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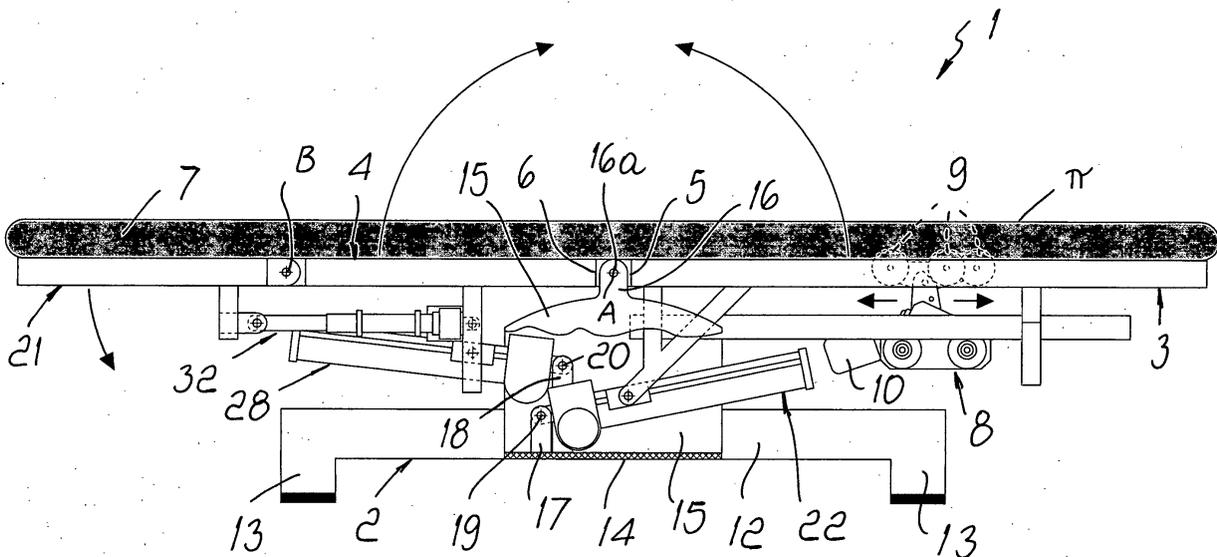
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(54) **Massaging bed with variable configuration**

(57) A massaging bed with variable configuration, comprising a footing (2) to which the ends of a first frame (3) and of a second frame (4) are articulated in an upper region along parallel transverse axes, the first frame (3) forming a massage surface (II) that is associated, in a lower region, with a massaging device (8) that can perform a reciprocating motion, the second frame (4) being

adjacent to the first frame (3), a first actuator (22) and a second actuator (28) being provided respectively between the first and second frames (3, 4) and the footing (2), the actuators being suitable to orientate the frames (3, 4) with respect to the footing (2) so as to selectively position said surface (II) in preset configurations for massaging the trunk or the legs.

FIG. 1



## Description

**[0001]** The present invention relates to a massaging bed with variable configuration.

**[0002]** Beds for physiotherapy, rehabilitation or sports applications that allow to massage automatically various parts of the body in the most disparate manners and according to the most disparate techniques are known. These beds are generally provided with computerized control units capable of easily varying the operating configuration and of setting the massage programs according to the user's requirements.

**[0003]** Beds of this kind usually require the fitting of a plurality of massaging devices, for example of the type with rollers or wheels that perform an alternating translational motion, located in different positions in order to be able to act on the various parts of the body (typically the trunk and the legs): accordingly, the beds are rather heavy and bulky as well as complicated and expensive to manufacture.

**[0004]** Moreover, currently commercially available beds have limited possibilities of adjusting their operating configuration and do not allow to take the stress caused by body weight off the regions affected by the massage.

**[0005]** The aim of the present invention is to provide a bed that by using a single massaging device allows to massage both the trunk and the lower limbs in a correct position.

**[0006]** Within this aim, an object of the present invention is to provide a bed that allows to take body weight off the parts affected by the massage.

**[0007]** Another object of the present invention is to provide a bed that is simple, relatively easy to provide in practice, safe in use, effective in operation, and has a relatively low cost.

**[0008]** This aim and these and other objects that will become better apparent hereinafter are achieved by the present massaging bed with variable configuration, characterized in that it comprises a footing to which the ends of a first frame and of a second frame are articulated in an upper region along parallel transverse axes, said first frame forming a massage surface that is associated, in a lower region, with a massaging device that can perform a reciprocating motion, said second frame being adjacent to said first frame, a first actuator and a second actuator being provided respectively between said first and second frames and said footing, said actuators being suitable to orientate said frames with respect to said footing so as to selectively position said surface in preset configurations for massaging the trunk or the legs.

