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⑦① Applicant: **Bet, Enzo Alessandro**
N. 10/A Via Manfrin
I-33078 S. Vito Al Tagliamento Pordenone(IT)

⑦② Inventor: **Bet, Enzo Alessandro**
N. 10/A Via Manfrin
I-33078 S. Vito Al Tagliamento Pordenone(IT)

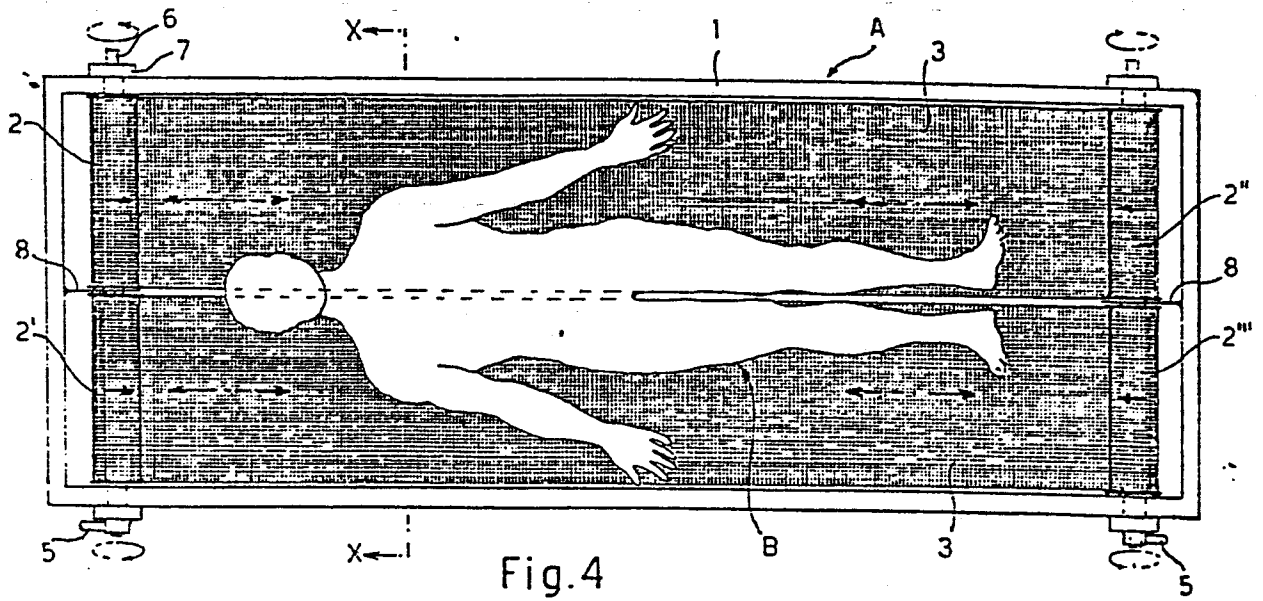
⑦④ Representative: **D'Agostini, Giovanni, Dr.**
n. 17 via G.Giusti
I-33100 Udine(IT)

⑤④ **Stretcher for lifting injured people without need of moving them.**

⑤⑦ A stretcher for lifting injured people without need of moving them (A) comprising a frame (1) supporting four rollers (2), (2'), (2''), (2'''), rotating independently, two by two in axis between them, and two by two opposed, and connected respectively by a sheet (3), wherein said two sheets (3) of the stretcher (A) are paired, and when stretched parallel between them, and when loosened and inserted under the body of an injured person (B) are stretched and locked thus permitting the injured person to be lifted and carried without being moved. The action of loosening, in neutral, of stretching and locking in said position of said sheets (3) is carried out by means of lever or jack crank (5), inserted on the pin (6) of a box containing suitable gears (7), for controlling each winding roller respectively,

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Stretcher for lifting injured people without need of moving them

The present invention relates to a stretcher for lifting injured people without need of moving them.

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The invention is particularly suitable for use in lifting people injured in road accidents, while working and in several other occasions where people, suffering from traumas, cannot be moved without danger and/or risk of making their lesions worse or even
10 of jeopardizing their life; the stretcher is further suitable for use also in nursing-homes and hospitals where the same need occurs, in particular for moving people having undergone an operation and carrying them from the operating-room to their beds and/or vice versa.

