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 [33] **Austria**  
 [31] **A5185/68**

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[54] **INFLATABLE RAPIDLY APPLICABLE BANDAGE OR THE LIKE**  
 3 Claims, 2 Drawing Figs.

[52] U.S. Cl..... **128/87 R,**  
**128/DIG 20**  
 [51] Int. Cl..... **A61f 5/04**  
 [50] Field of Search..... **128/87,**  
**89, 90; INFLATABLE DIGEST 20**

**ABSTRACT:** There is disclosed an inflatable rapidly applicable bandage or the like for splinting arms and legs which incorporates an even number, but at least four hose-like compartments. These hose-like compartments extend in the direction of the limb or body to be splinted. According to the invention there is provided means for the pressure equalization of each two oppositely situated compartments.

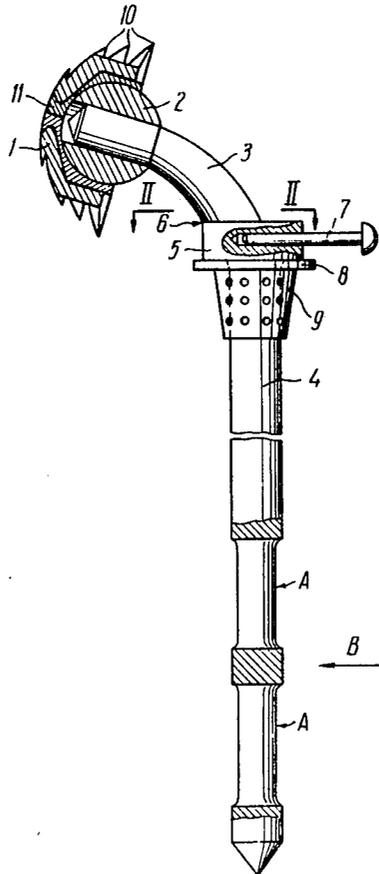


Fig. 1

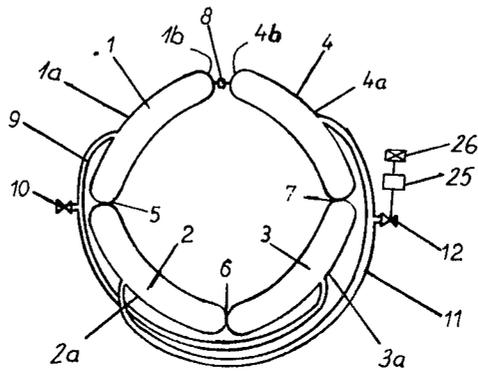
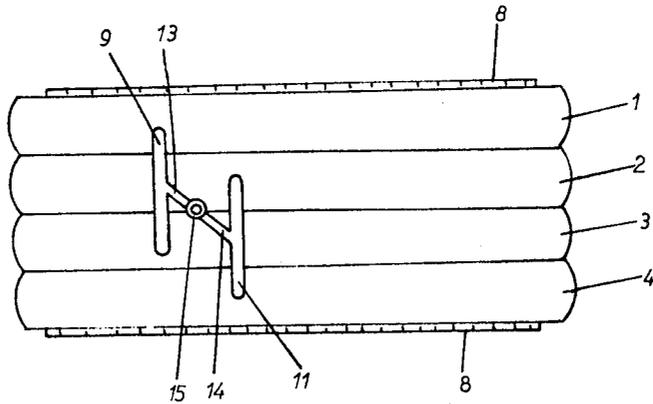


Fig. 2



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## INFLATABLE RAPIDLY APPLICABLE BANDAGE OR THE LIKE

### BACKGROUND OF THE INVENTION

The present invention relates to a new and improved inflatable rapidly applicable bandage or surgical dressing for splinting arms and legs which is of the type consisting of an even number, yet at least four, double-walled hose-like compartments extending in the direction of the limb or body to be splinted.

