May 23, 1950 C. H. BROWN 2,508,855

ADHESIVE TAPE WITH TEARING FACILITIES

Filed April 26, 1947

Fig. 1

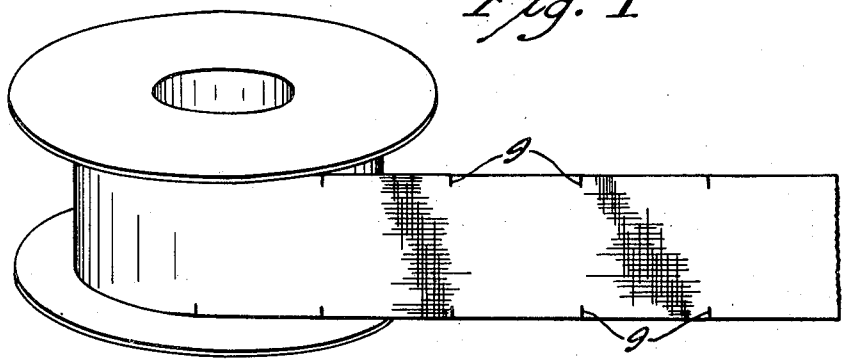


Fig. 2

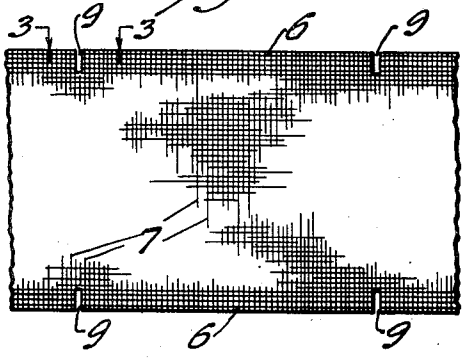


Fig. 4

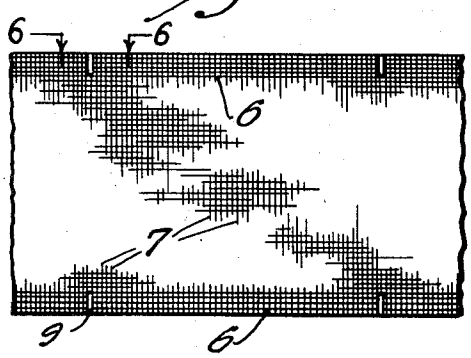


Fig. 3

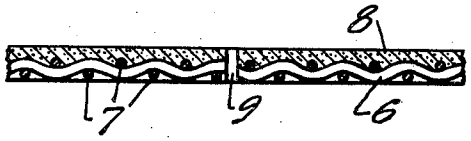


Fig. 5

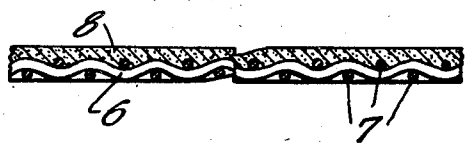
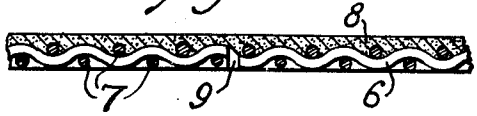


Fig. 6



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UNITED STATES PATENT OFFICE

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ADHESIVE TAPE WITH TEARING FACILITIES

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Application April 26, 1947, Serial No. 744,080

5 Claims. (Cl. 28—74)

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This invention relates to adhesive tape for medical, surgical and repairing purposes and more particularly, to simple but highly efficient means for facilitating the manual tearing of predetermined fragments of said tape from a continuous strip or roll.

Fabric adhesive tapes for medical as well as binding and repair purposes, particularly tapes of the greater widths, are exceedingly difficult to smoothly sever or transversely tear from a continuous strip. Even when tearing is accomplished, the torn edges are usually wrinkled or puckered and smooth application of the torn section is thereby precluded. Severing of the coated strip is difficult and objectionable even with the use of shears as the relatively heavy coating of the adhesive sticks to the cutting edges and is difficult to remove.