**[0009]** Further characteristics and advantages will become better apparent from the detailed description of preferred but not exclusive embodiments of a massaging bed with variable configuration according to the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a partially sectional side elevation view of the massaging bed according to the invention, in a first functional configuration with the frames aligned horizontally;

Figure 2 is a bottom view of said bed in said first configuration for use;

Figure 3 is a partially sectional side elevation view of the bed in a second functional configuration, with the first frame in the backrest position and the second frame in the seat position, so as to massage the back;

Figure 4 is a partially sectional side elevation view of the bed in a third functional configuration, with the first frame in the seat position and the second frame in the backrest position, so as to massage the lower limbs;

Figure 5 is a partially sectional side elevation view of a second embodiment of the bed according to the invention, with horizontally aligned frames;

Figure 6 is a partially sectional side elevation view of the embodiment of Figure 5, with the frames mutually aligned and in an inclined position with respect to the ground.

**[0010]** With reference to the figures, the reference numeral 1 generally designates a massaging bed with variable configuration according to the invention.

**[0011]** The bed comprises (Figure 1) a footing 2 for resting on the ground, to which the ends of a first frame 3 and of a second frame 4 are pivoted in an upper region and about substantially parallel transverse axes; the frames are mutually adjacent. A mat 7 is fixed on the first and second frames 3 and 4, which are substantially rectangular and are articulated along respective transverse sides 5 and 6, in order to provide comfortable resting of the user.

**[0012]** The first frame 3 forms a massage surface 11, below which a massaging device 8 is associated which can move in a reciprocating manner preferably in a longitudinal direction: the device 8 is, for example, of the type with massaging rollers or wheels 9, which are actuated electrically by an appropriately provided gearmotor 10 and also oscillate in a substantially longitudinal direction. In the specific case, the gearmotor 10 is provided with one or more output shafts, on which respective gears are keyed; said gears mesh along a worm screw 11 that is fixed, at its ends, longitudinally below the first frame 3.

**[0013]** The footing 2 is constituted by two longitudinal members 12, which bend at right angles downward at their respective mutually opposite end portions, forming pairs of ground resting feet 13; the longitudinal members 12 are mutually connected, substantially in their central region, by a horizontal lower plate 14, which protrudes from the longitudinal sides with respective vertical walls 15 that end at the top with upper brackets 16 affected by respective holes 16a for the articulation, about a same axis A (Figure 2), of the first frame 3 and of the

second frame 4. A first lower bracket 17 and a second fork-like lower bracket 18 protrude vertically from the lower plate 14 on opposite sides; the second bracket is longer, and both brackets are provided, at the top end, with respective through eyes 19 and 20 with horizontal axes that lie transversely to the bed.

**[0014]** A third frame 21 is pivoted to the second frame 4 along the transverse axis B and can be orientated selectively with respect to the second frame 4.

**[0015]** A first linear actuator 22 (Figure 3) is mounted between the first frame 3 and the footing 2 and is preferably of the substantially known electrical type with selective actuation, provided with a head 23 that is pivoted to the first lower bracket 17 about the axis C and with an elongated body 24 that forms a guide 25 for a slider 26: the slider 26 is pivoted, about the axis D, to a first extension 27, which protrudes downward from the first frame 3. By acting on the first linear actuator 22 it is possible to orientate selectively the first frame 3 and therefore the massage surface II with respect to the footing 2 in a plurality of stable configurations according to the requirements of the user.

**[0016]** A second linear actuator 28 (Figure 3), preferably of the electrical type with selective actuation, is provided between the second frame 4 and the footing 2 and has a head 29 that is articulated, about the axis E, to the second lower bracket 18 and a slider 30 that is pivoted, about the axis F, to a second extension 31 that protrudes downward from the second frame 4: the second frame 4 can thus be orientated selectively with respect to the footing 2 at the user's discretion according to a plurality of stable configurations.

**[0017]** A third linear actuator 32 of the electrical type with selective actuation (see Figure 4 in particular) is further provided between the second frame 3 and the third frame 21 and is constituted by a cylinder 33 in which an axially sliding stem 34 is inserted: the third actuator 32 has a first end 35 that is pivoted, about the axis G, to the second extension 31 of the second frame 4, and a second end 36 that is articulated, about the axis H, to a third extension 37 that protrudes downward from the third frame 21. The third frame 21 can thus be orientated selectively with respect to the second frame 4 according to a plurality of stable configurations, allowing the user to assume the most correct position for receiving the massage.

**[0018]** The method of use of the bed according to the invention is as follows. Figure 1 illustrates a first functional configuration, in which the first, second and third frames 3, 4, 21 are mutually aligned horizontally: in this first configuration it is possible to massage the trunk or the legs with the user in a dorsal position.

**[0019]** Figure 3 illustrates a second possible configuration of the bed, in which by acting on the first linear actuator 22 the first frame 3 can be arranged substantially like a backrest, while the second and third frames 4 and 21 can be arranged like a seat by acting on the second and third linear actuators 28 and 32. The second

configuration of the bed allows to massage the back while the user is sitting.

