

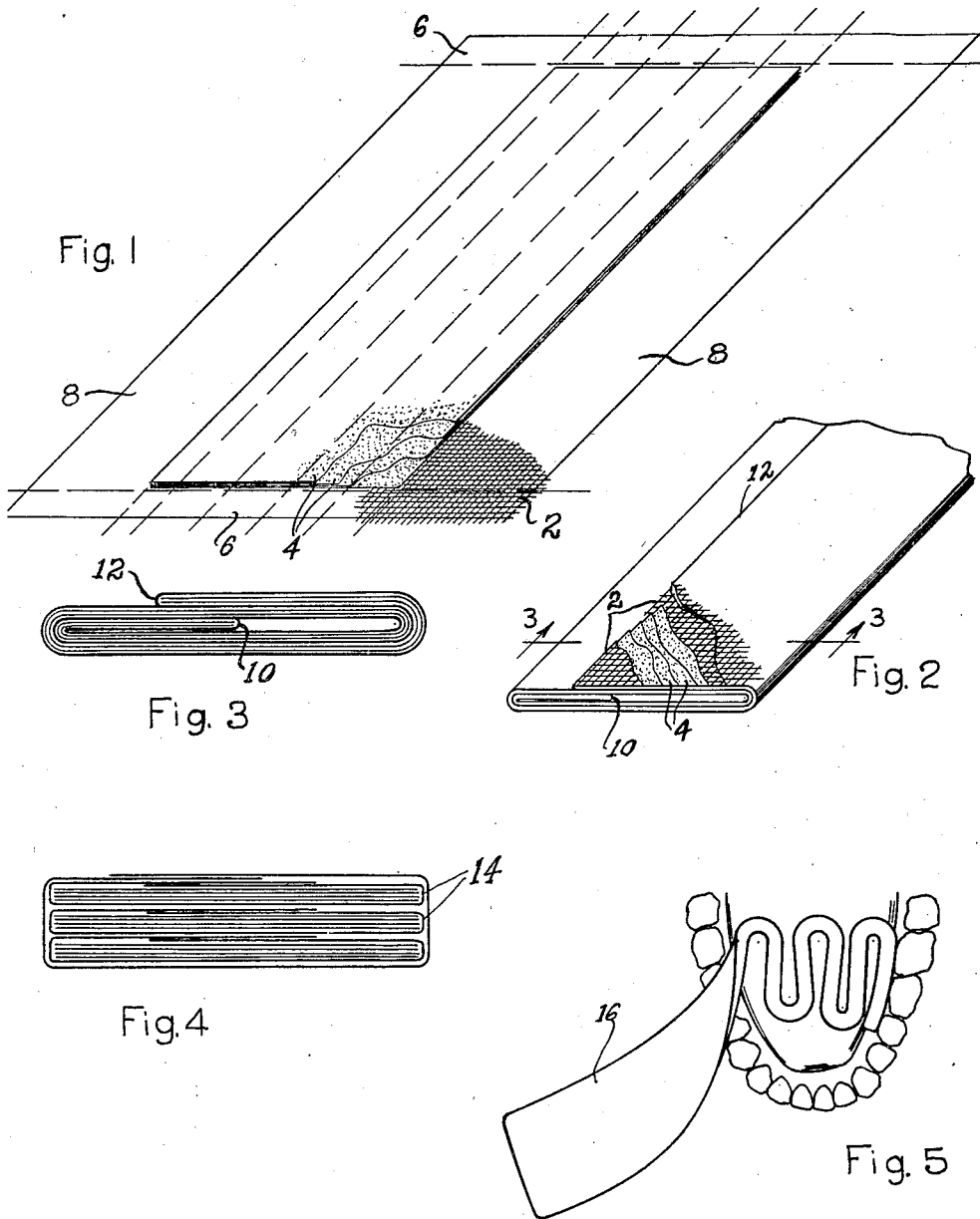
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SURGICAL PACKING

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SURGICAL PACKING

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My invention relates to products for taking up blood and saliva in dental work, to prevent solids or fluids from passing into the patient's throat or lungs or into the operating area during operations on the teeth or mouth and for various other purposes.