15

At the present state of the art the only known means for moving or shifting injured people are the conventional ones, such as the usual stretchers generally used also outside or very complicated lifting implements used in hospitals, e.g. the lifting small
20 cranes used in operating-rooms.

The disadvantages of these currently-used known embodiments consist essentially in that for lifting and moving the person suffering from trauma, the latter must be lifted from where he/she
25 lies and placed on one of said positioning and transporting means, with handling by the helpers. This inevitable handling involves movements of the body of the injured person and, consequently, of his/her external and internal organs, with danger and risk for the lesioned ones.

The object of the present invention is to obviate the above-mentioned disadvantages and particularly to provide a stretcher consisting of a frame within which two sheets are arranged, paired and parallel in longitudinal direction which wind when stretched
5 or unwind when loosened, respectively round two opposite winding rollers fixed on the same frame. At the respective ends of the stretcher said opposite rollers are in axis between them. Stretching or loosening of the respective sheets on the two opposite ends can be carried out by means of gears for draft
10 working in lock or in neutral, said gears being placed in four boxes each connected with the respective roller. Drive of said gears will be preferably carried out by means of suitable leverage or cranks, for example jack type cranks.

15 Use of the stretcher is as follows:

1. the stretcher, with the sheet winding rollers in neutral and the sheets loosened and widened enough to let the body pass within the frame of the stretcher, is placed so that the frame surrounds the injured person;
- 20 2. rotating slightly on one side the body of the injured person in longitudinal direction, one of the stretcher sheet is inserted as far as the center axis of the body, said operation can be performed even without rotating the body but simply slipping the hands with the respective sheet length under the body to the half
25 thereof;
3. said operation is then repeated at the other side with the other sheet;
4. after these operations, the body of the injured person lies on the two sheets loosened aligned between them. Now, acting with the

jack lever on the respective gear boxes connected with the respective rollers, the two sheets are stretched until maximum stretch in order to reach a uniform, almost horizontal plane for supporting the body; the stretcher with the body thereon can then
5 be lifted without any damage for the injured person, who is thus carried with minimum risk.

The advantages offered by this invention are essentially that the body of the injured person is not subjected to handling which may
10 cause further dangerous traumas, except for the two slight movements of partial rotation of the body, or even without these movements if a little care is taken.

The invention will be now described in more detail with reference
15 to the accompanying drawings which illustrate some preferred embodiments, in which:

Figure 1 is a side view of the stretcher frame; Figure 2 is a plan view of the stretcher frame of Figure 1; Figure 3 is a side view of the stretcher with an injured person settled
20 thereon; Figure 4 is a plan view of the stretcher of Figure 3 with an injured person settled thereon; Figure 5 shows in section X-X the injured person of Figure 3 on the supporting plane; Figure 6 shows, still in section X-X, the injured person of Figure 5 inserted within the stretcher, with the two sheets prearranged for
25 slipping under the body; Figure 7 shows the injured person of Figure 6 in the first partial rotation, with the first sheet slipping under the body; Figure 8 shows the injured person of Figure 7 in the second partial contrary rotation, with the second sheet slipping under the body; Figure 9 shows the injured person

of Figure 6 settled on the two sheets inserted under the body.

As shown in the above-mentioned figures, the invention consists in a stretcher (A) for holding and carrying an injured body (B),
5 said stretcher (A) consisting of a frame 1, supporting four winding rollers two by two in axis between them, 2 with 2', and 2" with 2"' respectively, connected two by two between them and precisely 2 with 2", and 2' with 2"' by a respective sheet 3.

10 Each of the two respective sheets 3 is fixed at both the edges, respectively in the groove 4 of the opposite rollers and is wound round each of them at one side and/or the other independently, until stretching and lock, or loosened in neutral by means of a lever or jack crank 5, working, for instance, by ratchet gear or
15 free wheel, wherein said lever or crank is extractable or not, applicable to the pin 6, operating the relevant gears which allow said actions. Said gears (four units) are placed in a box 7, fixed and connected in axis with each of the four rollers. The winding rollers in axis are kept aligned between them by an arm 8, while
20 independence of rotation is ensured by the guide pin 9. The stretcher is further provided with four small feet 10, for resting on the supporting plane PA; but obviously said feet can be replaced with other means for different uses.