**[0020]** Figure 4 instead illustrates a third possible configuration of the bed, in which the first frame 3 is arranged substantially like a seat while the second frame 4 and the third frame 21 are aligned substantially in a backrest-like position: said third configuration is recommendable for massaging the lower limbs while the user is sitting.

**[0021]** Figures 5 and 6 illustrate a second embodiment of the massaging bed according to the invention that is particularly suited to the sports sector.

**[0022]** This embodiment has a footing 2 that comprises a lower portion 38 for resting on the ground and an upper portion 39 to which the first frame 3 and the second frame 4 are articulated about the axis A. The upper portion 39 is constituted by longitudinal members 12, which are connected by the lower plate 14 and fold downward at their ends, as described above; the lower plate further has, along one of the transverse sides, a lug 40 provided with an upper eye 41.

**[0023]** The upper portion 39, together with the frames 3 and 4, can be orientated selectively with respect to the lower portion 38 in order to position the bed in a substantially inclined configuration at a preset angle (as shown particularly by Figure 6). The inclination of the bed with respect to the floor allows to take the weight of the body off the regions affected by the massage (the back or the legs).

**[0024]** The lower portion 38 of the footing is constituted by four uprights 42 that are substantially arranged like the corners of a rectangle and are mutually connected by lower longitudinal members 43 and cross-members 44; a respective foot 13 of the upper portion 39 rests at the top of each upright when the bed is horizontal. A gusset 45, provided with a lower eye 46, is rigidly coupled along one of the cross-members 44.

**[0025]** The upper portion 39 and the lower portion 38 are mutually pivoted, at one side, along the transverse axis I: a fourth linear actuator 47, preferably of the telescopic type, is articulated at its opposite ends respectively to the upper eye 41 of the upper portion 39 about the axis L and to the lower eye 46 of the lower portion 38 about the axis M; it allows to orientate the upper portion 39 of the footing 2 in a plurality of stable configurations with an angle that is preset by the user according to his massage requirements.

**[0026]** The bed according to the invention allows, by using a single massaging device 8, to massage both the trunk and the legs in the most correct and recommended position; moreover, it allows to take the weight of the body off the regions affected by the massage in a versatile and customized manner in accordance with the requirements of each user.

**[0027]** It has thus been shown that the invention achieves the intended aim and objects.

**[0028]** The invention thus conceived is susceptible of numerous modifications and variations, all of which are

within the scope of the inventive concept.

**[0029]** All the details may further be replaced with other technically equivalent ones.

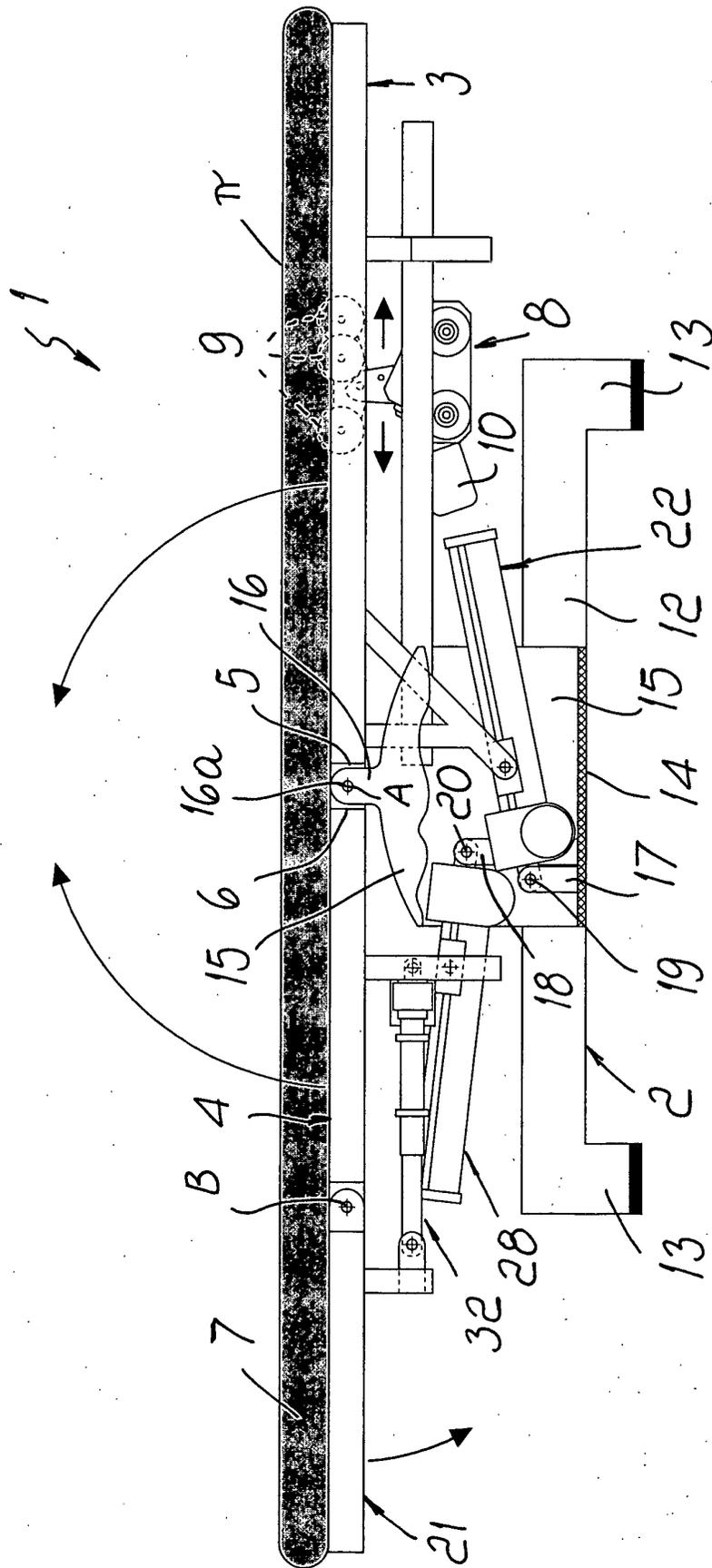
**[0030]** In practice, the materials used, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the scope of the protection of the appended claims.

