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MASSAGE APPARATUS

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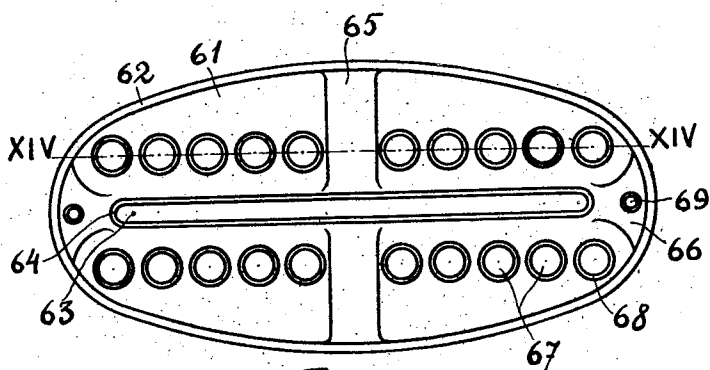


Fig. 1

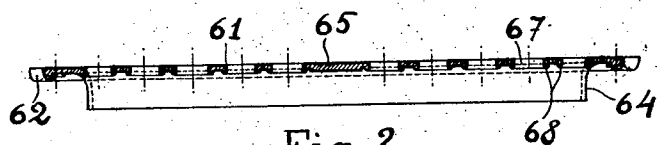


Fig. 2

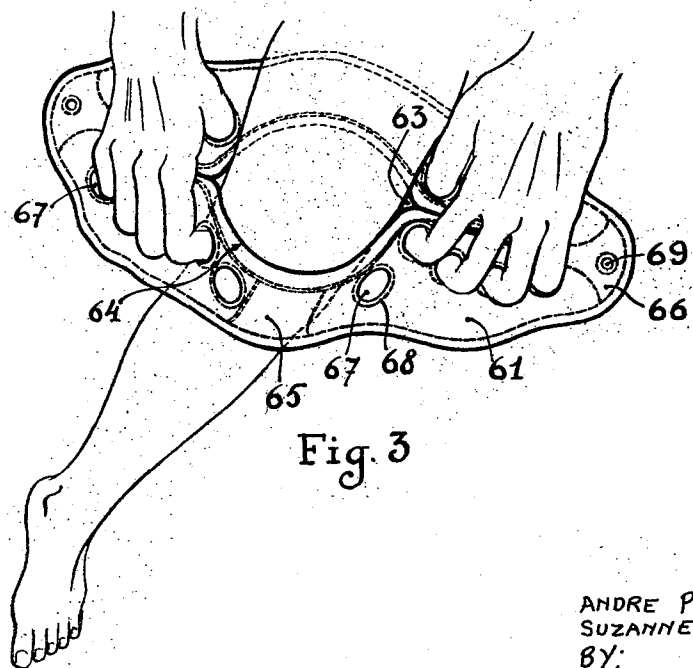


Fig. 3

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1

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MASSAGE APPARATUS

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4 Claims. (Cl. 128—60)

The present specification is a continuation in part of my copending specification Ser. No. 302,784, filed on August 5, 1952, now abandoned.

My invention has for its object a method and means for the continuous massaging of parts of a human body considered as a physical object on which the method is performed. The method applied is purely mechanical and produces a beneficent action on the body in the case chiefly of diseases such as cellulitis, varices and also ailments due to sprains, fractures, muscular strains or lacerations as may be produced by a violent exercise or an abnormal physical state.

According to my invention I produce a continuous compression over a limited impact area surrounding uninterruptedly a limb, the pelvis, the abdomen or the like part of the patient's body and then I shift said compressed area steadily and gradually towards the lungs and the heart; the compression is then released and the operation is repeated so as to compress in register with a selected portion of the patient's body an area continuously surrounding said portion over a limited length, said area submitted to a compression of predetermined intensity being gradually shifted inwardly towards the lungs and the heart. This operation which is repeated as many times as may be required has for its object to remove the waste material accumulating in the connective tissue and to activate the return of blood through the veins without risking at any moment a detrimental action on the arterial flow.

