

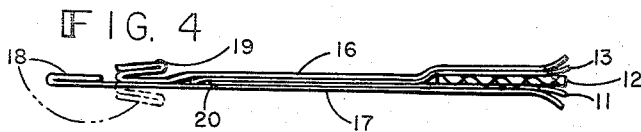
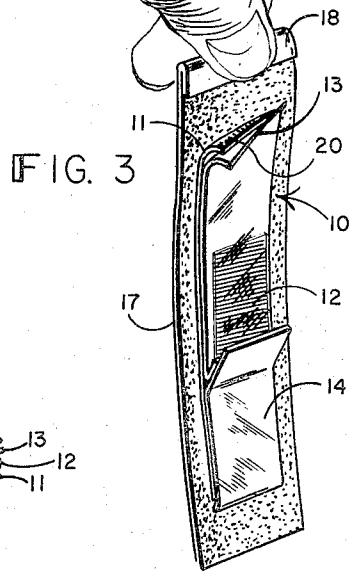
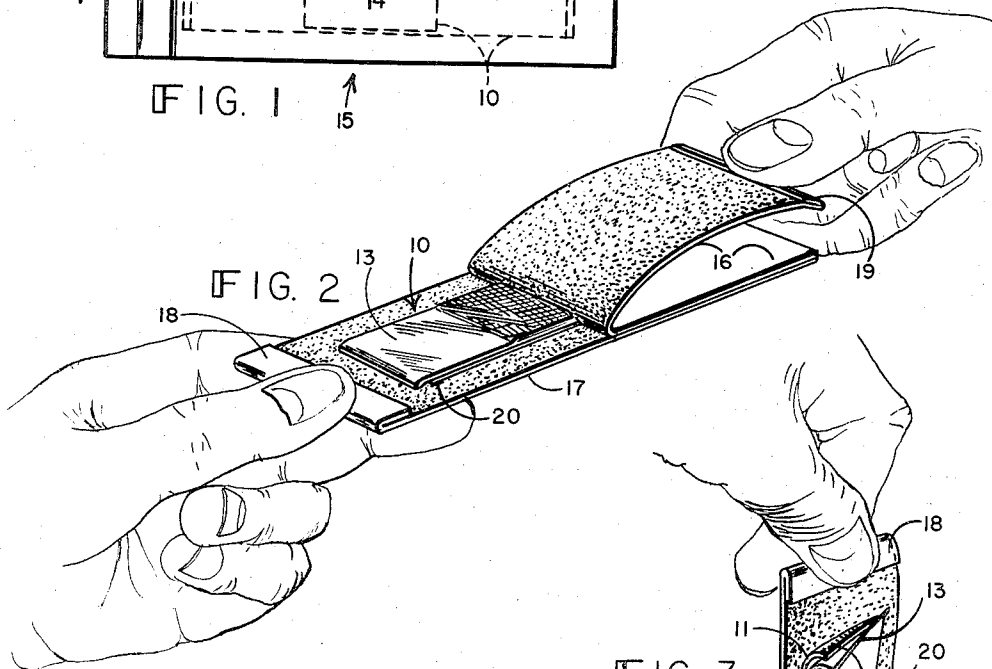
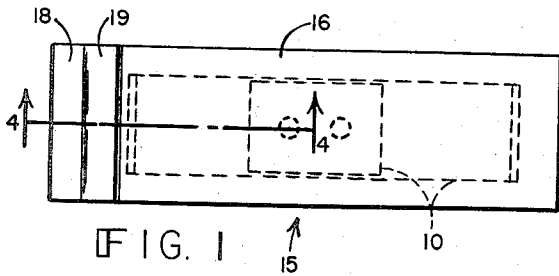
Feb. 9, 1960

R. M. HOEY

2,924,331

ADHESIVE BANDAGE ENVELOPE

Filed Oct. 5, 1955



INVENTOR.  
RAYMOND M. HOEY  
BY *Kern E. Folkers*

ATT'YS.

