June 28, 1955 A. J. FISHBEIN 2,711,739

ADHESIVE STRIP FOR BRIDGING SURGICAL INCISIONS

Filed July 14, 1951

Fig. 2.

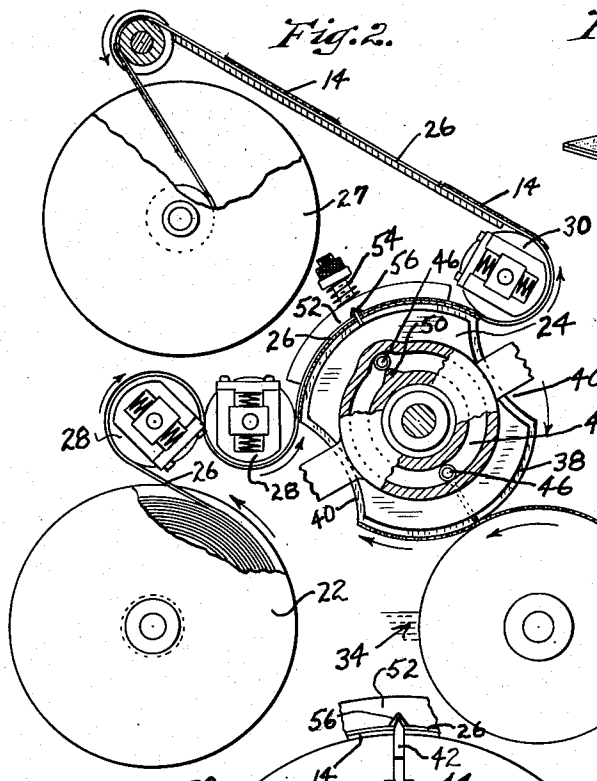


Fig. 1.

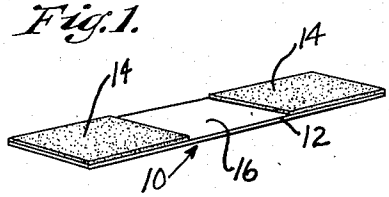


Fig. 6

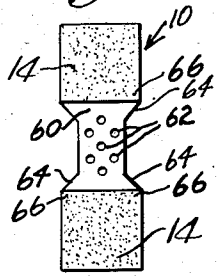


Fig. 3.

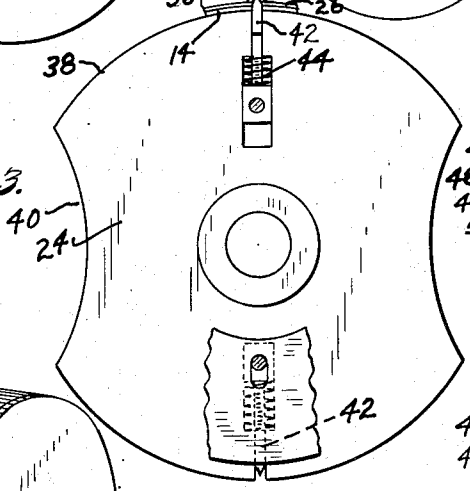


Fig. 4.

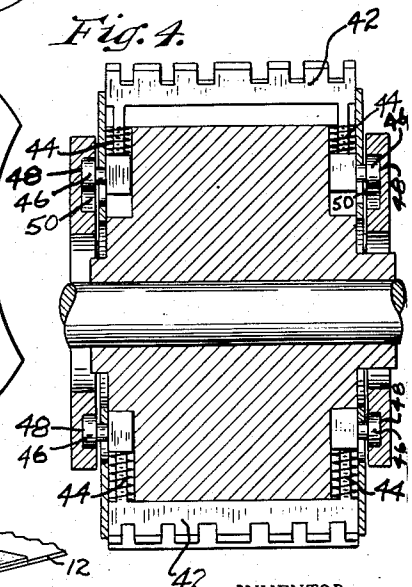
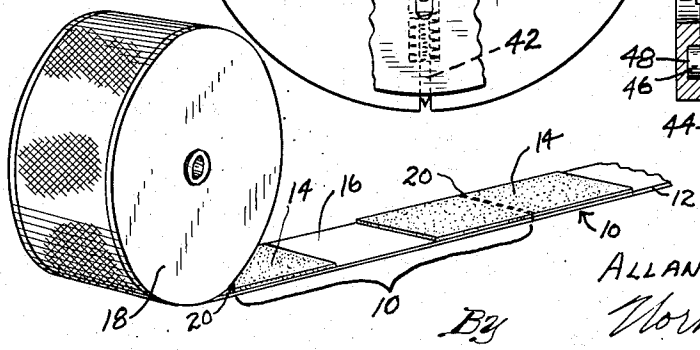


Fig. 5.