Bandages, packings and similar absorbent products have heretofore been made in which there are a number of layers of soft, highly absorbent paper wrapped in gauze. In some cases cotton or the like has been applied around or between the paper layers to take up fluids and cause the layers to adhere together. However, it is found that a thick and relatively stiff pad of paper is not altogether satisfactory as an absorbent because the outer layers become saturated first and the fluids must then pass through the saturated layers before coming into contact with unsaturated material. There is, therefore, a tendency for liquids such as blood to coagulate or clot on the surface of the packing or bandage preventing free passage of the liquids through and into the material. Moreover, since the space between the layers of paper is extremely limited and the capillaries formed thereby are very small the amount of liquid which can be taken up and held by the pad is limited.

The use of cotton in bandages, packings and the like is objectionable because liquids are taken up comparatively slowly by cotton and the absorption capacity of cotton is relatively small as compared with that of paper. Furthermore disposal of cotton in ordinary sewerage systems is a problem which presents difficulties.

For certain purposes it is not only necessary that packings should be absorbent but they should also be soft and flexible yet have sufficient strength to be capable of retaining their shape and form even when substantially saturated with liquids. This is especially true of packings used in dentistry and in the administration of nitrous oxide or other general anesthetics preparatory to operations on the mouth or teeth. For such uses the packing should be yielding and capable of being easily introduced into the cavities between the teeth and the tongue or cheek and folded about the teeth or into form to prevent or restrict breathing through the mouth during the operation and while the anesthetic is still being administered. At the same time the packing should also possess sufficient resiliency and strength to retain its shape even when substantially saturated. This is important in order to prevent fluids or solids from entering the patient's throat or the operating area for if blood is swallowed by the

patient post-operation nausea occurs and if solids enter the patient's lungs serious injury may result.

I have discovered that the objections to prior art bandages, packings and the like can be overcome and the requirements of high absorption with stability of form can be met by forming articles of this character of a number of series of layers of soft highly absorbent paper with interposed layers of woven or openwork material such as ordinary gauze. The gauze serves to hold the paper layers in somewhat spaced relation preventing matting together or adhesion of the layers of material into a sodden mass when saturated. The article therefore can take up and hold large quantities of liquids not only within the interstices of the absorbent paper itself but on the surface of and between the paper layers without causing the article to lose its shape or form. This is of particular value in dentistry and in operations on the mouth for the reason that mouth breathing is restricted at all times whether the packing is saturated or not. When used in place of the usual cotton rolls liquids are taken up rapidly by the packing and tendency for the material to be dislodged or slip out of place when covered with saliva and therefore very slippery, is overcome.

One of the objects of my invention is to provide a simple and inexpensive absorbent product adapted for a wide variety of uses and capable of being made in various shapes and forms for taking up and holding body fluids.

Another object of my invention is to provide an absorbent article comprising a series of interposed layers of absorbent material and spacing material.

Another object of my invention is to provide a packing for use in dentistry and in the administration of an anesthetic which takes up liquids readily and yet retains its shape and form even when substantially saturated.

These and other objects and features of my invention will appear from the following description thereof in which reference is made to the accompanying figures of the drawing illustrating typical embodiment thereof in which:

Fig. 1 is a perspective of materials in position to be assembled to form a dental packing,

Fig. 2 is a perspective of an end of the packing shown in Fig. 1,

Fig. 3 is a sectional view through a form of packing suitable for use in dentistry,

Fig. 4 is a sectional view of an alternative form of construction embodying my invention,

Fig. 5 is a diagrammatic illustration of one

method of using a mouth pack embodying my invention.

That form of my invention which I have chosen for illustration in Figures 1 to 5 of the drawing is particularly adapted for use in dentistry. As shown the packing is made up of a layer of woven material or fabric 2 such as ordinary gauze bandaging of suitable width, upon which is laid a number of thicknesses of highly absorbent cellulose material 4 such as very thin paper capable of taking up and holding liquids without disintegration. This paper or cellulose material may be of any suitable type or manufacture but preferably is soft and flexible while possessing sufficient strength to remain in position in the mouth or between the cheek and gums of the patient without losing its shape when saturated with liquid.