25 The embodiments shown in the figures illustrate use of only two sheets 3, but it is obvious that alternatively a third sheet can be provided extractable in unwinding from one head end of the frame, from under said two sheets, in known manner, for being hooked on the other opposite end and successively stretched. This

embodiment is particularly useful for reinforcing the two upper sheets of the stretcher when the injured person has to be carried far away by hand, thus increasing safety against accidental loosening of one of the two upper sheets. Obviously stretching of the lower sheet can be carried out only when the injured person has been lifted, not involving any longer any risk of moving the body already supported by the two upper sheets.

Of course, changes and modifications can be made without departing from the spirit or scope of the invention as defined in the appended claims.

Udine, October 16, 1984.

p. Enzo Alessandro BET
The Representative
Dr. Giovanni D'AGOSTINI

Claims:

1. Stretcher for lifting injured people without need of moving them, being said stretcher of the type consisting of a frame with
5 sheet, characterised in that said frame (1) supports at least two longitudinal sheets (3) which can be stretched within said frame, said sheets being paired in alignment, parallel and coplanar with the two inner edges adjacent one near the other placed also in longitudinal direction practically in median position, said sheets
10 can be loosened and stretched at least at one of the respective ends.

2. A stretcher as claimed in claim 1, characterised in that stretching and loosening of each sheet (3) is carried out by means
15 of two independently rotatable opposite rollers, supported by the frame (1), working or in neutral, e.g. (2-2"), to which the sheet edges are respectively fixed.

3. A stretcher as claimed in claims 1 and 2, characterised in that
20 the end edges of the sheet are fixed in a suitable groove (4) of the respective rollers.

4. A stretcher as claimed in claims 1 and 2, characterised in that action in neutral, for loosening, of stretching and locking in
25 stretching position of the sheet (3), is carried out by means of suitable gears and/or clutch placed in a box (7) and connected with each single roller and operated independently, by a jack lever (5) extractable or not, applicable to the pin (6) of the respective roller.

5. A stretcher as claimed in the preceding claims, said stretcher being provided with four independently rotatable winding rollers (2), (2'), (2''), (2''') supported by the frame (1), opposite two by two respectively, and two by two in axis between them and kept
5 aligned by means of an arm (8) fixed on a pin (9) of said frame (1).

6. A stretcher as claimed in the preceding claims, said stretcher being provided with resting feet (10).

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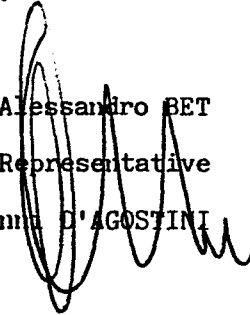
7. A stretcher as claimed in the preceding claims, characterised in that stretching of the sheets (3) is carried out operating one or more roller at a time.

15 8. A stretcher as claimed in the preceding claims, wherein a third extractable sheet is provided under said two sheets (3), said third sheet being hooked and stretched independently.

Udine, October 16, 1984.

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p. Enzo Alessandro BET
The Representative
Dr. Giovanni D'AGOSTINI



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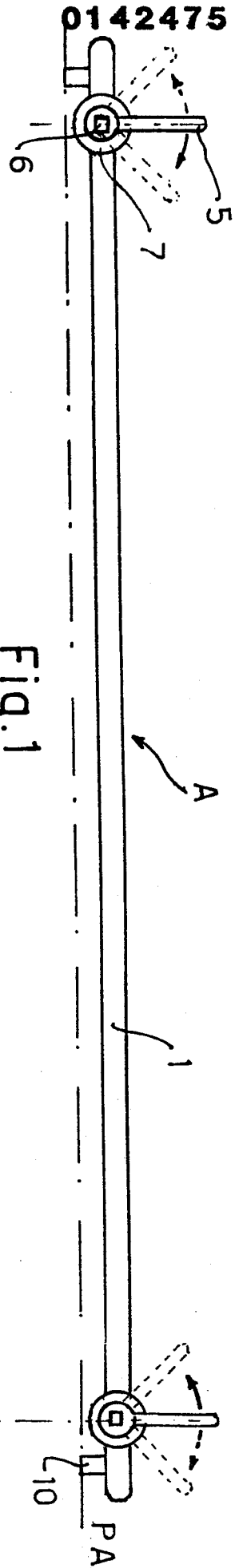