Inflatable quickly applicable bandages or surgical dressings which likewise consist of a number of expansible or inflatable double-walled hose-like compartments are already known to the art. These individual lengthwise extending air cushions communicate with one another, therefore can be inflated by the action of a single valve unit. However, this type of construction possesses the disadvantage that even when only one wall portion of such a lengthwise extending air cushion becomes unsealed, then the air escapes from all these air cushions. Consequently, the entire dressing or bandage collapses so that the treated member or limb loses its support. In the case of broken bones, this can result in undesired shifting of the set bones and the re-occurrence of pain at the affected area or wound.

### SUMMARY OF THE INVENTION

Accordingly, it is a primary objective of the present invention to provide an improved inflatable or expansible bandage or surgical dressing of the mentioned type which effectively overcomes the aforementioned drawbacks of the prior art constructions.

Another, more specific object of the present invention relates to the provision of an improved inflatable bandage or the like which (a) can be produced relatively inexpensively, (b) is extremely reliable and safe to use, and (c) especially wherein the danger that damage to a wall of one of the compartments of the bandage will cause complete collapse thereof is effectively prevented.

Now, in order to implement these and still further objects of the invention, and specifically, to overcome the aforementioned drawbacks of the prior art constructions, the inventive inflatable bandage or surgical dressing will be seen to comprise at least four inflatable compartments. In each instance, only two oppositely situated compartments are in pressure equilibrium with one another. This pressure equalization is achieved, for instance, in that the aforesaid opposed compartments are connected with one another by a hose member or equivalent structure. Therefore, if air escapes because of damage to the wall of one pair of communicating compartments, then the second intact pair of compartments will still insure for the correct set position of the injured member or limb until the damage to the wall of the non-functioning pair of compartments has been repaired by conventional techniques, for instance, by adhesively bonding or patching the air-permeable wall location.

According to a further aspect of the invention, an air infeed- and discharge mechanism and, if desired, a pressure measuring device and/or an overpressure valve can be provided at the hose member interconnecting both of the oppositely situated compartments.

However, it is also possible, according to the invention, to operatively connect the two hose members which communicate the respective oppositely situated compartments with one another, via further connecting hoses with a common air infeed- and discharge mechanism, whereby when the latter is closed, these connecting hoses are shut off from one another.

### BRIEF DESCRIPTION OF THE DRAWING

The invention will be better understood, and objects other than those set forth above, will become apparent, when

consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawing wherein:

FIG. 1 is a sectional view through a preferred embodiment of inventive inflatable rapidly applicable bandage or the like; and

FIG. 2 schematically illustrates a modified form of inventive inflatable bandage, showing details of the arrangement and connection of a common air infeed- and discharge mechanism.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Describing now the drawing, the exemplary embodiment of quickly applicable inflatable bandage or surgical dressing depicted in detail in FIG. 1 will be seen to consist of four elongated compartments 1, 2, 3, and 4. The central region 1a, 2a, 3a and 4a of each of these compartments 1, 2, 3 and 4, respectively, extending in the direction of the lengthwise axis thereof will be seen to be slightly domed or arched towards the outside. Furthermore, compartments 1, 2, 3, and 4 are rigidly connected with one another at their lengthwise sides 5, 6, and 7, as shown. The oppositely situated lengthwise sides 1b and 4b of the compartments 1 and 4, respectively, are equipped with a suitable detachable connection device 8. This detachable connection device 8 advantageously may be a zipper, a button fastener, a snap-fastener arrangement, a lacing arrangement or the like.

Continuing, it will be recognized that the compartments 1 and 3 are connected with one another by means of a hose member 9. Hose member 9 is provided with suitable air infeed- and discharge mechanism 10. In analogous manner, the compartments 2 and 4 are also interconnected by means of a hose member 11, likewise equipped with a suitable air infeed- and discharge mechanism 12. These mechanisms 10 and 12 can be, for instance, constructed in the form of conventional three-way valves or cocks. Moreover, if desired it would be possible to additionally provide for each air infeed- and discharge mechanism 10 and 12, or even for a common air infeed- and discharge mechanism, as will be described below, a conventional pressure measuring device 25 and/or overpressure valve 26, as such have been schematically shown in operable association with mechanism 12 of FIG. 1, for instance.