1

2,924,331

**ADHESIVE BANDAGE ENVELOPE**

Raymond M. Hoey, Chicago, Ill., assignor to The Kendall Company, Boston, Mass., a corporation of Massachusetts

Application October 5, 1955, Serial No. 538,673

6 Claims. (Cl. 206—63.2)

This invention relates to adhesive bandages, particularly packaged, sterilized adhesive bandages of the type known as finger bandages, which are ready to apply and normally comprise a pad dressing and an adhesive backing strip. The invention has as an important object the production of a package for such bandages which permits improved handling ease when preparing to apply the bandage to a finger or other portion of the body.

Present commercial forms of finger bandages comprise a backing material of fabric or plastic bearing a layer of pressure-sensitive adhesive material. A gauze or other absorbent pad is affixed to a central portion of this adhesive surface leaving the adhesive surfaces at the ends of the bandage for adherent application to the skin. In order to package the bandage flat in individual paper envelopes, these end adhesive surfaces are temporarily covered with removable facing sheets having overlapping inner ends which cover the absorbent pad and provide pull tabs for removing the facing sheets preparatory to using the bandage. In some instances a polymeric elastic film backing is used, which is relatively unstretched but easily stretchable and has an elastic character that makes it almost like a second skin. Such elastic plastic films have a low modulus (within the range of 1000 to 2400 pounds per square inch of cross sectional area) at 100% elongation.

Adhesive bandages of the type described are required by law to be dispensed and sold in a sterile package, and this is commonly accomplished by placing the bandage in a paper envelope which is then sealed all around and subjected to a suitable sterilization process. It has been found, however, that it is often quite difficult to remove the bandage from the sealed envelope, particularly at a time of emergency or when it is necessary to apply the bandage in as short a time as possible. It is accordingly a primary object of the present invention to provide a packaged sterile finger bandage in which the bandage may be quickly and easily removed from the package or envelope in which it is kept in a sterile state prior to use.

Further objects and advantages of the invention will become apparent from the following description and accompanying drawings, in which Figure 1 is a plan view of the packaged bandage of this invention prior to opening the same; Figure 2 is a view in perspective of the package or envelope with one side or panel pulled partly away from the other; Figure 3 is a view in perspective of the bandage showing it in a perpendicular position adhesively but removably attached to one side of the envelope with the other side of the envelope removed; and Figure 4 is a sectional view on the line 4—4 of Figure 1.

The adhesive bandages which are packaged in accordance with the present invention generally comprise a backing layer or strip of suitable material such as fabric or plastic film, which is coated on one side with a tacky adhesive material and has a gauze pad or other absorbent pad dressing centrally positioned on the adhesive coated surface. A facing of crinoline, or more recently of plastic, such as polyethylene, is commonly applied

2

over the adhesive coated surface and the absorbent pad to keep the adhesive from sticking to surfaces which it might otherwise contact prior to application to the skin, and generally to protect the pad.

The adhesive used in such bandages usually comprises a mixture of natural and synthetic rubber in varying proportions, and also rosin or other suitable tackifier. Various formulations are used depending on whether the material is to be applied by calendaring or by a solvent process. Examples of such formulations may be found, for example, in Patents Nos. 2,358,761, 2,559,990, and 2,703,083. Such adhesives are in general sufficiently tacky to stick firmly to the skin, yet permit easy removal of the applied bandage. When a plastic film is used as the backing, the adhesives described in co-pending application Serial No. 303,527, filed August 9, 1952, now Patent No. 2,734,503, are preferred, and in such case it is frequently desirable also to use a primer coating such as described therein.

A bandage is packaged according to this invention by placing it in a flat position between two sheets of coated paper or film, or coated film, or paper-film laminates. Suitable plastic films for this purpose include, for example, such materials as cellophane, glassine, a rubber hydrohalide commercially known as Pliofilm, and other similar films, which may be either transparent or opaque. The coated paper or film sheets used are usually rectangular in outline to conform generally with the outline or shape of the bandage. After positioning the bandage between the paper or film sheets, they are sealed together substantially along their peripheral edges by any suitable pressure-sealing or heat-sealing operation. At one end, however, the seal is made along a transverse line slightly spaced from the end of each sheet, and the free end of each sheet, thereby formed, is coated with suitable adhesive or cohesive material on one side and then folded back on itself with coated sides contacting to provide a double thickness of paper. This produces a sealed package or envelope provided with a pair of free ends or tabs, one or both of which is preferably folded back on itself again to permit easy grasping of each tab, when it is desired to break the seal and open the envelope to obtain the bandage contained therein.