Fig. 1

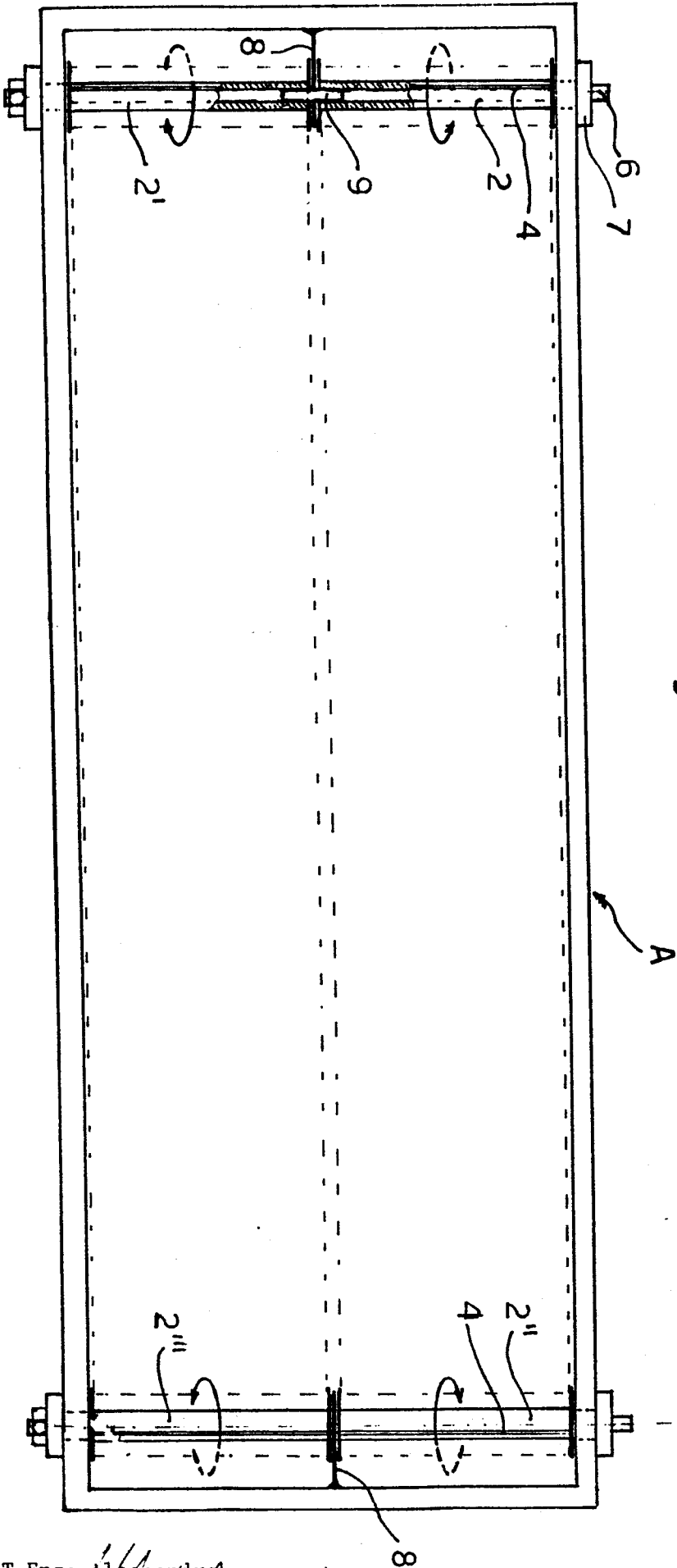


Fig. 2