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ADHESIVE STRIP FOR BRIDGING SURGICAL INCISIONS

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1 Claim. (Cl. 128—335)

This invention relates to an adhesive tape article of manufacture and means for producing said article of manufacture, and more particularly relates to a tape for use by surgeons in bridging surgical incisions.

In certain surgical operations, such as an appendectomy, the physician or surgeon uses adhesive strips to bridge the incision and to provide means for holding together the skin adjacent the incision. These adhesive strips are positioned generally transverse to the run of the incision so that the adhesive ends of the strip will grip the skin on both sides of the incision and hold the edges of the skin, bounding the cut, together so that healing will take place and so that the scar will be relatively small.

It is desirable that the portion of the bridging strip, immediately adjacent to and directly above the incision, not adhere to the incision as such adherence would interfere with the healing process. In the past, doctors have used strips of adhesive tape as these bridging strips and have met the problem of making that portion of the strip, adjacent to and above the incision, non-adhesive by making a pair of spaced cuts inwardly into the strip from the opposite long edges of the strip so as to form a pair of flaps, and then folding these flaps over each other so that only the non-adhesive side of the adhesive strip is presented adjacent to and above the incision being bridged.

These cuts in the adhesive strip have to be limited in length so as to avoid cutting through the entire width of the adhesive strip. By making the cuts from the opposite long edges of the strip, a pair of flaps are formed, and first one flap is folded down with the adhesive face of the flap against the adhesive side of the tape and then the other flap is folded down over the first flap.

The type of bridging strip described eliminates any adherence of the adhesive strip to the incision and further the folded over flaps provide a recess through which air may circulate to further speed the healing of the incision.

It can be seen that the type of adhesive tape bridge described above is very unsatisfactory since it requires much handling in being formed and, thus, there is the possibility of its becoming contaminated.

Furthermore, very often the cuts in the adhesive strip made by the doctor are too long and the bridge is therefore unsatisfactory. This requires that the doctor discard the adhesive tape and make a new one; and often a number must be made before a satisfactory bridging strip is produced.

Another undesirable feature is that a highly trained person—the doctor, or the nurse or interne—must spend a relatively large amount of precious time in preparing these adhesive bridges. Furthermore, the folded over flaps make the bridging strip rather bulky in the region immediately adjacent to and above the incision and thus the bulky portion of the strip may rub against the incision, thus irritating the incision and slowing the healing thereof.

Thus, one of the objects of this invention is to provide, as an article of manufacture, an adhesive tape for bridging surgical incisions.

Another object of this invention is to provide, as an article of manufacture, an adhesive bridging strip for surgical incisions wherein the non-adhesive bridging portion is located in a plane spaced from the outer surface of the adhesive whereby possibility of contact between said non-adhesive portion and the incision is reduced.

A further object of this invention is to provide, as an article of manufacture, a roll of tape whereon spaced adhesive segments are positioned, so that adhesive bridge strips may be taken or made therefrom.

And still another object of this invention is to provide, as an article of manufacture, a roll of tape having spaced adhesive segments therein, which tape is perforated at spaced intervals so as to form adhesive bridging strips.

Still a further object of this invention is to provide a machine for automatically forming adhesive bridging strips as an article of manufacture.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, wherein:

Figure 1 is an isometric view of the adhesive bridging strip formed as an article of manufacture;

Figure 2 is a diagrammatic view of a machine for making adhesive bridging strips;

Figure 3 is an enlarged side view of the drum over which the tape is trained in Figure 2, showing some of the details of the perforating members;

Figure 4 is a cross-section taken on line 4—4 of Figure 3; and

Figure 5 is an isometric view of the roll of tape which is produced by the machine of Figure 2,

Figure 6 is a plan view of a modified form of an adhesive bridging strip formed as an article of manufacture.

Referring now to the drawings, there is shown an adhesive bridging strip, generally indicated by numeral **10**, as an article of manufacture. This bridging strip **10** includes a sterilized strip of linen **12** which is of substantially uniform thickness. The strip of linen **12** has, adhering to one face thereof, a pair of spaced segments **14** of a layer of adhesive. These segments **14** are positioned at the ends of the strip. The intermediate portion of linen strip **12**, between the pair of spaced segments **14**, forms an exposed face portion **16** of linen strip **12**. This exposed face portion **16** lies in a plane spaced from the plane of the outer surface of the adhesive segments **14**, as can easily be seen in the isometric view, Figure 1.

The segments **14** of adhesive extend across the width of the strip **12** and also extend from the ends of the strip toward each other. These segments **14** are spaced apart to expose the face portion **16** of the strip **12**. The two segments **14** and the exposed face portion **16** each extend over substantially one-third of the length of the strip **12**.

Figure 5 shows a roll of tape **18** consisting of a plurality of bridging strips **10** connected end to end. The ends of successive bridging strips are formed by a line of perforations **20** which also serve to permit tearing a single bridging strip **10** from the roll.

