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54 **Bed structure.**

57 The bed comprises two supporting cross-members (1) which, on their upwardly facing sides, are provided with openings (3) adapted to house bar members (4) which extend with a parallel relationship in the longitudinal direction of the bed structure in order to define a surface adapted to operate as a net.

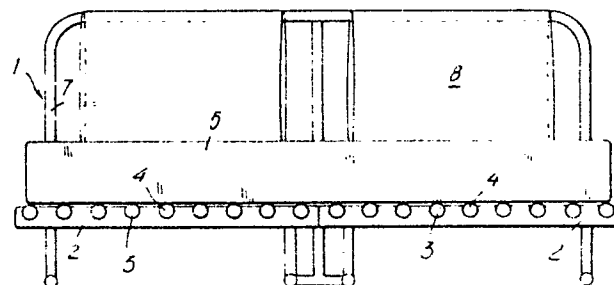


FIG. 1

EP 0 358 838 A1

"BED STRUCTURE"

BACKGROUND OF THE INVENTION

The present invention relates to a bed structure.

Several types of bed structures are already known. In an embodiment, there is provided a perimetrical frame which, for example, is made of a metal tubular material and adapted to receive a metal or wire net thereon there is supported the bed mattress.

This embodiment, however, has the drawback that it is not possible to adjust the resiliency of the net depending on the use requirements.

Moreover, this bed structure has a comparatively large size, which is disadvantageous for example as the bed is transported.

Another known bed structure comprises a metal tubular material frame adapted to receive wood strips which are transversely arranged with respect to the longitudinal extension of the bed structure.

Also in this case it is not possible to change the resilience properties of the wood strips, and, accordingly, it is not possible to fit the bed structure to the user requirements.

Moreover, since the mentioned wood strips are arranged transversely, they are susceptible to form, as they are bent, a undesirable cradle.

Even in this case, the bed structure may be transported in a completely assembled condition which, as it should be apparent, is very disadvantageous.

Moreover, all of the known bed structures have a rather antiaesthetic aspect and, because of this reason, these beds must be completely coated without leaving any parts thereof in an exposed condition.

SUMMARY OF THE INVENTION

Accordingly, the task of the present invention is to provide a new bed structure which affords the possibility of overcoming the above mentioned drawbacks, and which, in particular, can be transported in a disassembled condition to be assembled on the use place, without the need of using particular assembling tools and/or means such as screws and bolts.

Within the scope of the above task, a main object of the present invention is to provide such a bed structure having a great stiffness in the cross or transversal direction of the bed, while providing a free bending in the bed longitudinal direction and

in which, moreover, the bending degree can be adjusted so as to be easily fitted to the weight of the user.

According to an aspect of the present invention, the above task and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a bed structure comprising two supporting cross members, said cross members, on the upwardly facing sides thereof, being provided with a plurality of openings adapted to house parallelly extending bars which extend longitudinally of the bed structure so as to form a surface adapted to operate as a mattress supporting net, said openings being so designed and shaped as to provide a geometrical type of coupling between said cross members and bars.

Thus, by the disclosed bed structure, it is possible to transport the bed in a completely disassembled condition and then assemble the bed without using particular tools and affixing means. Moreover, the resiliency properties of the single bars can be fitted to the specific users requirements.

BRIEF DESCRIPTION OF THE DRAWINGS

Further advantages and characteristics of the present invention will become more apparent hereinafter from the following detailed description of an embodiment thereof which is illustrated, by way of an indicative example, in the accompanying drawings in which:

Figure 1 is a front view illustrating the bed structure according to the present invention;

Figure 2 is a side view illustrating the bed structure according to the invention;

Figure 2a is a detail view showing a detail of a resting foot, represented in cross-section taken through the line A-A of Figure 2;

Figure 2b illustrates a detail of a resting foot, taken in cross-section along the line B-B of Figure 2;

Figure 3 is a top plan view of the subject bed structure as partially covered by a mattress;

Figure 4 is a front view illustrating a detail of a supporting cross-member;

Figure 5 is a top plan view of the cross member shown in Figure 4;

Figure 6 illustrates the cross member shown in Figure 4 provided with a plurality of tubular members forming the bars for supporting the bed mattress; and

Figure 7 is a partial cross-sectioned view showing the cross-member illustrated in Figure 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As is shown in Figure 1, the bed structure according to the invention, which has been overall indicated at the reference number 1 comprises supporting cross members 2, one of which is arranged at the head of the bed, whereas the other cross member is arranged at the other or foot end of the bed.

