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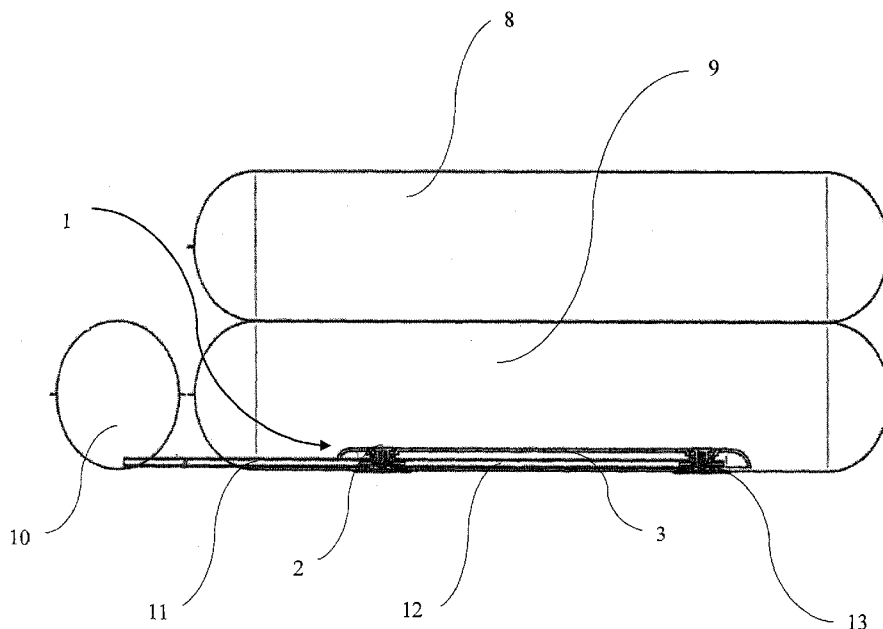


Fig. 1

(57) Abstract: The technical solution relates to a mattress for a hospital bed, e.g.: to a therapeutic inflatable mattress and to the improvement of the control system with the help of a detection system comprising a contact member and a valve for optimizing the air pressure in response to the weight distribution and position of the patient on the mattress.



AMENDED CLAIMS
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CLAIMS

1. A mattress for automatic optimization of the air pressure under the patient which includes a control system and a plurality of inflatable chambers, wherein the control system and all chambers are pneumatically connected, where the first plurality of chambers (10) is connected to the second plurality of chambers (9,8),
5 **characterized in that** at least one chamber of the second plurality (9,8) includes a mechanical detection system (1) which consists of a contact member (3), an actuator (2) and at least one valve (13) which is pneumatically connected to at least one chamber of the first plurality of chambers (10).
- 10 2. A mattress for the automatic optimization of the air pressure under the patient according to claim 1, **characterized in that** the mechanical detection system (1) includes a contact member (3) or an actuator (2) of the valve (13), wherein the contact member (3) or the actuator (2) of the valve (13) is adapted for opening or closing the valve (13) in relation to the load on the contact member (3) or actuator
15 (2) of the valve (13) under the patient's own weight.
3. A mattress for the automatic optimization of the air pressure under the patient according to claim 1, **characterized in that** the mechanical detection system (1) includes two or more valves (13) that are pneumatically interconnected.
- 20 4. A mattress for the automatic optimization of the air pressure under the patient according to any of the claims 1 to 3, **characterized in that** the valve (13) of the mechanical detection system (1) forms a seal between the second plurality of chambers (9,8) and the first plurality of chambers (10).
- 25 5. A mattress for the automatic optimization of the air pressure under the patient according to claim 1, **characterized in that** the mechanical detection system (1) and the chamber are pneumatically interconnected by means of hoses (11, 12).
6. A mattress for the automatic optimization of the air pressure under the patient according to claim 1, **characterized in that** it induces two pluralities of chambers,

wherein the first plurality of chambers (10) is longitudinal and the second plurality of chambers (9,8) is transverse.

- 5 7. A mattress for the automatic optimization of the air pressure under the patient according to claim 1, **characterized in that** it includes two pluralities of chambers (10) and (9,8), wherein at least one plurality of chambers (10 or 9,8) can have one layer of chambers, multiple layers of chambers, or a combination thereof.
8. A mattress for the automatic optimization of the air pressure under the patient according to any of the preceding claims, **characterized in that** it also includes a control system comprising a compressor and a pressure sensor.
- 10 9. The method of automatically optimizing the air pressure in the mattress under the patient according to claim 1 is **characterized in that** the mattress is placed on a device for supporting the patient on the loading area, the air pressure in the first plurality of chambers (10) is increased, the air pressure in the second plurality of chambers (9,8) is decreased, and the weight of the patient activates the mechanical
15 detection system (1) which opens the valve (13) and releases air between the plurality of chambers (10) to the second plurality of chambers (9,8) and lifts the patient's body away from the fixed section of the loading area.