The adhesive portions on the strip **12** may also be considered in their entirety as a segmented layer of adhesive applied to one face of strip **12**. The segments of the layer are equal in length and are spaced from each other. In the case of a single bridging strip **10**, there are only two segments **14** and each extends over one-third the length of the strip **12**.

In the case of the roll of tape **18**, with bridging strips **10** connected end to end, the segments of the segmented layer of adhesive are each twice the length of the spacing between successive segments. The perforations **20** defining the ends of strips **10** extend across the width of the

linen strip **26** at substantially the mid-length of the segments of adhesive material.

Figures 2 to 4 show a typical machine which may be used to produce the roll of tape **18** shown in Figure 5. This machine includes a linen tape supply roll **22**, a drum **24** over which the tape **26** is trained, which drum applies the adhesive segments to one face of the tape **26**, and a roll **27** for receiving the linen tape with the adhesive applied thereto. Tensioning rollers **28** and **30**, over which tape **26** is trained, are also provided. The tensioning rollers **28** are between supply roll **22** and the drum **24**, and the tensioning roller **30** is between drum **24** and roll **27**.

An adhesive applying roller **32** is provided for transferring adhesive onto the drum **24**. The adhesive applying roller **32** is rotatably mounted and is partially immersed in a supply of adhesive generally indicated at **34**. A scraper **36** controls the amount of adhesive transferred by the roller **32**. The adhesive is transferred from roller **32** onto appropriate surfaces of the drum **24**, wherefrom the adhesive is then transferred onto the tape **26**.

Referring specifically to drum **24**, said drum consists of alternate lands **38** and recesses **40**. The lands **38** receive the adhesive from roller **32** and also apply the adhesive to the tape **26**. The recesses **40** provide for the spacing of the adhesive segments **14** on the adhesive bridging strip **10**.

Means associated with drum **24** are provided for perforating the tape **26**. This means includes knives or perforating members **42** positioned within drum **24** and adapted to be radially reciprocated therein. Springs **44** normally bias these knives **42** to an inwardly retracted position. These knives or perforating members **42** have secured thereto cam followers **46**. The perforating members **42** and cam followers **46** rotate with the drum **24**. The cam followers **46** are positioned in a raceway **48**. The raceway **48** has a cam **50** formed or mounted thereon; and the cam followers **46** passing over cam **50** cause the perforating members **42** to be thrust outwardly at the proper time.

A backing plate **52** is resiliently biased by means of springs **54** toward drum **24**. The tape **26** when passing over the drum **24**, thus passes between lands **38** and backing plate **52**. This backing plate **52** thus assists in transferring of the adhesive from lands **38** to tape **26**.

Recesses **56** are provided in backing plate **52** and cooperate with perforating members **42** as they are thrust radially outwardly to perforate the tape **26**, thus effectively forming a punch and die.

In the modified form shown in Figure 6, the bridging portion **60** of the bridging strip **10** is of reduced width. This is a desirable feature because, if by chance the bridging portion **60** should adhere to the incision, the length over which such adhesion will take place is reduced. It must be remembered that it is desirable to have the adhesive segments **14** as wide as possible so that the gripping of the skin takes place over a large width. The

bridging portion **60** only serves as a connective link between the pair of adhesive segments **14**.

The bridging portion **60** is also shown having a plurality of perforations **62** therein. These perforations serve both to reduce the width over which adhesion to the incision may occur, and also to provide for ventilation which may be desirable in the healing process.

In forming the reduced width bridging portion **60** it is preferable that the edges **64** be disposed at an angle to the adhesive segments **14**, as shown, rather than being at right angles to the adhesive segments **14**. The edges **64**, by being at an angle, reduce the possibility of the corners **66** lifting and curling. The corners **66**, shown in Fig. 6, thus will tend to remain in adherence with the skin. The machine shown in Figs. 2–4 may be suitably modified to provide for the cutting of the bridging portion **60** to the form shown in Fig. 6.

Thus, it can be seen that I have provided, as an article of manufacture, an adhesive strip for bridging surgical incisions wherein the non-adhesive bridging portion is located in a plane spaced from the outer surface of the adhesive and whereby the possibility of contact between the non-adhesive portion and the surgical incision is reduced.

Some changes may be made in the construction and arrangement of the parts of my device without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

An article of manufacture comprising a strip of closely woven linen of substantially uniform thickness, a pair of adhesive segments on one face of the linen strip at the ends thereof, said segments of adhesive being spaced apart, leaving a central portion of said linen strip exposed, and said central portion of the linen strip between the segments of adhesive being of reduced width over a portion of the length thereof, said portion of reduced width also being perforated therethrough, whereby the effective width across said central portion of reduced width is further reduced.

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