It will be expressly understood that the heretofore described inventive bandage or dressing is not limited in its use to only four compartments; there can be used six, eight, or even more compartments. However, when using a larger number of air compartments the inflation of the individual pairs of compartments can be very cumbersome. It is advantageous, in accordance with the invention, to connect the individual hose members with a common air-infeed and discharge mechanism through the agency of suitable connection hoses, whereby these connection hoses are then shut off from one another upon closing such mechanism. Such an arrangement has been schematically depicted in FIG. 2 where the hose member 9 for the compartments 1 and 3 and the hose member 11 for the compartments 2 and 4 are operatively coupled via connection hoses 13 and 14, respectively, with a common air infeed- and discharge mechanism 15.

Quite clearly then, it should be recognized that the arrangement of an even number of at least four inflatable hose-like compartments disposed adjacent one another to define a hollow bandage which surrounds the area of the limb or member to be splinted or supported, and wherein these hose-like compartments disposed adjacent one another to positively situated pairs, affords a very reliable bandage construction for positively splinting or supporting the afflicted area of the body to which it is applied. Moreover, the arrangement of cooperating pairs of such hose-like compartments which furthermore are in pressure equalization with one

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another ensures that proper support of the limb exists at opposite sides, and even if one pair of such compartments becomes defective the remaining pair or pairs will at least provide sufficient support until the defective compartments can be repaired.

It should be apparent from the foregoing detailed description that the objects set forth at the outset to the specification have been successfully achieved.

I claim:

1. An inflatable rapidly applicable bandage for splinting arms and legs, comprising an even number of at least four inflatable hose-like compartments arranged adjacent one another to define a hollow bandage structure capable of surrounding the area of the member to be splinted, said hose-like compartments being disposed in cooperating oppositely situated pairs, means for concurrently placing in pressure equalization each two oppositely situated compartments of each pair with one another and totally independently of the pressure conditions prevailing in the other hose-like compartments, and for maintaining the compartments of each pair in pressure equalization independent of the other compartments, said pressure equalization means incorporating a respective hose member for each two oppositely situated compartments, and air infeed- and discharge means provided for said hose members.

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2. An inflatable rapidly applicable bandage as defined in claim 1, wherein said air infeed- and discharge means comprises a common air infeed- and discharge mechanism for all of said compartments, and a respective connection hose connecting said respective hose member of each two compartments with said common air infeed- and discharge mechanism, so that upon closing the latter, said connection hoses are sealed with regard to one another.

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3. An inflatable rapidly applicable bandage for splinting arms and legs, comprising an even number of at least four inflatable hose-like compartments arranged adjacent one another to define a hollow bandage structure capable of surrounding the area of the member to be splinted, said hose-like compartments being disposed in cooperating oppositely situated pairs, means for placing in pressure equalization only each two oppositely situated compartments with one another and totally independent of the pressure conditions prevailing in the remaining hose-like compartments, said pressure equalization means incorporating a respective hose member of each two oppositely situated compartments, and air infeed- and discharge means provided for said hose members, said air infeed- and discharge means comprising an individual air infeed- and discharge mechanism for each hose member interconnecting said two oppositely situated compartments.

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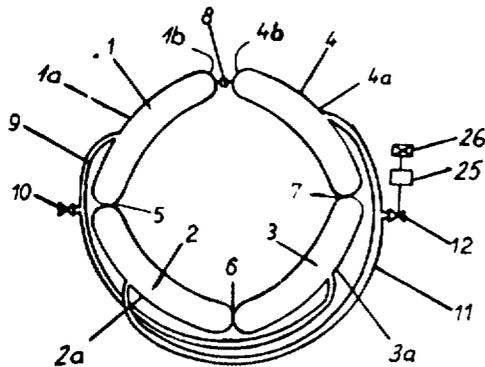
UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,610,235 Dated October 5, 1971

Inventor(s) Hannes Vagacs

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

The figure on page 1 of the patent has nothing to do with the patented invention and is not part of the actual Patent. It should be removed, and the figure shown below inserted instead.



Signed and sealed this 10th day of October 1972.

(SEAL)

Attest:

EDWARD M. FLETCHER, JR.  
Attesting Officer

ROBERT GOTTSCHALK  
Commissioner of Patents