The number of layers of paper or other material used will depend very largely upon the nature of the paper employed and of the packing to be produced. I may employ any sufficient number of layers required to prevent or materially impede breathing through the mouth. In practice, I have found that even one sheet of very thin highly absorbent paper is sufficient for this purpose when the packing materials are folded into a number of overlying series of layers as shown in Fig. 3. The number of layers of paper may be increased somewhat but ordinarily if more than ten layers are used in forming a dental packing, the packing when folded a number of times becomes bulky and is not so readily handled and formed into the desired shapes or into cavities in the mouth and about the teeth. This is especially true if the material is folded more than about four times when using a large number of layers of paper.

In the form of packing illustrated in Figures 1 to 4 of the drawing the desired number of layers of thin absorbent paper are placed on a web of gauze with the end 6 of the gauze extending beyond the paper and with the sides 8 of the gauze also extending beyond the paper layers. The end 6 is then folded over the end of the paper layers and the sides are similarly folded over the paper so as to completely enclose the absorbent paper in a covering of woven material. When used in dentistry the packing as shown may be folded over any suitable number of times, say in three or four folds with the edge 10 of the paper which is first folded, positioned in the interior of the packing and with the edge 12 substantially free. This produces a structure which is in the nature of a flat spiral formation as shown in Fig. 3 of the drawing. However, if preferred, the packing may be folded in thirds or may be folded in half and then into quarters, etc., or in any other suitable manner to produce the desired number of interfolded layers of gauze and absorbent paper.

If desired the packing may be made from a number of series of unfolded sections 14 each of which comprises one or more layers of absorbent paper enclosed in a perforated or gauze covering. The latter construction is shown in Fig. 4 and is very simple to manufacture. This arrangement has the advantage of being adapted for various uses as in bandaging, mouth packs and as a substitute for the cotton rolls used in dentistry. The material may be used in any desired number of sections each including the desired number of layers of paper within an outer covering of gauze or the like. Thus when used as a mouth pack three or four sections may be enclosed within an outer covering, when used as a substitute for cot-

ton rolls in dentistry only two sections may be needed and even a single section of suitable form may be used.

This construction of the packing material is soft and yielding to the patient's mouth but at the same time is capable of retaining its shape so that it may be placed in any desired location and in cavities about the teeth or between the tongue and the teeth or elsewhere as a substitute for the usual cotton rolls commonly employed by dentists in filling teeth. When used in the administration of an anesthetic, such a nitrous oxide, the packing may be placed in the patient's mouth somewhat as indicated in Fig. 5 so as to retard or impede mouth breathing, and in this way the desired control of the anesthetic may be easily attained, and all danger of the patient being prematurely revived by breathing through the mouth is avoided.

As shown in Fig. 5, the packing may be located near the front of the mouth or in any position permitting ready access to the operating area. When it is desired to replace the packing material it is only necessary to introduce an additional strip of material behind that already in place and remove the former packing or the packing may be compressed slightly, pushing the fresh packing in one side of the mouth and removing the old packing from the opposite side of the mouth. In practice, I have found it desirable to use the packing as shown with an end of the packing extending outside of the mouth for use as a swab or sponge to take up or remove any blood or saliva from the operating area. This is of great advantage and convenience to the doctor in that a sponging means or swab is always available in a known location so that it may be found and used without taking his attention from the patient or the operation.

Because of the fact that the packing presents a number of interfolded layers of highly absorbent paper and gauze or other spacing material, the article takes up liquids very rapidly. The spacing of the paper by the gauze increases the absorption capacity of the packing by permitting relatively free passage of the liquids into and between the layers of paper so that the packing in effect presents a very large surface for the absorption of liquids. However I have also found that strips of soft paper enclosed within a gauze or other porous covering are very satisfactory for use in dentistry even when no interposed layers of fabric or spacing material are used. The packing is then formed in a flexible strip which conforms readily to the cavities within the mouth and about the teeth. Although the packing is soft and yielding, it nevertheless effectively prevents breathing through the same even though a very few layers of absorbent material or paper are used, and retains the shape into which it is folded or placed when used at all times whether saturated or unsaturated with liquids.