The cross members are provided at the top with openings 3 adapted for receiving bar members 4. These bar members 4 connect the two cross members 2 so as to provide a supporting surface for a bed mattress 5.

As shown, the cross members are advantageously supported by supporting feet 6.

Also advantageously, the head portion 7 of the bed is made of tubular material.

Said head portion 7 can be coated or provided with a head rest 8.

Figure 1 shows a two-place bed 1, but it should be apparent that by the disclosed members it would be also possible to make a single-place bed.

Figure 2, which is a side view of the subject bed structure 1, shows that, advantageously, the bed head portion 7 has a L-shape, thereby providing the upright 7a with an elbow configuration.

The arm 7b of the L-shaped head portion 7 operates as a support and sliding guide for the supporting foot 6 of the cross member 2.

The cross member 2 provided at the other end of the bed 1 is also coupled to a supporting foot 6.

As shown, the two cross members 2 are mutually coupled by means of the bar members 4 connected with the cross members 2.

The two cross members 2, in particular, can be displaced with respect to the bars 4 as shown by the arrows f.

Thus, the spacing between the two cross members 2 can be changed, thereby it will be possible to adjust and modify the flexure degree of the bar members 4.

The greater is the distance between the cross members, the greater will be the flexure degree of the bars 3 and vice versa.

Advantageously, as is shown in Figure 2a, the cross member 2 rests by its foot 6, through a shell shaped support member 9, on the horizontal tubular portions 7b of the cross member 7a.

If desired, a rigid coupling may be made between the shell member 9 and tubular member 7b by using a locking pin or screw indicated schemati-

cally at the reference number 10.

The foot member 6 of the cross member 2, arranged at the foot end of the bed 2 and shown in Figure 2b also has a tubular shell shape 11 which, advantageously, is coupled to a cylindrical shape member 12, made of rubber, a synthetic material or the like.

The resilient material cylindrical member 12 is adapted to operate as a cushioning means and an antifriction means.

Figure 3 is a plan top view of the subject bed structure 1.

In this view there are clearly shown the bed head portion 7 and the two cross members 2.

There is also clearly shown the way in which the cross members 2 receive the longitudinal bars 4 defining the resting surface for a mattress 5.

As shown herein, said bars 4 define supporting strips which extend with a parallel relationship longitudinally of the bed structure.

Advantageously, as is shown in Figures 4, 5, 6 and 7, the cross members 2 are provided with upwardly facing openings 3 which are delimited by a circle arc 3a greater than a semicircle, for example of 210° .

Also advantageously, the openings 3 of the cross members 2 have edge portions which are delimited by beveled configurations 3b.

This approach prevents the bars 4 from producing noises during the bending thereof and, moreover, provides a rest surface in the case of greatly bent bars 4.

In this connection it should be apparent that the cross members 2 and the bar members 4 can be made starting from any suitable materials.

From carried out tests it has been found that a very suitable material for making the cross members 2 is foamed polurethane.

In fact, this material has high stability and resistance characteristics while providing the possibility of making the cross members 2 by foaming or molding in easily available molds.

With respect to the making of the bar members 4, it has been found that a very suitable material consists of suitable flexibility and harness wood, synthetic material tubes or metal tubes. For making the bar members 4 can also be advantageously used glass or carbon fibre reinforced materials.

As shown in Figures 6 and 7, owing to the resiliency of the material used for making the cross members 2 and owing to the specifically designed shape of the seats 3, the bar members 4, of round cross-section, can be coupled by a geometrical type of coupling to the opening 3 formed in the cross members 2 and, advantageously, the bar members 4 can be snap coupled in the seats 3. To this end, the material of the cross members must have a sufficient resiliency.

