **174** so that it may be taken off by a doctor, technician or other operator. While I have shown an electric cord **188** adapted to be plugged into an outlet, the motorized unit **184** may also be battery run such as a "cordless" type.

In FIG. 16, I show a manual dispensing means where the ribbon **110** is advanced by pulling manually until a bandage strip **12***b* is exposed for dispensing. The end **190** of the ribbon **110** is grasped by the operator and pulled until a sufficient amount of ribbon **110** has been exposed.

In all of these forms as shown in FIG. 13 through FIG. 16, the principle of exposing the bandage involves hand pulling the ribbon **110** against an edge or rounded corner such as corner **172** to break the seal of that part of the ribbon **110** which is pulled through opening **168**. The balance of the coil **116** inside the dispenser **160** which has not yet contacted edge **172** remains in perfect sterile seal.

While I have described some of the dispensing means as motorized or mechanical, the force necessary to break the seal would be the same force as hand pulling, and it is to be understood that the term "hand pulling" as a means of separating the securing means of the invention is to cover any type of separation in dispensing, whether by hand, mechanically, or by machine as describing the pulling force necessary to separate the portions of the ribbon as well as the required properties of the adhesive or heat seal in that such securing means must have the property of being separable by hand pulling.

The ribbons of bandages of my invention are made of the usual components used in making individual bandages of this type which are already well known to the art. The material for the ribbon **10** or **110** may be selected from those materials that have been found useful in the adhesive bandage industry such as crinoline, plastic film, film laminates, foil, foil laminates or treated or coated paper and the like.

The body portion of the bandage strip **12** or **12***a* or **12***b* may comprise any of the fibrous or non-fibrous backings that are customarily used in the adhesive tape industry. Plastic films or cloth are preferred, but paper, non-woven bonded webs or tissue may be used if desired. The plastic films include synthetic or natural films such as cellophane, rubber, cellulose acetates, cellulose acetate butyrate, cellulose acetate propionate, as well as other cellulose esters or ethers, poly-vinyl esters, salts or acetates, polyethylene, super polyamides and the like. Cloth backings may be

coated or uncoated or cross-woven or knitted if extensibility is desired.

The material of the bandage pad **16** may be an absorbent material such as paper, fabric, cellulose pulp, absorbent cotton fibers, absorbent rayon fibers of all types, cellulose wadding of paper or fiber made absorbent by any conventional method, mixtures of such materials and their equivalents, and the adhesive **14** may be any suitable adhesive known in the bandaging art.

The securing means which has been described as adhesive **124** may be selected from any adhesive having the properties for the purpose; that is, the property of permitting the sheets of material held by the adhesive to be separated by hand pulling. In this sense, securing means is defined to encompass a meaning broader than adhesive since it also covers any type of securement or seal such as a mechanical seal or a heat seal which is capable of maintaining a sterile enclosure around the bandage strips. The form of invention illustrated herein is illustrated with an adhesive **124**. However, any sealing means known to the art may be used for the securing means.

The invention lies in the particular disposition of separate bandages on a continuous ribbon, or web, as described hereinabove so that separate bandages of a plurality of bandages on such ribbon may be kept sterile and available for immediate use with a minimum of fumbling and movements.

I have described a specific example of bandage having a bandage pad as a wound covering. This invention may also be constructed by providing a bandage strip made of an absorbent material adapted to be a wound covering in and of itself. Such a strip may be provided with an adhesive coating leaving a centrally located portion free of adhesive and serve the same purpose as an adhesively coated strip with a bandage pad attached to the adhesive. It is, therefore, to be understood that the term "wound covering" as used herein and in the claims hereinbelow defines any means or construction which can be used in the art to cover a wound, whether such means is separate from the bandage strip or integral therewith.

While I have described my invention in its preferred forms, there are other forms which it may take without departing from the spirit and scope of the invention, and I, therefore, desire to be protected for all forms coming within the claims hereinbelow.

Wherefore I claim:

1. A ribbon of adhesive bandages comprising a carrier ribbon and a plurality of adhesive bandage strips, said bandage strips comprising an adhesive coating on one surface thereof with a wound cover, in which the carrier ribbon comprises a top surface and a bottom surface and is substantially coiled about itself spirally, and in which the said bandage strips are in end spaced relationship from each other with each bandage strip being positioned between portions of said carrier ribbon comprising a bottom surface of a portion of a coil of said ribbon and a top surface of a portion of a coil of said carrier ribbon, with said bottom and top surface portions of said coiled carrier ribbon being secured together by securing means capable of being separated by hand pulling, said securing means providing a seal around the perimeter of each bandage strip.

2. The ribbon of adhesive bandages as defined in claim **1**, in which the securing means comprises an adhesive.

3. The ribbon of adhesive bandages as defined in claim **1**, in which the securing means comprises heat sealing means.

4. The ribbon of adhesive bandages as defined in claim **1**, in which the bandage strips are relatively narrower than the carrier ribbon, and said bandage strips are sealed in chambers formed by said carrier ribbon and said securing means.

5. The ribbon of adhesive bandages as defined in claim **1**, in which the securing means comprises knurling.

6. An article dispensing ribbon for dispensing articles packaged therewith comprising a carrier ribbon and a plurality of packaged articles, in which the carrier ribbon comprises a top surface and a bottom surface and is substantially coiled about itself spirally, and in which said packaged articles are in spaced relationship from each other with each packaged article being positioned between portions of said carrier ribbon comprising a bottom surface of a portion of a coil of said ribbon and a top surface of a portion of a coil of said carrier ribbon, with said bottom and top surface portions of said coiled carrier ribbon being secured together by securing means capable of being separated by hand pulling, said securing means providing a seal around the perimeter of each packaged article.

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