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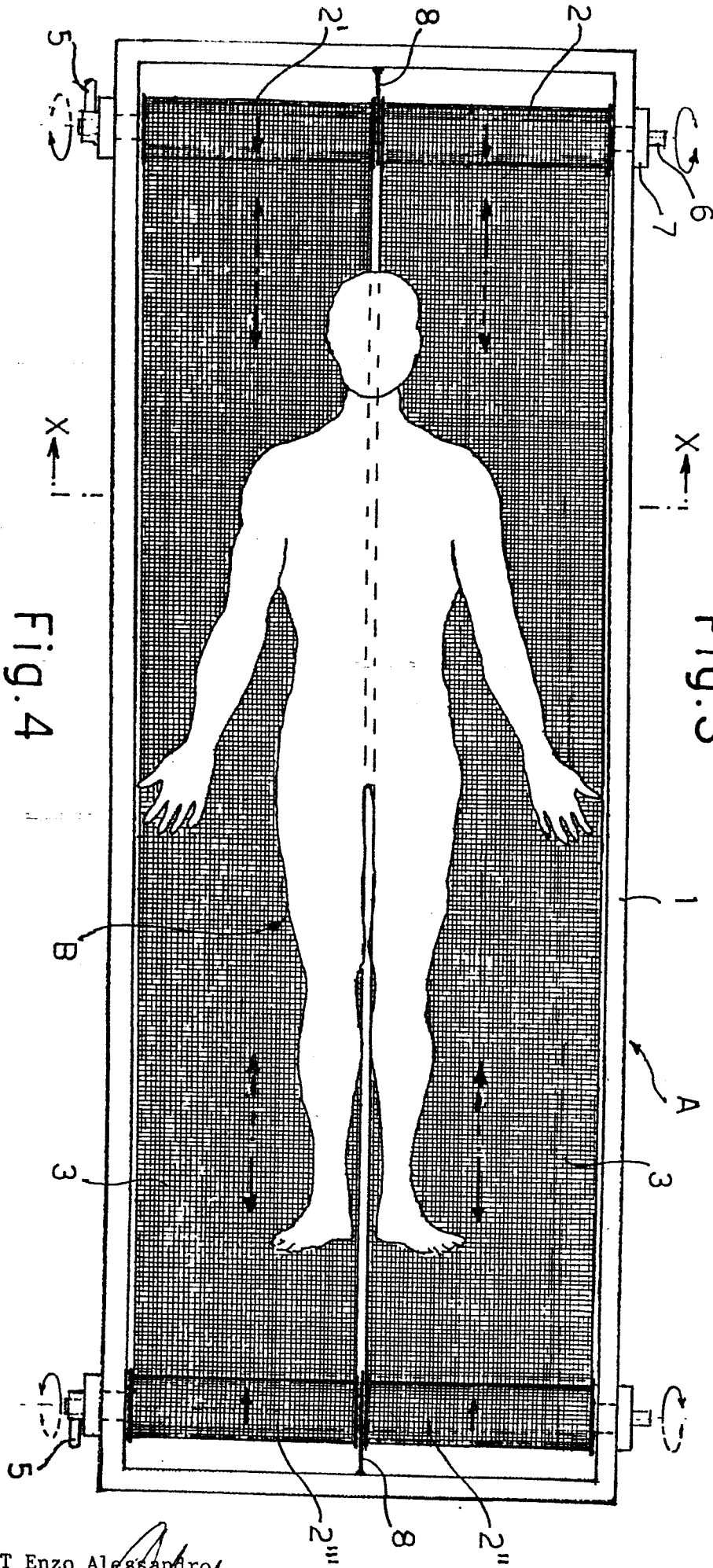