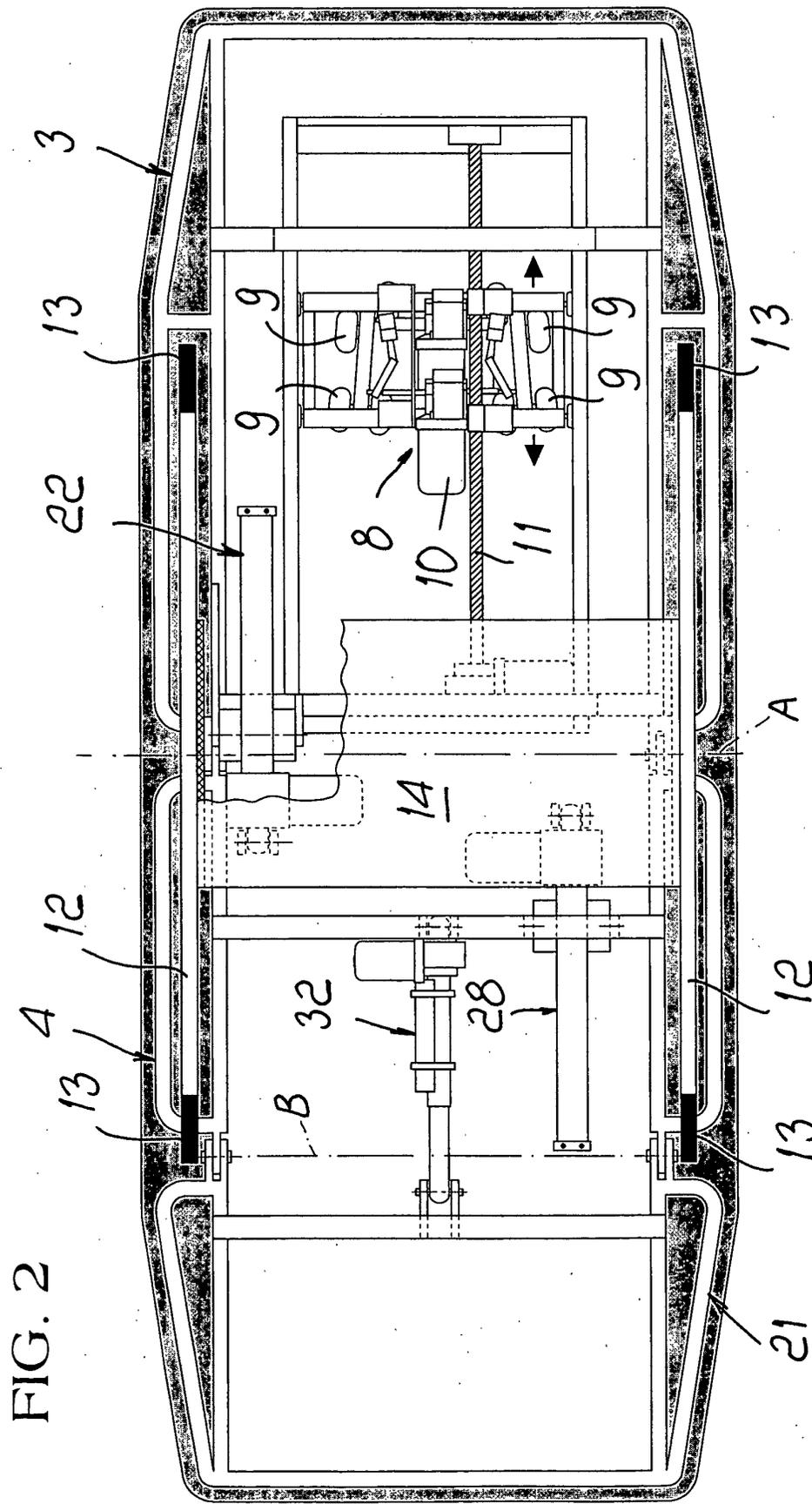
**[0031]** Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