It is an object of my invention to provide a continuous roll or strip of flexible adhesive tape constructed for the most part of conventional form, but having simple and highly efficient means inherent in the structure of the tape itself to materially facilitate the transverse tearing of sections of the tape along predetermined lines and with the elimination of the production of wrinkles or other deleterious effects when the tape is torn.

Another object is the provision of readily severable adhesive tape wound in roll form and having the longitudinal edges thereof or more particularly, a plurality of the longitudinal extending threads of the fabric body at the marginal portions of the tape, severed or at least partially fractured along a plurality of spaced transverse lines to enable sections of the tape to be readily severed or torn from the continuous strip or roll without the use of any instruments.

Another object is the provision of a simple but effective method well adapted for commercial manufacture for the production of a continuous strip of adhesive tape having longitudinally spaced cut or weakened lines on the extreme longitudinal marginal portions to facilitate ready tearing of the tape in use.

These and other objects and advantages of my invention will be more apparent from the following description made in connection with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a perspective view of a roll of relatively wide adhesive tape embodying one form of my invention.

Fig. 2 is an enlarged top plan view of a portion of the tape shown in Fig. 1.

Fig. 3 is a fragmentary section taken longitudinally of the tape along the line 3—3 of Fig. 2.

Fig. 4 is an enlarged top plan view of a section of adhesive tape embodying a somewhat different

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form of my invention wherein certain of the longitudinal threads of the strip body are cut prior to application of the adhesive coating.

Fig. 5 is a fragmentary section taken longitudinally along a tape of somewhat different construction wherein certain of the longitudinal threads are crimped or partially fractured, but not severed.

Fig. 6 is a fragmentary section taken longitudinally of the tape along the line 6—6 of Fig. 4.

Referring now to the form of my invention disclosed in Figs. 1 to 3, the adhesive tape is in general respects of conventional manufacture and structure comprising an elongated or continuous flexible body of closely woven textile material which affords minimum stretching. Said strip body has the usual closely spaced longitudinal threads 6 extending parallel with the longitudinal edges of the strip and has the inner woven and closely spaced transverse threads 7 running to the said longitudinal edges of the tape.

The fabric strip body is usually impregnated with a reinforcing and water repellent material which readily dries after manufacture process and often fills the pores or interstices between the threads although this is not essential in some types of tape. The underside of the strip is coated with a layer 8 of very efficient adhesive material which remains sticky under normal conditions for a long period of time.

After considerable experimentation, I discovered that unexpected results could be obtained in manually tearing an adhesive tape transversely if a few of the longitudinally disposed threads of the strip body, at one or both longitudinal edges thereof are cut or partially fractured in the inherent structure of the tape.

In Figs. 1 to 3, the strip of adhesive tape with the adhesive coating applied is cut at both longitudinal edges for very short distances, providing throughout the lengths of the tape, a spaced series of pairs of short tearing slots 9, said aligned pairs being spaced apart convenient distances for the needs required. In this first form of the invention, two or three or possibly more of the longitudinal threads at the longitudinal marginal edges of the strip, are completely severed as well as the impregnation material and adhesive coating 8.

This may be done in the commercial manufacture of the tape by rotary cutter rollers or straight moving cutting dies as the tape is moved continuously or intermittently and wound upon the receiving spool. Thus, in Figs. 2 and 3, it will be noted that the three or four longitudinal threads T adjacent the longitudinal edges of the strip, are actually severed as is the filler material and adhesive coating 8. In Fig. 4, a slightly different

form of the invention is shown wherein the few longitudinal threads adjacent and including the extreme edges of the strip are severed but the adhesive coating in the lower surface of the strip is not touched.

This structure may be readily and commercially manufactured by producing the spaced cutting of the marginal edges of the strips and the severing of the longitudinal threads T upon the continuous strip after the same has been impregnated with the reinforcing and protective ingredients and before the strip has been coated with the adhesive material. Cutter rolls can be utilized to accomplish this purpose, usually consisting in a pair of rolls having male and female die elements, circumferentially spaced thereon.

