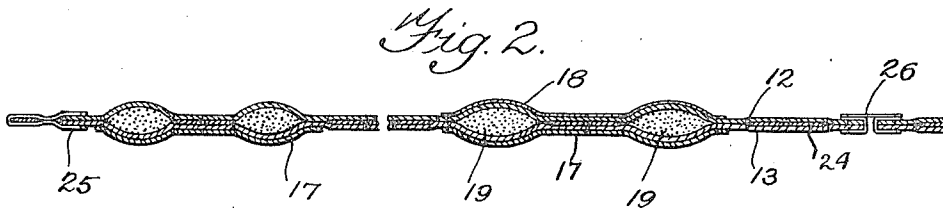
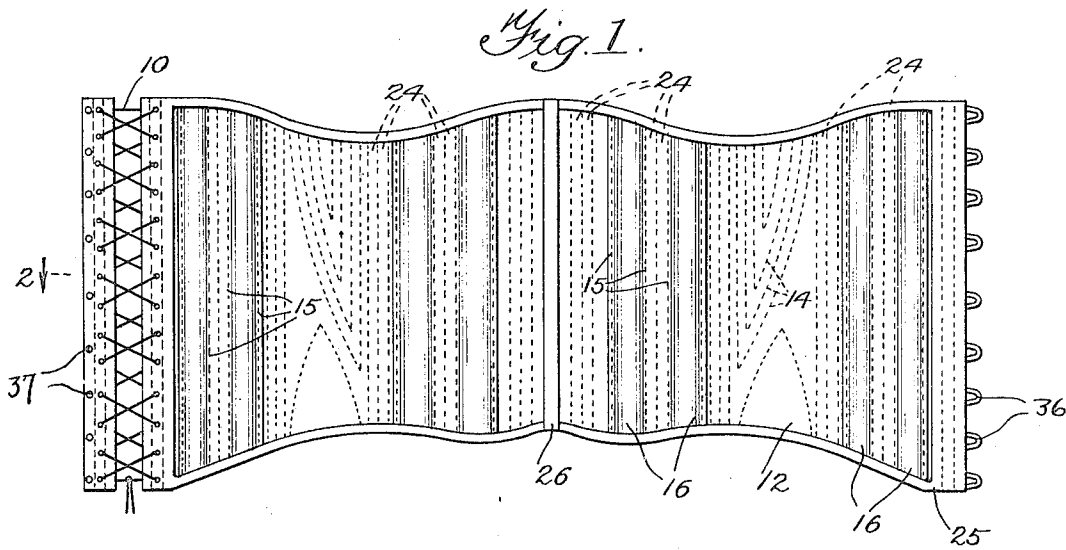


J. B. E. BELL.
RADIUM APPLICATOR.
APPLICATION FILED JUNE 18, 1915.

1,238,872.

Patented Sept. 4, 1917.



Inventor:

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UNITED STATES PATENT OFFICE.

JOHN B. E. BELL, OF IOLA, COLORADO.

RADIUM-APPLICATOR.

1,238,872.

Specification of Letters Patent.

Patented Sept. 4, 1917.

Application filed June 18, 1915. Serial No. 34,834.

To all whom it may concern:

Be it known that I, JOHN B. E. BELL, a citizen of the United States, residing at Iola, in the county of Gunnison and State of Colorado, have invented certain new and useful Improvements in Radium-Applicators, of which the following is a specification.

This invention relates to apparatus to be used in connection with the application of uranium ores or any radio-active ores or minerals to therapeutical uses.

One of the objects of the invention is to produce suitable means for applying the radio-active ores or minerals to the body so that the emanations therefrom will pass into the body at such places and in such a manner as to be effective in curing diseases, relieving pains and assisting in the proper physiologic processes.

A further object of the invention is to provide means for the external application of radio-active minerals to the body so that the applications can be conveniently applied, or removed, or be worn continuously, so long as may be necessary and without inconvenience to the wearer.

A further object of the invention is to produce means for the external application of the radio-active minerals in such a manner that the waste of the emanations from the ores will be substantially eliminated, so that the full value of the minerals may be obtained.

A further object of the invention is to provide apparatus for the external application of the radio-active minerals in such a manner that the strength of the emanations or the character thereof may be conveniently controlled. A further object of the invention is to produce external applying means of such a nature that cheaper ores or minerals may be used effectively, so as to reduce very materially the expense of therapeutical uses of radio-active materials.

In general the apparatus used in carrying out my invention consists of a suitable formed garment, which may be worn next to the body or over the underclothing thereof as may be desired. The garment may contain a layer of the radio-active material or it may have pockets therein, adapted to contain the radio-active material, such pockets being located adjacent to the portion of the body where it is desired to direct the emanations. These garments are so constructed that they can be worn without any

discomfort, and radio-active ores, such as carnotite may be used even though the percentage of uranium oxid therein is low, as the continuous emanations therefrom, over considerable periods of time, will be effective without the hazard of injury to the skin or the tissues of the body or any reactions which are likely to accompany the use of more concentrated form of ores, and particularly pure radium or uranium.