In providing the seal, the sealing material may be applied only along the lines where the sealing is to take place. However, the manufacture of the packaged bandages is considerably simplified by previously applying to one side of each paper, films, or other sheet forming the envelope a suitable seal coating which adheres to itself only where pressed to form the seal. For this purpose it is possible to employ as the sealing medium a thin coating of resinous material of the type which is substantially non-tacky and dry to the touch but is cohesive even under light pressure. Such resinous materials, which for all practical purposes are nonadhesive to other surfaces, are commonly known as cohesive, substantially nonadhesive materials.

These resinous cohesive materials may be formed from copolymers of polyvinyl acetate and polyvinyl chloride, polyvinyl acrylate, polyvinyl methacrylate, polyvinyl ethacrylate and the like acrylates having from 1 to 3 carbon atoms in the alkyl group, polyvinyl ethers, polyvinyl ketones such as methyl vinyl ketone, polyvinyl alcohol, polyvinyl acetals such as formal, butyral, etc., and similar compounds containing ethylenic double bonds, C=C, or a mixture of such compounds.

A typical example of a cohesive, substantially nonadhesive material which is suitable for the purposes of this invention is as follows

	Parts by weight
Polyvinyl acrylate latex -----	100.0
Dibetanaphthyl p phenylene diamine (antioxidant) ..	1.0

When thermoplastic films are employed to make the envelopes of this invention, the panels of the envelope can be superficially sealed by applying pressure to the panels at a temperature below the temperature normally causing cohesion and permanent union. Such superficial seals can also be obtained by heating the films by subjecting them to the action of a high frequency electric field. Suitable machines and methods for this purpose are described for example in Patents Nos. 2,478,857; 2,525,355; 2,539,375; and 2,539,646. In each instance, of course, the sealing operation must be carried out with care so as to insure a seal capable of maintaining the contents in a sterile condition.

The operation of breaking the seal and removing the envelope from around the bandage is extremely simple. One tab is held between the thumb and first finger of the left hand while the other tab is held and pulled by the thumb and first finger of the right hand. The pulling motion is made in a longitudinal direction, that is, longitudinally of the envelope and toward the end away from the tabs. As this pulling action takes place, the side of the envelope which contacts the facing strips is pulled away from the remainder of the package. In order to avoid having the bandage drop to the floor on completely removing this side of the envelope, the backing side of the bandage is adhesively united so as to be detachably adherent to one panel of the envelope. This may be accomplished by applying adhesive material to the entire exposed surface of the backing, but preferably a thin line of adhesive is applied along the end edges or along the longitudinal edges of the backing or along the end portions of the facing strips. The adhesive material applied can be of the same type as the adhesive applied to the backing itself. Owing to the use of adhesive, preferably on both ends of the backing or only one end or on the end adjacent the tabs on the envelope, the bandage remains adhered to the remaining half of the envelope. As a result, the bandage and one half of the envelope is held in one hand and the bandage can be readily removed from this half of the envelope with the remaining hand and then applied to the finger or other portions of the skin where needed.

Referring to the specific form of package or envelope shown in the drawings, the numeral 10 represents generally a finger bandage of the type now commonly in use. Such bandages comprise a backing 11 made of fabric or a plastic film. The backing 11 has its entire surface on one side coated with a suitable adhesive to provide a tacky pressure-sensitive surface and has a pad of gauze or other absorbent dressing material 12 placed centrally thereon. The entire adhesive-coated and dressing-covered surface of the backing has a top facing of plastic film (or frequently a strip of suitable cloth, such as crinoline, is used) which serves to protect the dressing pad and the adhesive mass prior to applying the bandage to the finger and is applied in the form of two overlapping strips 13 and 14. The resulting composite bandage 10 is kept in a sealed envelope generally designated as 15 which is rectangular in shape and consists of two halves or panels 16 and 17. The envelope 15 is made of paper or film which has been coated on one side with a cohesive substantially nonadhesive material of the type hereinbefore described. The panels 16 and 17 of the envelope 15 are sealed together at the time of forming the package with the cohesive-coated sides facing each other. At the same time one end of each panel is folded back on itself to form tabs 18 and 19.