The structure formed by the cross members and longitudinal bars have a high stiffness and stability and, moreover, by displacing the cross members 2 with respect to the bar members 4, it is possible to adjust the resiliency of the bars 4.

Moreover, it is advantageously to close the end portions of the tubular bodies by means of soft resilient material plugs.

While the invention has been disclosed and illustrated with reference to a specific embodiment thereof it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will come within the spirit and scope of the appended Claims.

Claims

1. A bed structure characterized in that it comprises two supporting cross members (2) which, on their upwardly facing sides, are provided with a plurality of openings (3) adapted to receive corresponding bar members 4, said bar members extending with a parallel relationship with respect to one another longitudinally of said bed structure (1), thereby providing a surface adapted to operate as a mattress supporting net, and in that said openings are so designed and shaped as to provide a geometrical type of coupling between said cross members (2) and bar members (4).

2. A bed structure according to Claim 1, characterized in that a supporting cross-member is coupled with said bed structure head portion which is made of a tubular material and is provided with a head rest.

3. A structure according to Claims 1 and 2, characterized in that said head portion has a L-shape so as to provide the upright with an elbow configuration, and in that the lower or bottom portion (7a) of said head portion provides a guide adapted to slidably receive the supporting foot of the corresponding cross member.

4. A structure according to Claim 1, characterized in that said supporting foot can be firmly coupled to the guide (7a) of said head portion.

5. A structure, according to Claim 1, characterized in that the foot member of the cross member arranged at the opposite end to said head portion is provided with a rest resilient body (12).

6. A structure according to Claim 1, characterized in that the opening formed in said cross members (2) are delimited by a upwardly opened circle arc which covers a portion greater than 200°, advantageously of 210°.

7. A structure according to Claim 1, characterized in that said openings receive said bar members in a snap coupling way.

8. A structure according to Claim 1, character-

ized in that said openings are provided, on both sides thereof, with beveled portions (3b) defining a tapering portion on both sides of said openings.

9. A structure according to Claim 1, characterized in that said bar members have a circular cross-section.

10. A structure according to Claim 1, characterized in that said bar members are made of a wood material.

11. A structure according to Claim 1, characterized in that said bar members are made of a plastics material.

12. A structure according to Claim 1, characterized in that said bar members are made of a plastic material and reinforced by glass fibres.

13. A structure according to Claim 1, characterized in that said bar members are made of metal tubes.

14. A structure according to Claim 1, characterized in that said supporting members (2) are made of a reinforced plastics material, advantageously foamed polyurethane.

15. A structure according to Claim 1, characterized in that the end portions of said tubular bodies are closed by plug members made of a soft resilient material.