The apparatus provided for the execution of said method includes generally an elastic diaphragm defining a passage-way the edges of which are adapted to intimately engage the part of the body to be treated, said diaphragm being submitted to a reciprocatory translational movement over said part of the body. Means are furthermore provided so as to allow during each actually operative step of the treatment a gradual expansion of the diaphragm opening and to hold then during the release step said opening expanded while the apparatus is being shifted away from its foremost operative position, the opening being finally released so as to return to its contracted shape prior to a further operative step.

At the present moment instruments are known that provide for a massaging of the body and the roughest of which consists of a mere rotary rubber cylinder, while further instruments that are improved with reference thereto, include an association of several interconnected balls or the like elements similar to one another and lying along the sides of a closed line with gaps therebetween; it is immediately apparent that if the former simple instruments are capable of acting only in a local manner on a narrow contact area, the second, compound instruments cannot match exactly and continuously the curvilinear outline of the treated area, as they are of necessity spaced therefrom at the connecting points between the elementary instruments, whereby gaps are provided in the encompassing line, which gaps are sufficient for cutting out to a large extent the desired flesh-propelling action.

2

In accompanying drawing, I have illustrated an embodiment selected by way of example and by no means in a limiting sense. In said drawing:

Figs. 1, 2 and 3 are a plan view, a cross-sectional view through line XIV—XIV of Fig. 1, and a perspective view in its operative position of an embodiment of the present invention.

The embodiment illustrated in Figs. 1 to 3 is of an easily portable type and it has for its advantage an increased possibility of folding, so as to obtain a lesser bulk when inoperative and, furthermore, a substantial reduction in its cost price as provided by cutting out unnecessary framework, the hand of the operator controlling directly the expansion and contraction of the diaphragm opening.

As shown in Figs. 1 to 3, the arrangement includes a single diaphragm obtained very simply by the molding of a suitable grade of rubber or the like yielding and elastic plastic material.

Said diaphragm appears as a normally flat sheet 61 the oval peripheral outline of which is provided with a thicker bead 62 while it is slotted longitudinally, as shown at 63, throughout a large fraction of its length without said slots reaching the outer edge of the sheet.

A skirt 64 forms a downwardly directed extension of the edge of said slot 63, the wall of said skirt lying naturally in a surface orthogonal with reference to the plane of the sheet. Said skirt 64 constitutes the actual constricting member adapted to enclose the portion of the body to be treated. The sheet of rubber or the like material forming the diaphragm is reinforced by a medial transverse strip 65 and by terminal guards 66 forming reliefs on the sheet 61 and merging into the skirt 64; furthermore, two series of finger-engageable openings 67 extend through the diaphragm sheet and are preferably edged by annular beads 68. Finally, two eyelets 69 are formed in the ends of the sheet, wherethrough the latter may be readily hung on a suspension hook, if required.

Fig. 3 shows how the novel diaphragm may be used in practice for the treatment of a patient's leg; the operator engages his fingers through the surface of the diaphragm opposed to the skirt 64 into those openings 67 which are the most convenient, and he inserts the patient's foot through the opening 63, after which, as soon as the ailing part of the leg, for instance the ankle, has been reached, the operator draws in the diaphragm through action of both hands so that the terminal edges of the skirt 64 are constrained to fit tightly over the legs. At the same time, the operator (who may be the patient himself) exerts on the diaphragm a tractional stress which urges it upwardly towards the upper end of the thigh, the movement being a continuous translational movement.

As soon as the leg-enclosing lips of the skirt 64 have reached the inner end of the ailing area, the operator holds the diaphragm in its expanded position, while shifting it back into register with the ankle and consequently, the stressing action to which the leg has been precedingly submitted, is transiently released; the operator then releases the diaphragm so that the skirt returns into its original, substantially flat shape. The operative steps of the compressional diaphragm-removing and releasing cycle are repeated as often as may be required, the compression alternating with the neutral returning step in a manner similar to that which has just been disclosed.

Mere examination of the drawing shows how the multiplicity and the rational distribution of the finger-engageable openings provide a possibility for the immediate adjustment with the desired accuracy of the degree of opening of the compression-exerting skirt, in accordance with the natural peripheral size, variable from one patient to another, of the part of the body which is to be submitted to treatment.