For the purpose of clarity the various layers of the adhesive bandage and of the envelope are shown slightly separated from each other at the right hand end of Figure 4. For the same reason the upper end of backing 11 and facing strip 13 are shown partly pulled away in Figure 3. Normally these strips lie contiguous to each other and to panel 17 of the envelope until separated by hand at the time of use.

As shown in Figure 2 the parts of the envelope are separated by grasping one of the tabs 18 and 19 in each hand and pulling in opposite directions longitudinally of the envelope. The line of adhesive shown at 20 enables the bandage 10 to adhere to portion 17 of the envelope. A similar line of adhesive (not shown) is provided along the bottom end of the bandage shown in Figure 3. When it is desired to apply the bandage to a finger, one of the end edges of the bandage is grasped and the bandage is pulled away from the remaining half of the envelope. Before applying the bandage, facing strips 13 and 14 are pulled off in the usual manner.

In Figure 4 tab 18 is shown in extended position and also (in dotted lines) folded back. Since tab 19 is normally always folded back, it is easy to grasp both tabs when tab 18 is in either position shown.

The line of adhesive such as that shown at 20 in Figures 3 and 4 can be applied in any suitable manner, either by hand or with a suitable spraying or squirting device attached to the usual machine for covering the bandages with the paper envelope material. Another method is to run the sealing press over the envelope along a line coinciding with the ends of the bandage. The heat and/or pressure of the sealing operation causes a small amount of the adhesive on the backing to extrude and spread along the end edges of the backing, sufficient in quantity to contact the inner face of the envelope and adhere thereto.

In order to keep the end or ends of the bandage from adhering to both panels of the envelope, the facing strips are made to extend slightly beyond the ends of the backing. This can be accomplished in any suitable way. In the case of elastic plastic backings, as for example backings such as those described in Patent No. 2,734,503 previously referred to, a slight shrinkage of the backing film in a longitudinal direction takes place during sterilization, at which time raised temperatures are employed. This causes the facing strips to extend slightly beyond the ends of the backing and also tends to leave a thin line of adhesive material at the outer end edges of the backing.

The pad dressings used in the manufacture of the bandages may be of any conventional type of material capable of withstanding sterilization temperatures. They may be absorbent or non-absorbent, woven or non-woven, fibrous or non-fibrous; and may be made from such diverse materials as cotton or synthetic fiber gauzes; felts of cotton, wool, and synthetic fibers; sponges, such as rubber and synthetic polymer sponges, and alginate sponges, felts, and fibrous pads.

The bandages which are packaged in accordance with this invention may be made and assembled in various ways. Conventional procedures are used in making cloth-backed bandages. In the case of plastic-backed bandages the following general procedure may, for example, be employed:

The plastic film-forming material is spread either in the form of a solution, a plastisol, an organosol or a latex onto a heavy super-calendered paper of the type generally used for preparing cast films. The film is then dried and fused (if necessary) while adherent to the paper. If a primer anchor-coat is desired, the film is run through a reverse roll spreader where it is coated with a skim coating of a suitable primer. The primer is dried either by passage through a short oven or by other conventional means. An adhesive, as previously described, is then applied to the backing in proper thickness by a suitable knife or reverse roll spreader. The combination then passes through an oven wherein the adhesive is dried. Upon emerging from this oven, the tape and the adherent paper are slit, as a unit, into widths corresponding to the lengths of the finished bandages. Each of the narrow widths is then led to a machine similar to that described in the Eustis Patent No. 2,029,260 wherein dressing materials are spotted onto the adhesive

surface and the divided crinoline or other covering strips are applied with the fold-over running lengthwise. At this point the paper carrier-surface is separated from the bandage material, the paper carrier being used to intermittently pull projecting portions of the bandage material out beneath a cut-off knife which severs the bandage strip into successive individual bandages by cutting through the entire bandage strip including the crinoline or other coverings. The bandages are then ready to be wrapped and packaged after which they are heat-sterilized.