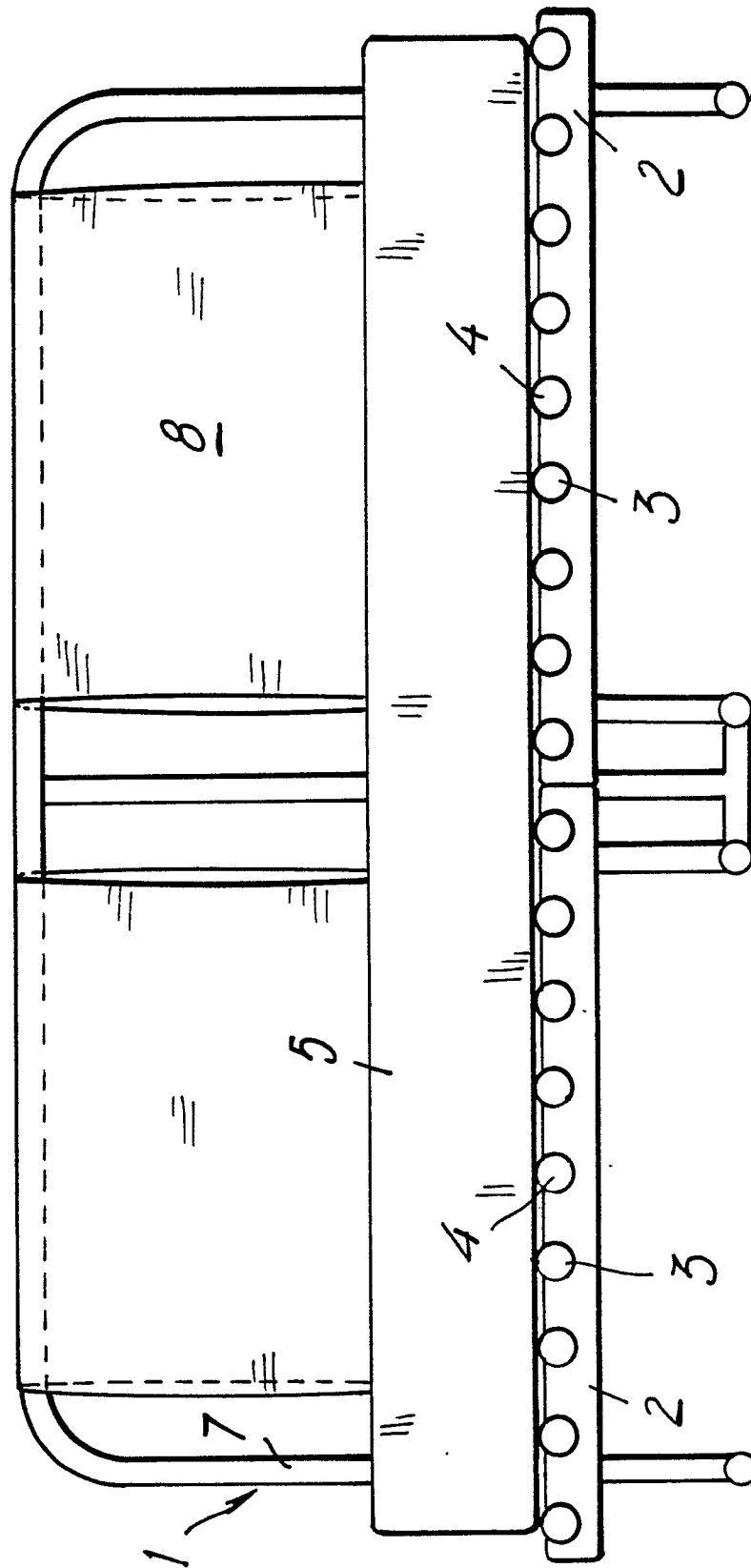
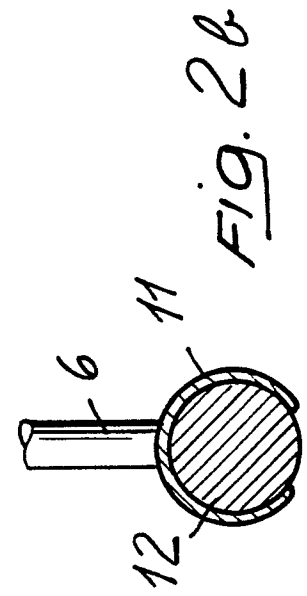