In order to eliminate waste emanations from the ore contained in the garment, or the pockets thereof, it may be, or each of the pockets, or several of the pockets combined, may be lined on the outer side with bands or sheets of whale bone, steel or dense material, for example metal such as lead. When lead sheet is used not only is the garment pliable but the lead may be stitched to the garment conveniently, and it will throw back the emanations either into the ore itself or into the body, by diffused reflection, or a coating of the radio-active substance may form upon the refracting material which itself becomes radio-active and projects emanations. When desired a filter of any suitable material may be worn between the pockets and the body. The filter, however, is usually unnecessary as the strength of the ore is such that injurious reactions are not likely to occur.

The nature of the invention and the objects thereof will be more fully understood by a consideration of the accompanying drawings and the following description thereof.

Of the accompanying drawings Figure 1 is an illustration of a corset applicator which embodies the features of my invention; and Fig. 2 is a partial cross section along the line 2 of Fig. 1.

Fig. 1 is an illustration of a garment which may be similar to an ordinary corset modified to be used as a radium applicator. It is adapted to be worn around the body of a man or woman in the neighborhood of the waist line and is shaped to fit the body. It may be held in place in any ordinary manner, such as by means of the lacing, the loops 36 and the buttons 37. The body of the corset is made of some suitable material sufficiently strong to support the pockets and carry the ore without danger of tearing, the mesh of the material being fine enough to prevent leakage of the granu-

lated ore. As it is frequently desirable to carry in the pockets, radio-active material ground exceedingly fine, it is necessary to have the material for the corset of very fine mesh and I prefer chamois skin for the purpose.

Hence, in this instance I have constructed the corset of two sheets 12 and 13 of chamois skin, the sheets being suitably stitched together as indicated by the dotted lines 14, in order to produce the proper shape to the garment, and being also stitched as indicated by the dotted lines 15, in order to form suitable pockets 16 for the ore 19. The pockets may be of any desired shape and are located wherever desired. In this instance, to illustrate my invention, I have shown what may be called a corset for universal application of the ores, with pockets extending longitudinally of the body when the corset is worn, in the rear and also in front of the body.

It is to be understood that one of the purposes of the application of radium emanations to the body is in the treatment of diseases of the blood; and in such a case the usual plan is to affect large areas of the body rather than to center on one particular organ; and this is true even though the morbid condition may originate from particular organs such as the spleen, glands, or bone marrow. Such treatment is particularly provided for by the use of my corset, as it allows the introduction into the blood over larger areas and hence of large quantities of emanations and without the liability of local abnormal reactions which would follow if the same amount of emanations were introduced locally. However, it will be readily understood that, by the arrangement of the pockets, even though large areas are covered, certain areas may be favored; or if desired the spleen area for instance, may be favored at one time and other areas at other times, by modifications in the pockets or the ore contained therein. And the corset may be removed at times and replaced whenever a need appears. In case of some disease such as pernicious anemia the proper strength of ore may be determined upon and the corset may be worn permanently; or the strength may be regulated so that the corset may be worn either during the night time only or during the day time only, as may be desired.

In order to increase the effect and to prevent waste of emanations lead sheets 17 may be attached in any suitable manner, such as by stitching, to the outer surface of the corset, each sheet covering one or more pockets as may be desired. By the use of such sheets as is well understood, the emanations striking thereon are thrown backward by diffused re-

flection, or radio-active surfaces are formed on the surface of the sheets which also project emanations backward into the body.

When desired, filters 18 may be placed between the ore and the body. These filters may be of any suitable material, for example they may consist of thin sheets of lead. By the use of these filters the Alpha rays may be eliminated, or other results may be produced. It will also be understood that by the use of more or less underclothing between the corset and the body air spaces therebetween are formed which act as filters of the rays in general in the same way as the ordinary filter acts. In case of the use of this corset however, the ores used are not necessarily of such strength as is the case with glass and other applicators where radium salts such as bromid of radium are used, although I do not limit myself to use weak emanations only.

Otherwise the corset may be constructed similarly to ordinary corsets, suitable material such as whale bones 24 giving stiffness, suitable binding 25 being sewed to the edges, the two halves being fastened together in any suitable manner, such as by means of the binding 26; and loops 36 and buttons 37 providing means for fastening and unfastening the corset without disturbing the lacing 10.

The ore 19 which I prefer is ordinarily called carnotite, which is a uranium ore containing a small percentage of uranium oxid the formula of which is U_3O_8 . However, various ores and minerals may be used for the purpose, and I wish it understood that my invention is not limited to any particular ores or minerals, or to ores containing any particular percentage of uranium oxid or other radio-active substances, or to any of the extracted or concentrated forms of radio-active material.

I claim as my invention:

A medicinal applicator comprising a fabric adapted to be placed on the body, said fabric having pockets formed therein spaced a material distance apart, radium-bearing mineral being contained in said pockets, and a sheet of lead 17 attached to said fabric and extending from one pocket to the other on the outer side of said fabric and of said mineral, whereby emanations pass from said mineral to said lead and diffused emanations pass from said lead into the body.

In testimony whereof, I have hereunto set my hand in the presence of two witnesses.

JOHN B. E. BELL.

In the presence of—
ROY S. LOBDELL,
E. O. WILLSON.