The wrapping and packaging of the bandages may be carried out by hand or by mechanical means in which known machines adapted to place the bandages in envelopes and seal them may be employed with only slight changes. In fact, it is one of the advantages of folding back both tab ends a second time that the packaged bandage may be made of standard length on standard machines using paper or other sheets which are longer than usual to allow for the tab formation.

The finished package containing the bandage sealed therein is finally sterilized usually at temperatures of 120° F. or higher. When chemical sterilization is employed, temperatures of 140° to 180° F. are sufficient. When steam sterilization is employed, higher temperatures such as 235° to 250° F. are required. In either case, the package made as herein described is not harmed, and is ready for quick opening and application of the bandage to the skin.

Although reference has been made herein primarily to bandages of the type known as finger bandages, the package of this invention may be readily adapted to other forms of adhesive bandages.

I claim:

1. A packaged adhesive bandage comprising an adhesive bandage and an envelope therefor, said bandage including a backing strip having a tacky adhesive coating on one surface thereof and a facing material covering the adhesive-coated surface of said backing strip, said envelope having two opposing panels sealed together at opposing inner face portions extending around and beyond the edges of said bandage, said panels each being provided at an adjacent end with a pull tab extending beyond the sealed portion thereof and free of engagement with said bandage, said bandage being detachably adherent to one of said panels solely by means of a thin line of adhesive material located only along peripheral edge portions of said bandage including at least an end edge of said bandage adjacent said pull tabs, whereby said panels may be separated from each other by pulling said tabs in a peeling action in opposite directions without at the same time separating said bandage from the panel to which it is adherent, said facing material covering said adhesive-coated surface during separation of said panels from each other.

2. The packaged adhesive bandage in accordance with claim 1 wherein said facing material extends beyond said peripheral edge portions of said bandage along which said adhesive material is located to cover said adhesive material.

3. A packaged adhesive bandage comprising an adhesive bandage and an envelope therefor, said bandage

including a backing strip having greater length than width and having a tacky adhesive coating on one surface thereof and a facing material covering the adhesive-coated surface of said backing strip, said envelope having two opposing panels sealed together at opposing inner face portions extending around and beyond the edges of said bandage, said panels each being provided at an adjacent end with a pull tab extending beyond the sealed portion thereof and free of engagement with said bandage, said bandage being detachably adherent to one of said panels solely by means of a thin line of adhesive material located only along peripheral edge portions of said bandage including at least a longitudinal edge of said bandage, whereby said panels may be separated from each other by pulling said tabs in a peeling action in opposite directions without at the same time separating said bandage from the panel to which it is adherent, said facing material covering said adhesive-coated surface during separation of said panels from each other.

4. The packaged adhesive bandage in accordance with claim 3 wherein said facing material extends beyond said peripheral edge portions of said bandage along which said adhesive material is located to cover said adhesive material.

5. A packaged adhesive bandage comprising an adhesive bandage and an envelope therefor, said bandage including a backing strip having a tacky adhesive coating on one surface thereof and a facing material covering the adhesive-coated surface of said backing strip, said envelope having two opposing panels sealed together at opposing inner face portions extending around and beyond the edges of said bandage, said panels each being provided at an adjacent end with a pull tab extending beyond the sealed portion thereof and free of engagement with said bandage, said bandage being detachably adherent to one of said panels solely by means of adhesive material located only along at least a portion of the peripheral edge of said bandage sufficient to prevent said bandage from separating from the panel to which it is adherent when said panels are separated from each other by pulling said tabs in a peeling action in opposite directions, said facing material covering said adhesive-coated surface during separation of said panels from each other.

6. The packaged adhesive bandage in accordance with claim 5 wherein said facing material extends beyond said portion of the peripheral edge of said bandage along which said adhesive material is located to cover said adhesive material.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,949,271	Duhanel	Feb. 24, 1934
2,432,541	Peck	Dec. 16, 1947
2,529,060	Trillich	Nov. 7, 1950
2,627,341	Morgan	Feb. 3, 1953
2,676,702	Whitefoot	Apr. 27, 1954
2,721,550	Banff	Oct. 25, 1955
2,734,503	Doyle	Feb. 14, 1956
2,752,038	Abbott	June 26, 1956
2,806,593	Abbott	Sept. 17, 1957