## Claims

1. A massaging bed with variable configuration, **characterized in that** it comprises a footing (2) to which the ends of a first frame (3) and of a second frame (4) are articulated in an upper region along parallel transverse axes, said first frame (3) forming a massage surface (II) that is associated, in a lower region, with a massaging device (8) that can perform a reciprocating motion, said second frame (4) being adjacent to said first frame (3), a first actuator (22) and a second actuator (28) being provided respectively between said first and second frames (3, 4) and said footing (2), said actuators being suitable to orientate said frames (3, 4) with respect to said footing (2) so as to selectively position said surface (II) in preset configurations for massaging the trunk or the legs.
2. The massaging bed according to claim 1, **characterized in that** a third frame (21) is articulated to the free end of said second frame (4) and can be orientated selectively with respect to said second frame (4).
3. The massaging bed according to claim 1, **characterized in that** said footing (2) comprises a lower portion (38) for resting on the ground and an upper portion (39) that is associated with said frames (3) and (4) and can be orientated selectively with respect to said lower portion (38) in order to position said bed in a configuration that is substantially inclined with respect to the ground at a preset angle.
4. The bed according to claim 2, **characterized in that** the first end (35) of a third linear actuator (32) is articulated to said second frame (4), the second end (36) of said linear actuator being articulated to said third frame (21).
5. The bed according to claim 3, **characterized in that** said lower portion (38) and said upper portion (39) are mutually pivoted about a transverse axis (I), the respective mutually opposite ends of a fourth linear actuator (47) being articulated to said lower portion (38) and said upper portion (39).
6. The massaging bed according to claim 1, **characterized in that** said footing (2) has two upper brackets (16) for the pivoting, along a same transverse axis (A), of said first frame (3) and said second frame (4) respectively.
7. The massaging bed according to claim 1, **characterized in that** said footing (2) has a first lower bracket (17) and a second lower bracket (18) for the articulation, about parallel transverse axes (C), (E), of the respective heads (23), (29) of said first and second actuators (22), (28), said first and second frames (3), (4) being provided respectively with a first downward extension (27) and with a second downward extension (31), which are pivoted to the respective sliders (26), (30) of said first and second actuators (22), (28) respectively about the transverse axes (D) and (F).
8. The massaging bed according to one or more of the preceding claims, **characterized in that** said first, second, third and fourth actuators (22), (28), (32), (47) are linear and of the type that is powered electrically and has selective actuation.