Furthermore, I may execute the arrangement disclosed in various types assuming different sizes adapted respectively to be fitted over the limbs of a patient or over the hips and the abdominal part of his body; I may also produce the diaphragm as a single type for universal use, the size and elasticity of such a diaphragm being sufficient for it to satisfy indifferently all cases of application.

Obviously, the yielding diaphragm is designed and executed and in particular the diameters of the passages provided for the patient's limb or the like are selected as desired, in accordance with any predetermined application.

From a practical standpoint, care should be taken so as to reduce or to cut out the action of friction that might lead to an irritation of the patient's skin and to this end, it is of advantage to coat said skin with a soft cream or lubricant constituted for instance by a soap of suitable grade that is devoid of any product capable of attacking the diaphragm.

Generally speaking the preceding description is by no means restricted as relates not only to the number, shape and size of the different component parts of my improved arrangement but also to the nature of the material used therefor and the manner of executing it, all said modifications falling within the scope of the invention as defined in accompanying claims.

The following claims are intended to cover broadly the means defined hereinabove and more specifically the arrangement disclosed in Figs. 1 to 3.

What I claim is:

1. An instrument for mechanically treating circulatory troubles in a part of a patient's body, comprising a yielding elastic diaphragm provided with a central opening and including a depending annular flange surrounding said opening, adapted to be fitted elastically over said part without any gap between the cooperating peripheries of said flange and of said part and to be expanded with reference to its normal retracted position by said part as the latter engages gradually and to an increasing extent the opening in the diaphragm, said diaphragm being provided with a plurality of finger-engageable auxiliary openings at variable distances from the center of the diaphragm, wherethrough the fingers of an operator are adapted to retain the diaphragm flange in any predetermined degree of expansion, the release of the action on said auxiliary openings providing for the return of the flange into its original retracted position.

2. An instrument for mechanically treating circulatory troubles in a part of a patient's body, constituted by an elastic substantially elliptical diaphragm provided with a longitudinal opening extending along the major axis of the diaphragm and a depending annular elastic continuous skirt rigid with the diaphragm extending along the edge of the longitudinal opening to form an extension of said diaphragm in a direction perpendicular to its surface, said skirt being adapted to be fitted over the part of the patient's body to be treated for engagement with the

periphery of said part in a perfectly continuous manner and to expand when shifted over the gradually increasing periphery of the said part, and several series of finger-engageable parts formed on said diaphragm to either side of and in parallelism with the longitudinal opening thereon and the engagement of which by the operator's fingers allows holding the longitudinal opening in its expanded position as long as desired.

3. An instrument for mechanically treating circulatory troubles in a part of a patient's body, constituted by an elastic substantially elliptical diaphragm provided with a longitudinal opening extending along the major axis of the diaphragm and a depending annular elastic continuous skirt rigid with the diaphragm extending along the edge of the longitudinal opening to form an extension of said diaphragm in a direction perpendicular to its surface, said skirt being adapted to be fitted over the part of the patient's body to be treated for engagement with the periphery of said part in a perfectly continuous manner and to expand when shifted over the gradually increasing periphery of the said part, several series of finger-engageable parts formed on said diaphragm to either side of and in parallelism with the longitudinal opening thereon and the engagement of which by the operator's fingers allows holding the longitudinal opening in its expanded position as long as desired and stiffening means for the diaphragm along the edge thereof and across same.

4. An instrument for mechanically treating circulatory troubles in a part of a patient's body, constituted by an elastic substantially elliptical diaphragm provided with a longitudinal opening extending along the major axis of the diaphragm and a depending annular elastic continuous skirt rigid with the diaphragm extending along the edge of the longitudinal opening to form an extension of said diaphragm in a direction perpendicular to its surface, said skirt being adapted to be fitted over the part of the patient's body to be treated for engagement with the periphery of said part in a perfectly continuous manner and to expand when shifted over the gradually increasing periphery of the said part and several series of finger-engageable openings extending through said diaphragm to either side of and in parallelism with the longitudinal opening thereon and the engagement of which by the operator's fingers allows holding the longitudinal opening in its expanded position as long as desired.

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