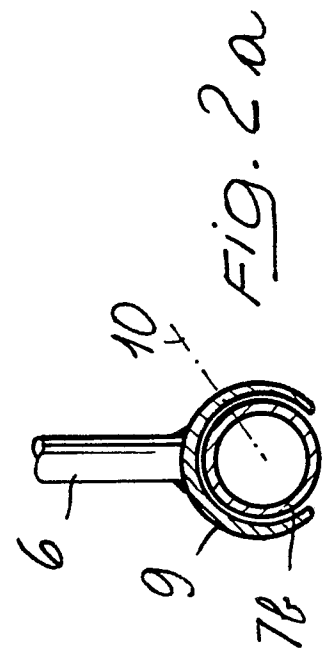
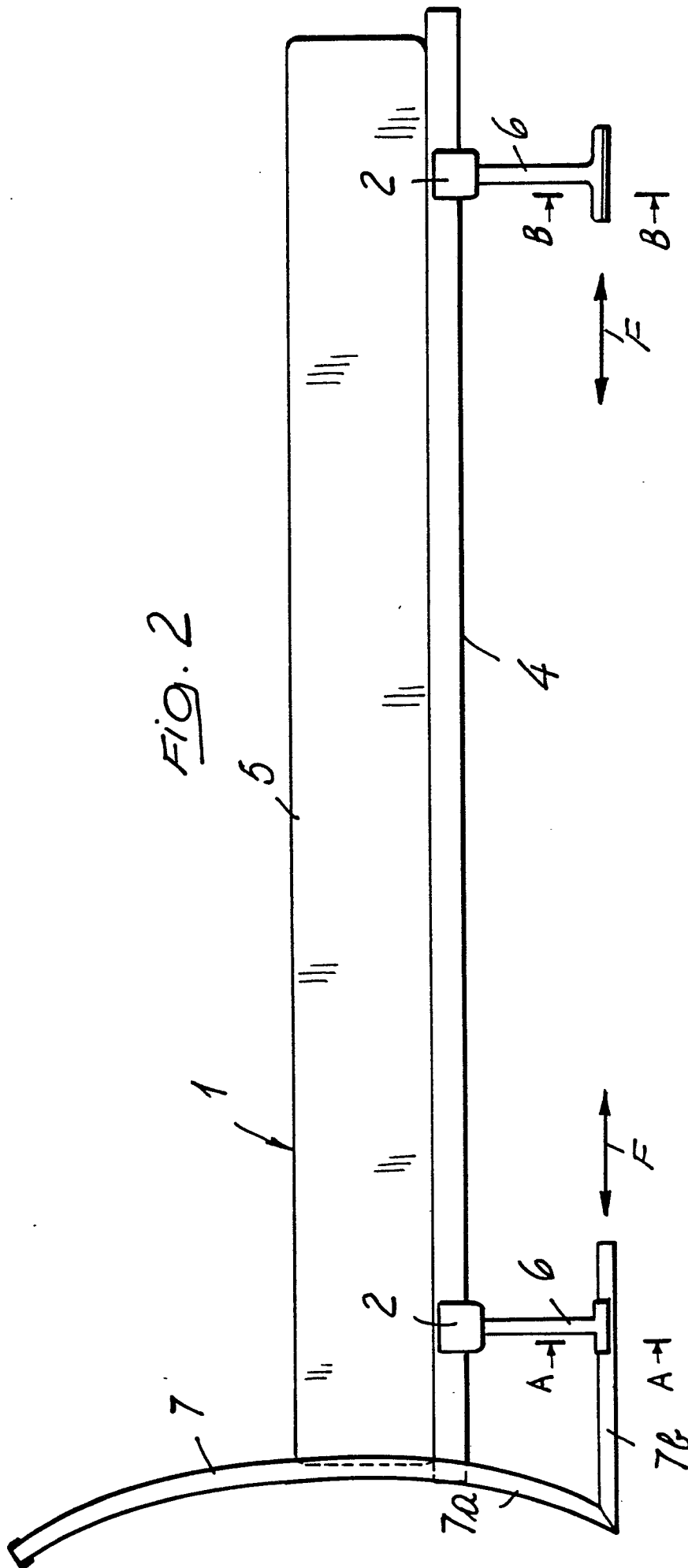
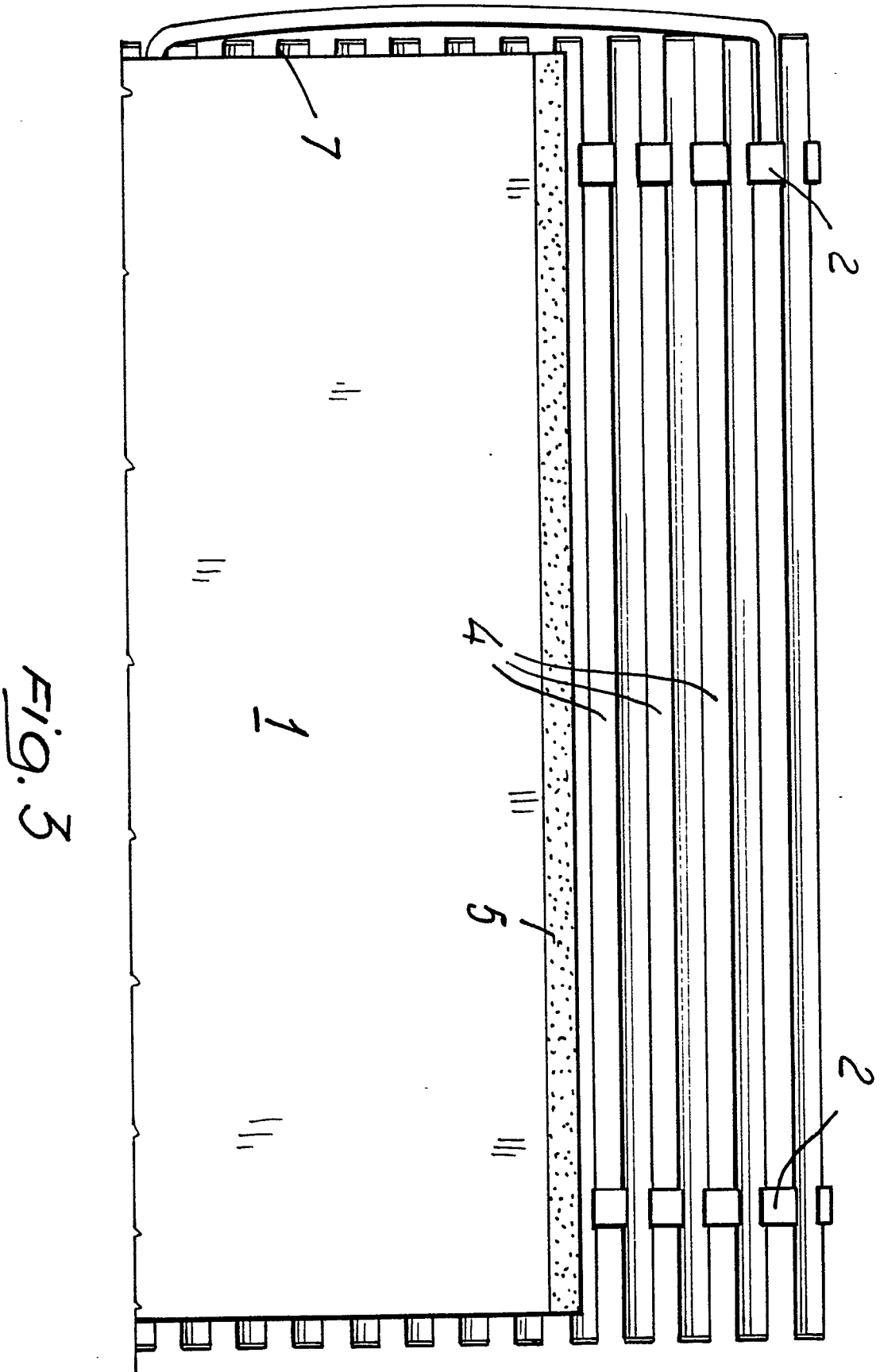