FIG. 1





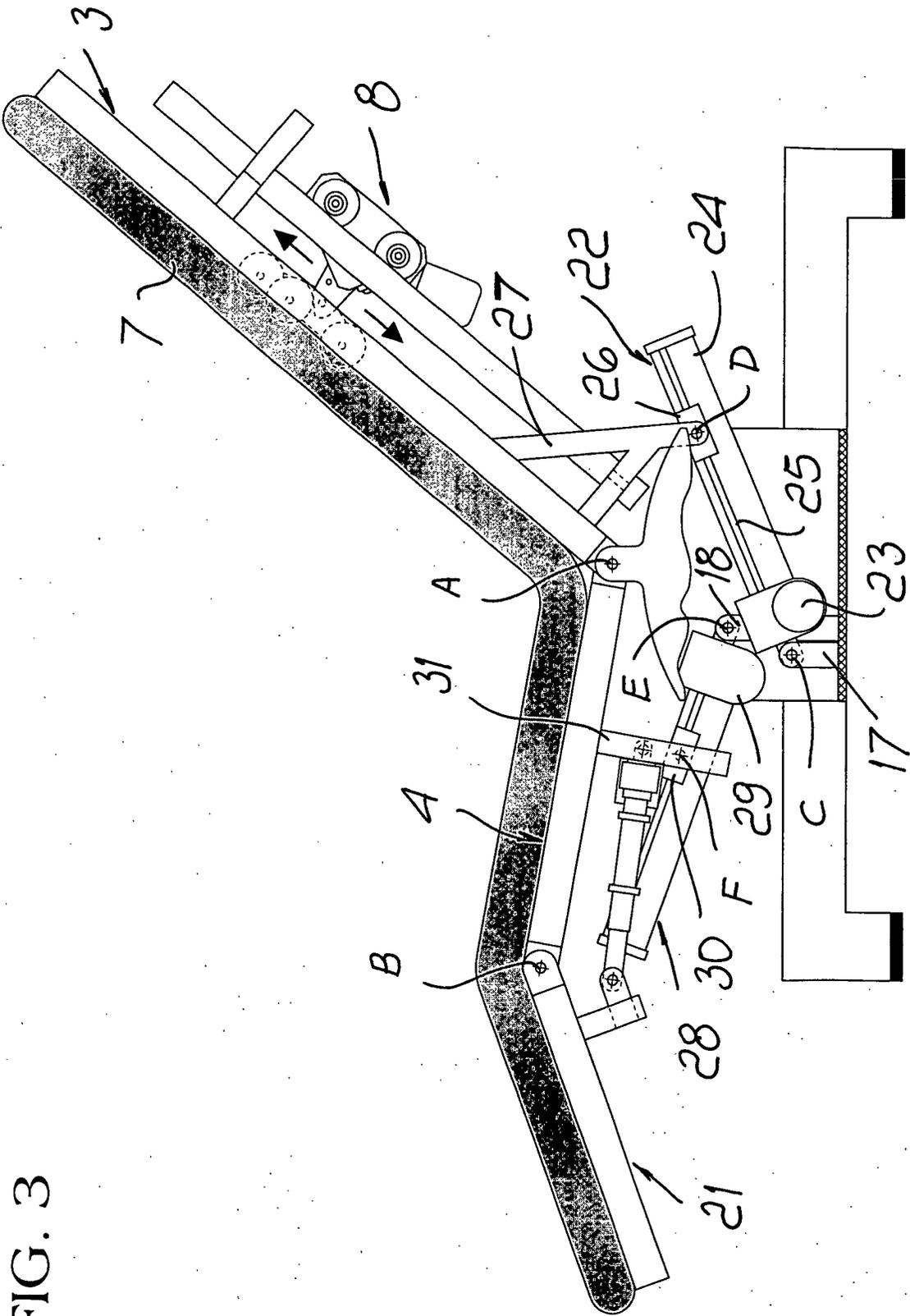


FIG. 3