In Fig. 5, a still different form of the invention is illustrated where instead of actually severing the longitudinal threads from the marginal edges inwardly a short distance, these threads are merely crimped or partially fractured but will readily sever when a pulling or tearing force is applied. In my process, this may be carried out by a pair of cooperating, crimping rolls one of which has radially disposed, knife-like elements and the other of which has a relatively smooth surface for cooperation therewith when a strip is fed between the rolls.

In actual use, my improved structure in its several forms, produces highly efficient and unexpected results. The slight weakening of the fabric of the tape by cutting or partially fracturing a few threads at spaced intervals along one or both of the marginal portions, readily enables a tear to be started which may be continued without wrinkling or puckering the torn edges or producing any deleterious effect through manual tearing. In tearing off sections of tape from a continuous strip mounted on a spool, the anchorage of the tape to a spool and holding of the spool is a distinct adjunct and a cooperative effect in tearing is thereby obtained. My invention is applicable to very wide tape up to six inches or more, of relatively thick construction and having heavy layers of adhesive coating on the under surfaces thereof.

A section of the tape manually torn from the continuous strip is perfectly smooth at its ends and can be readily applied for bandaging, binding and repairing purposes in a most efficient manner.

It will of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of my invention.

What I claim is:

1. The method of making adhesive tape which consists in impregnating the usual strip body of closely woven textile fabric with reinforcing and water repellent material, thereafter and during the travel of said strip, severing along spaced transverse lines, a few of the longitudinal threads of the fabric at an extreme longitudinal edge thereof and closely adjacent thereto and thereafter coating one surface of said strip with a layer of adhesive material to retain the cut portions of the fabric in integral fashion.

2. A continuous strip of adhesive tape comprising a flexible strip body of closely woven fabric impregnated with non-adhesive material and having a coating on one surface thereof of adhesive material said fabric having substantially continuous threads running longitudinally of said strip and a multiplicity of transverse threads interwoven with said longitudinal threads and extending to the longitudinal edges of said strip and means for facilitating transverse tearing of said strip along a number of parallel transverse lines, said means constituting a series of crimps and partial fractures, only, in a few of said longitudinal threads at at least one marginal edge of said strip, whereby transverse tear lines are indicated and a tear may be started on any set of said crimped threads without deleterious effect upon the edges of said strip.

3. The method of making a continuous strip of adhesive tape which consists in longitudinally moving a continuous strip body constructed from flexible woven fabric comprising longitudinally extending strands interwoven therewith, and while moving said strip body crimping the extreme marginal edges of said fabric for very short distances inwardly along a multiplicity of parallel lines extending transversely of said strip to partially fracture and materially weaken a few of said longitudinally strands.

4. A continuous strip of adhesive tape comprising a flexible strip body of closely woven fabric having a continuous coating completely throughout one surface thereof of adhesive material, said fabric having substantially continuous threads running longitudinally of said strip and having a multiplicity of interwoven threads running transversely of said strip, a few of the longitudinal threads of the fabric along one of the longitudinal marginal portions of said strip at the extreme longitudinal edge thereof and closely adjacent thereto being at least partially fractured at spaced intervals to provide facility for manually tearing said strip at such points, the partially fractured portions of the fabric being retained in integral fashion by the said continuous adhesive coating.

5. A continuous strip of adhesive tape comprising a flexible strip body of closely woven fabric having a continuous coating completely throughout one surface thereof of adhesive material, said fabric having substantially continuous threads running longitudinally of said strip and having a multiplicity of interwoven threads running transversely of said strip, a few of the longitudinal threads of the fabric along one of the longitudinal marginal portions of said strip at the extreme longitudinal edge thereof and closely adjacent thereto being cut at spaced intervals to provide facility for manually tearing said strip at such points, the cut portions of the fabric being retained in integral fashion by the said continuous adhesive coating.

CLAYTON H. BROWN.

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The following references are of record in the file of this patent:

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