Fig. 1





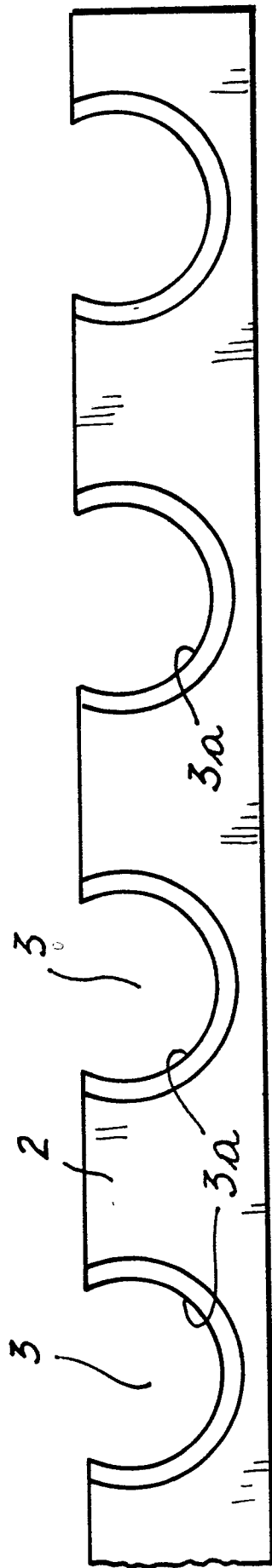


FIG. 4

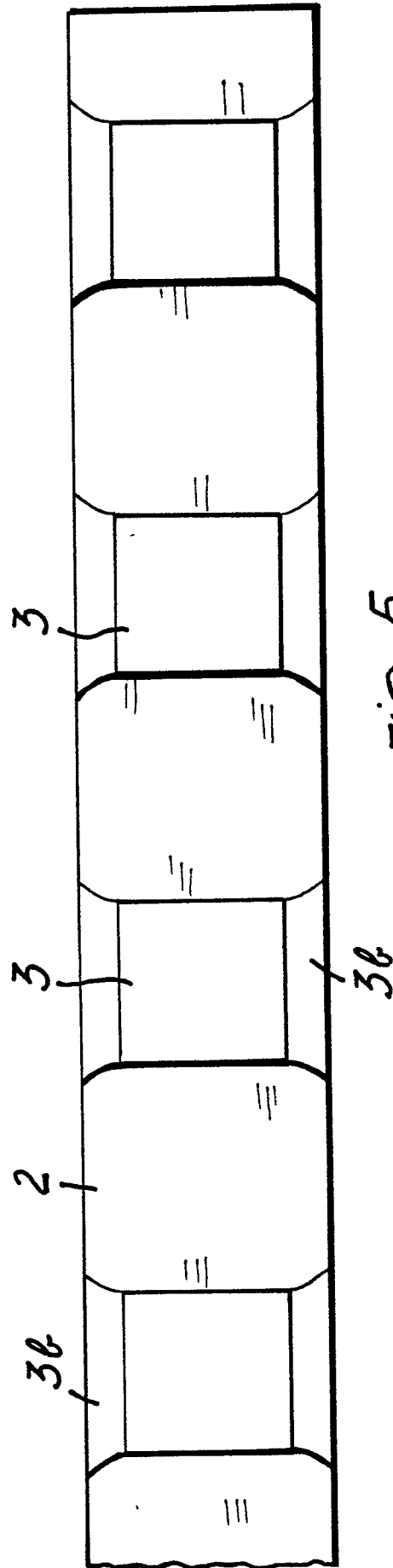
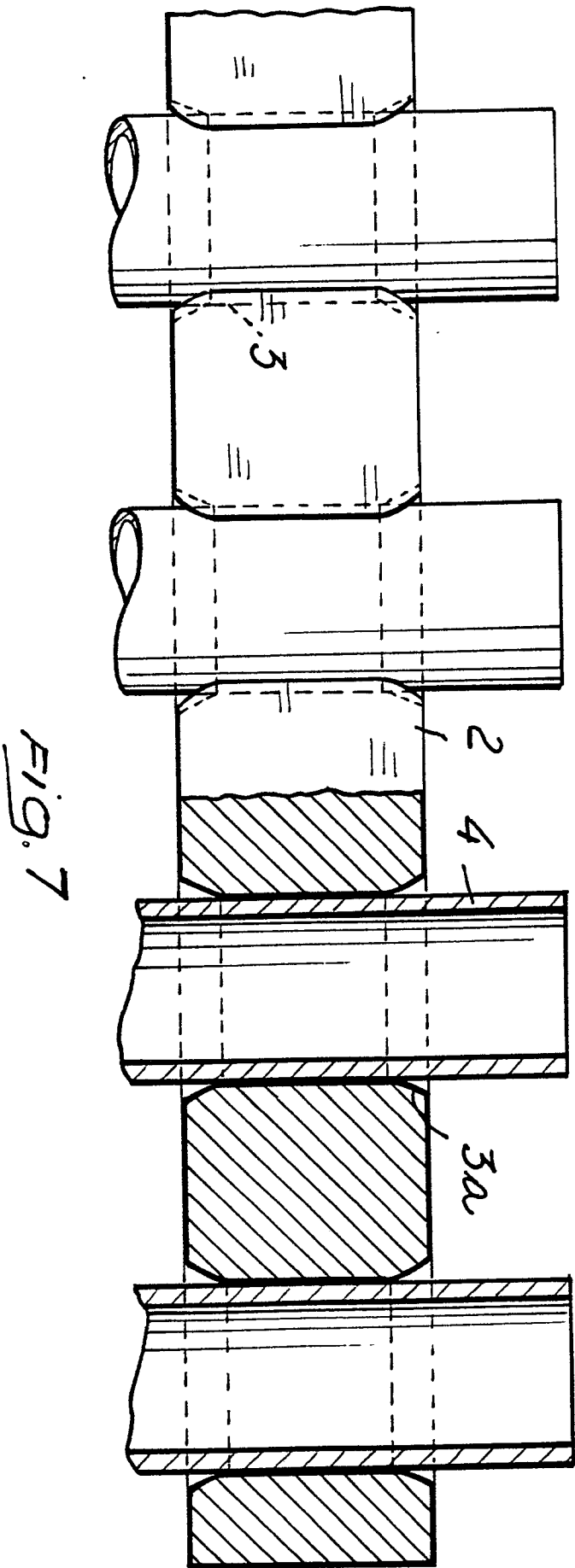
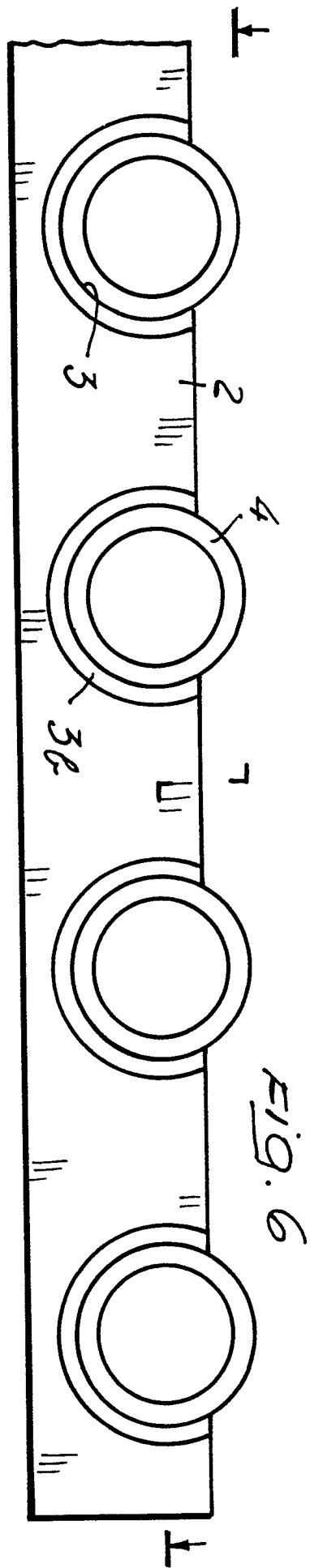


FIG. 5





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.4)
Y	FR-A- 578 941 (MATHIEU et al.) * Whole document * ---	1,9,10, 13	A 47 C 23/00
Y	US-A-2 371 777 (RETTET) * Figures 1,3; page 1, left-hand column, line 45 - right-hand column, line 31 * ---	1,9,10, 13	
A	FR-A-2 222 977 (TURCK SIN) * Figures 1-3 * ---	2,3	
A	DE-C- 334 197 (KOLLER) * Whole document * ---	6,7	
A	DE-C- 912 260 (ERLER) * Whole document * -----	10-12	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			A 47 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 29-11-1989	Examiner MYSLIWETZ W.P.
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			