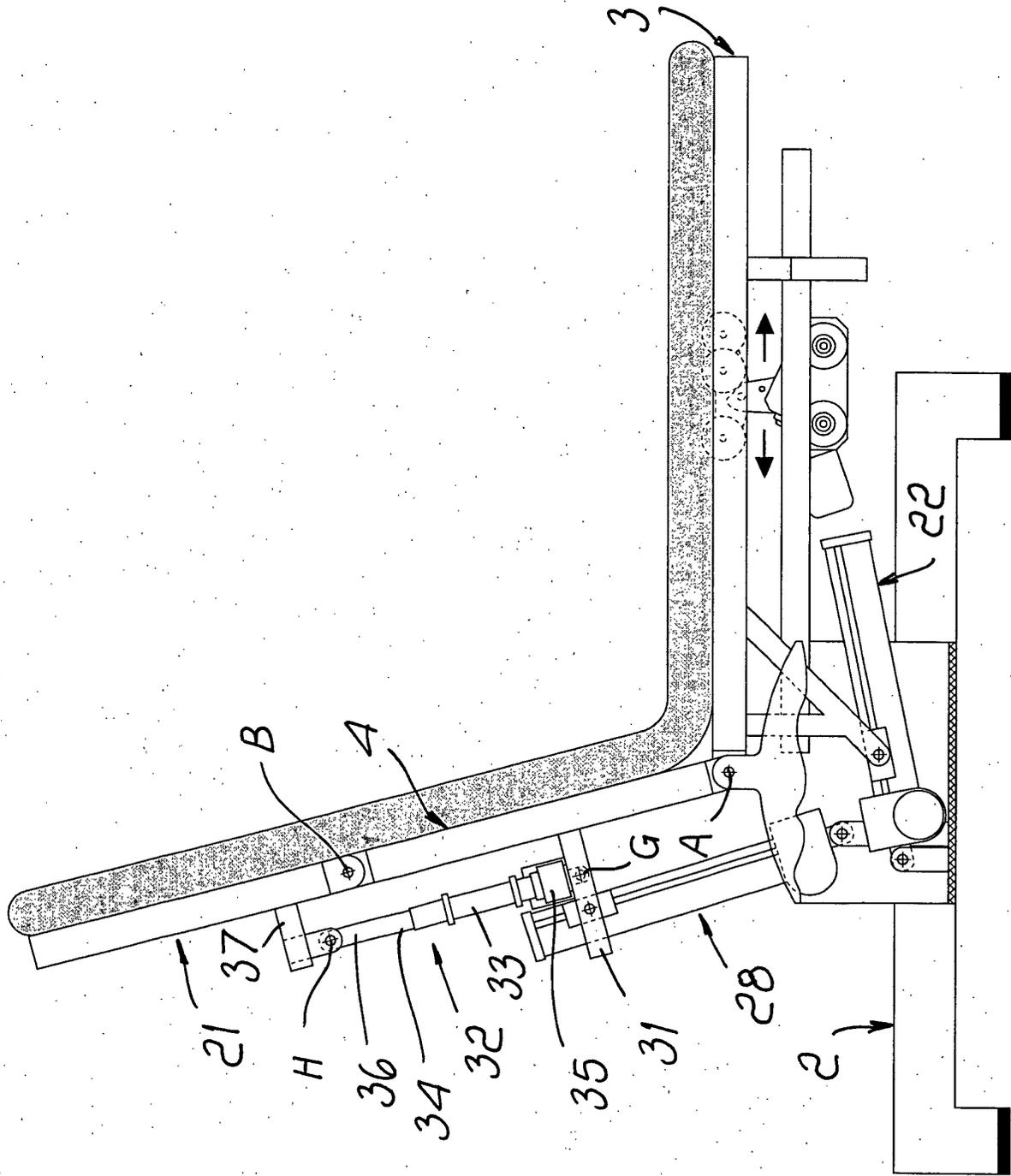
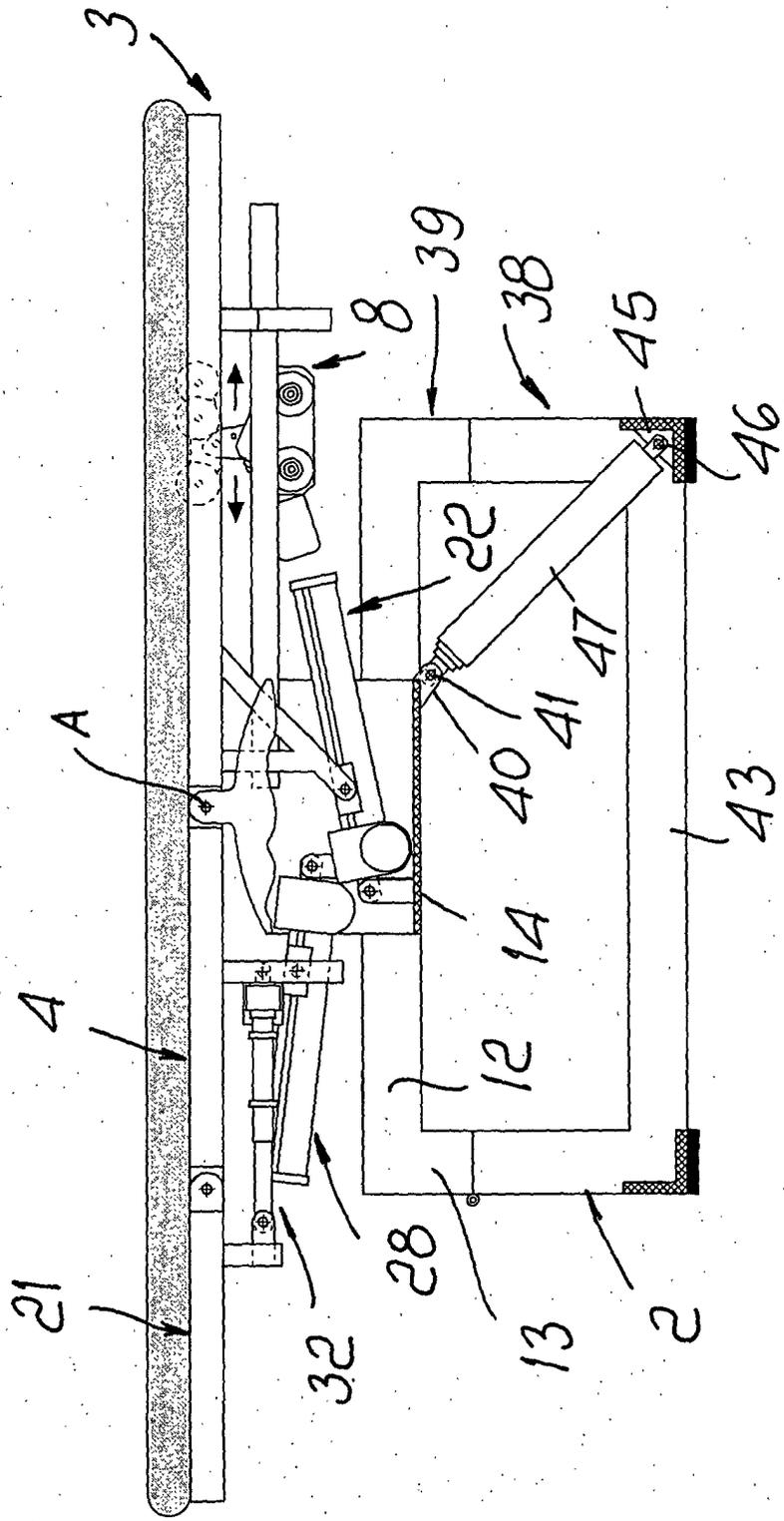