The shape of the packing may be varied as desired but ordinarily I prefer to form the same into substantially flat strips which may vary from, say one to two inches in width when finished and which may be of any suitable length. The thickness of the finished packing will depend upon the number of layers and kind of paper used and the number of folds or sections making up the packing but generally the packing is only about one-eighth to one-half inch thick. This thickness, however, does not represent the thickness of the materials themselves so much as the general shape of the article for the reason that

the packing is soft and easily compressed between the fingers.

While the packing may conveniently be made in completed strips twelve to fifteen inches long, in some instances it may be preferred for the packing to be made of indeterminate length, say several yards in one piece. The desired amount of the packing can then be cut off as needed. This is of particular value when the packing is used in place of the ordinary cotton rolls which are inserted between the tongue and the teeth or between the cheek and the gums in filling the teeth. A distinct advantage in the use of packing constructed in accordance with my invention when used as a substitute for the usual cotton rolls resides in their ability to conform to the shape of the space into which they are inserted, without any tendency to rotate, spring out or become dislodged when no clamps are used. Furthermore, the highly absorbent characteristic of the packing is an advantage over the tightly packed and relatively less absorbent cotton rolls commonly employed. Usually no clamps are needed for holding the material in place for the reason that the inherent tendency for the paper to retain its shape and position lends the material especially suitable for use in irregular cavities and for placement about and over the teeth. In fact a number of relatively short strips or a continuous strip of packing may be used for packing out the whole mouth exposing only one or two teeth with substantially the same efficiency as a rubber dam, and there is no tendency for leakage between the ends of the material since it can easily be overlapped and folded into any desired shape or position. The characteristic tendency for paper and to some extent for gauze itself to adhere to the moist surfaces within the mouth is a particular advantage over the use of cotton rolls, in that the packing remains in place and leakage which might occur if cotton rolls were used, is avoided.

Since the presence of gauze or fabric within the body of the article may be a source of difficulty in some sewerage systems, especially when the article is disposed of as a whole, I may substitute for the gauze covering of each of the sections any other suitable material which is dissimilar in character to the paper layers or material within the interior of the sections or which serves to prevent the material of one section from adhering to the material of another section while permitting free passage of liquids therethrough. For this purpose I may use corrugated or wrinkled

porous paper of greater thickness than that used in the interior of the sections themselves or may even use perforated glazed paper.

While I have illustrated and described certain preferred forms and embodiments of my invention with particular reference to specific applications thereof, it will be apparent that numerous changes may be made in the form, size and construction of the same to adapt it for various uses. It should therefore be understood that the forms of my invention herein shown and described are intended to illustrate rather than to limit the scope of my invention.

What I claim is:

1. A mouth pack or similar article for use in dentistry comprising a strip of material not more than about two inches in width and from one-eighth to one-half inch in thickness formed of absorbent cellulose material and pervious non-adhering spacing material folded longitudinally of the strip to provide a plurality of overlying layers of cellulose material and spacing material enclosed within a porous outer fabric covering, said strip being soft and flexible and capable of being readily folded transversely of the strip.

2. A dental absorbent adapted for use as a substitute for cotton rolls or for packing the mouth to prevent mouth breathing during the administration of a general anesthetic, comprising a strip of material not more than about two inches in width and from one-eighth to one-half inch in thickness formed of a plurality of interposed layers of absorbent cellulose material and pervious non-adhering spacing material, enclosed within a porous outer fabric covering, said strip being soft and flexible and capable of being readily folded transversely of the strip.

3. A dental absorbent adapted for use as a substitute for cotton rolls or for packing the mouth to prevent mouth breathing during the administration of a general anesthetic, comprising a strip of material of indeterminate length not more than about two inches in width and from one-eighth to one-half inch in thickness from which sections of any desired length may be severed, said strip being formed of a plurality of unmatted layers of soft absorbent cellulose material enclosed within a porous outer fabric covering, said strip also being sufficiently soft and flexible to permit it to be readily folded upon itself either transversely or longitudinally but sufficiently nonporous to render it difficult to breathe therethrough.

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