Fig. 3

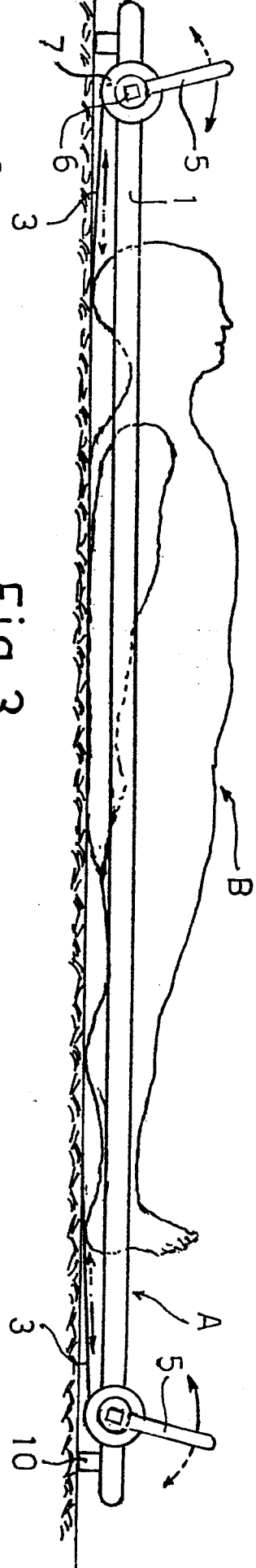


Fig. 4

p.BET Enzo Alessandro
The Representative: Dr. D'Agostini Giovanni

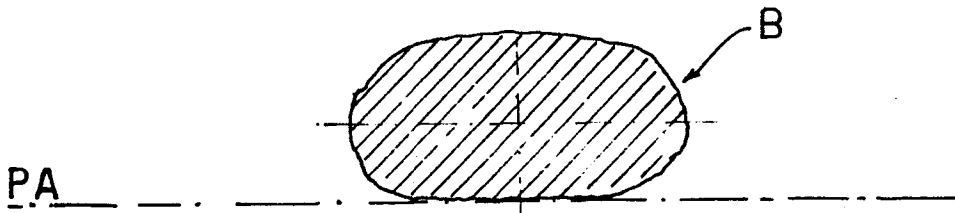


Fig. 5

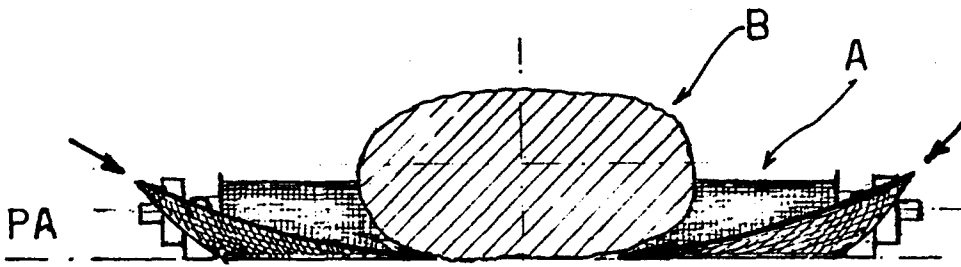


Fig. 6

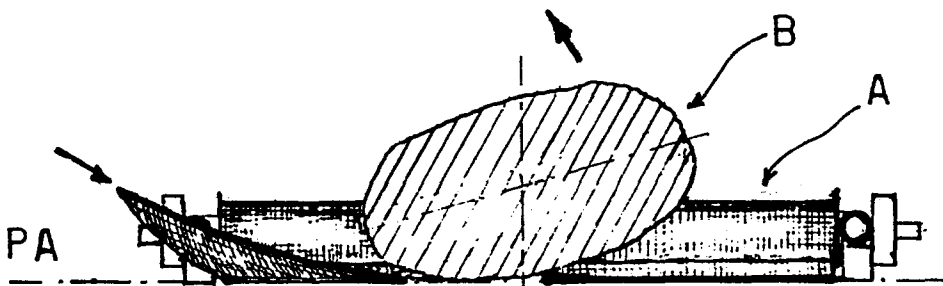


Fig. 7

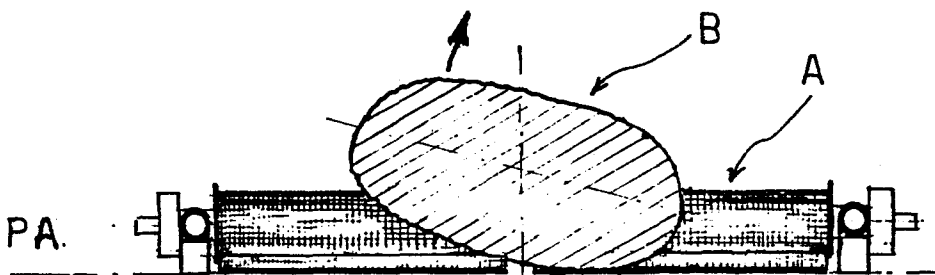


Fig. 8

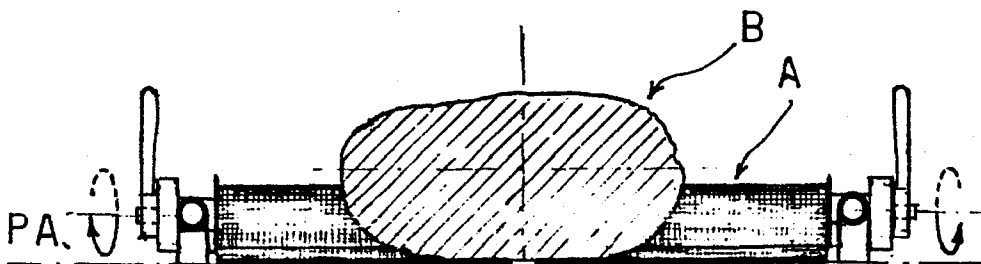


Fig. 9