FIG. 4

FIG. 5



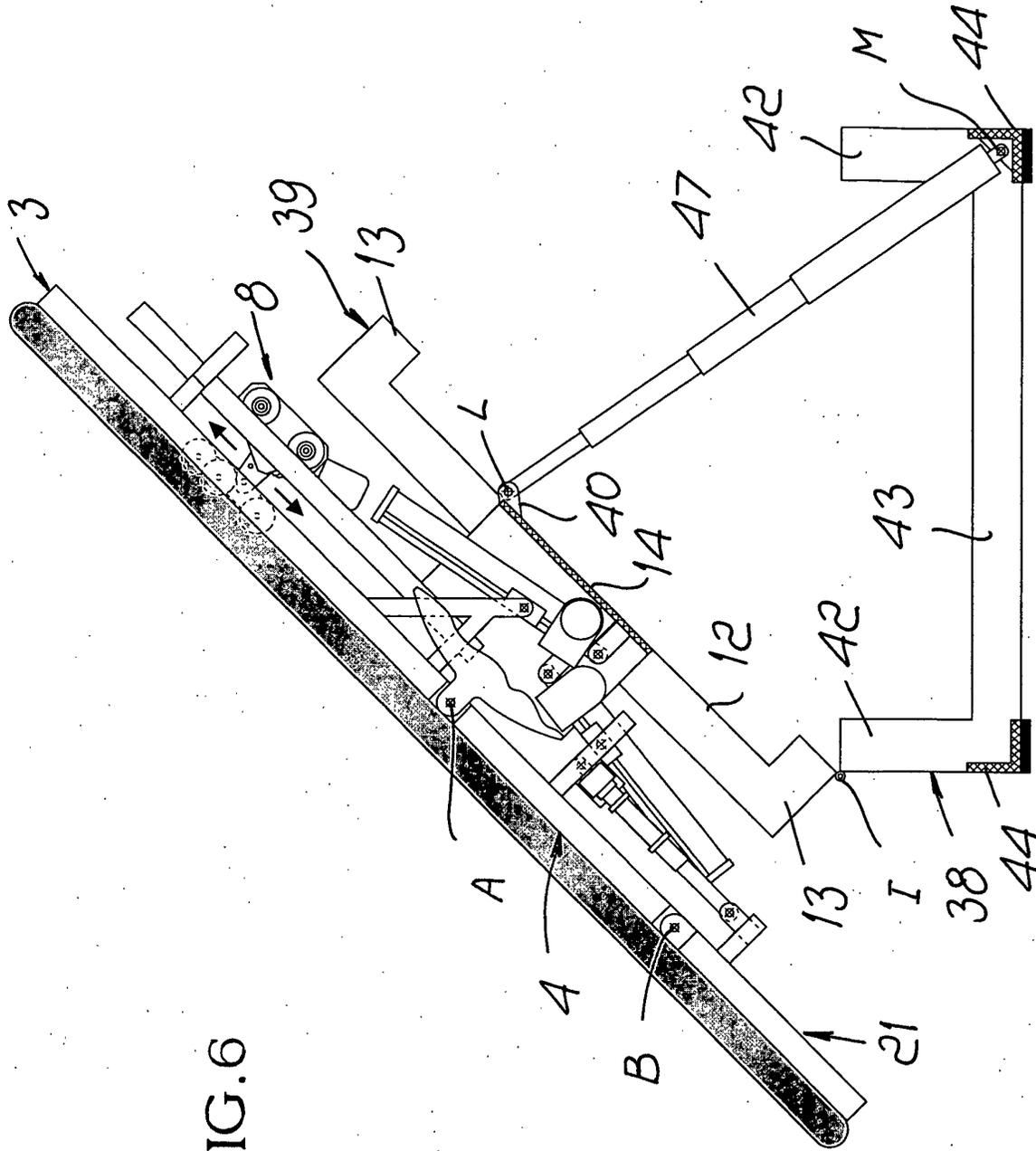


FIG.6



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EUROPEAN SEARCH REPORT

Application Number  
EP 02 01 3920

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 87 04067 A (OSWALD KURT) 16 July 1987 (1987-07-16) * page 11, line 12 - page 12, line 9 * * page 16, line 1 - page 17, line 35 * * page 19, line 12 - page 22, line 11 * * figures 2,6,9,10 * ---	1-7	A61H1/00 A61H37/00
X	US 5 233 973 A (GILL PREM P ET AL) 10 August 1993 (1993-08-10) * column 6, line 55 - line 63; figure 9 * ---	1	
A	DE 199 03 112 A (ROESSLE & WANNER GMBH) 10 February 2000 (2000-02-10) * the whole document * -----	1,8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A61H A61G A47C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		1 December 2003	Millward, R
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 01 3920

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01-12-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 8704067 A	16-07-1987	DE 3546200 A1	02-07-1987
		DE 3615421 A1	12-11-1987
		WO 8704067 A2	16-07-1987
		EP 0259351 A1	16-03-1988
-----			
US 5233973 A	10-08-1993	NONE	
-----			
DE 19903112 A	10-02-2000	DE 19903112 A1	10-02-2000
-----			

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82