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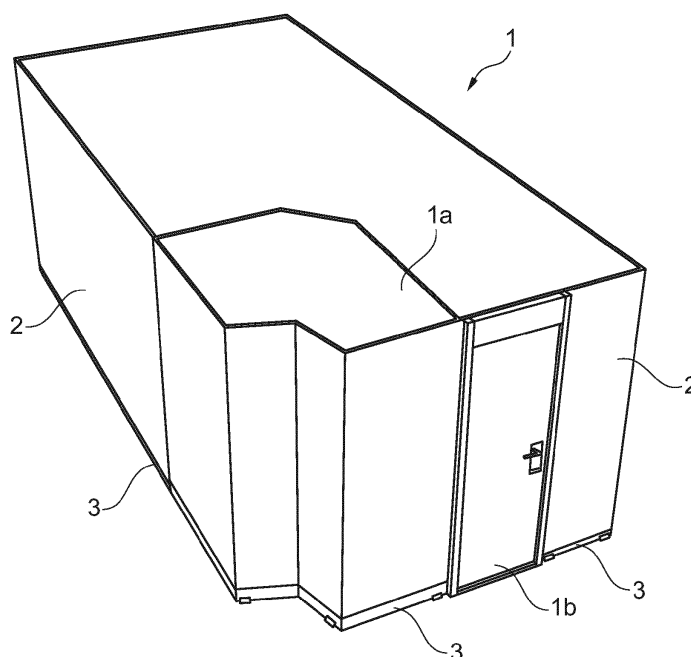
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(54) **Prefabricated floorless self-supporting space unit**

(57) A prefabricated, floorless, self-supporting space unit (1), such as a cabin or the like, which includes at least walls (2) that limit the space and preferably consist of wall panel elements that are connected together and attached, at their lower edges, to a first supporting frame (3), which defines the main shape of the space unit. One

wall (2) of the space unit (1) and the abutting adjacent walls (2) are arranged so as to define a space, in which a second supporting frame (4) is installed, which is fastened to the said walls (2) at a distance from the lower edges of the walls. Said second supporting frame (4) is provided with furnishing equipment that is related to the use of the space unit.



**Fig. 1**

## Description

**[0001]** The invention relates to a prefabricated, floorless, self-supporting space unit, according to the preamble of claim 1, such as a cabin or the like, which includes at least walls that limit the space and which preferably consist of wall panel elements that are connected together and attached, at their lower edges, to a first supporting frame which defines the main shape of the space unit.

**[0002]** The applications of the self-supporting space units can be, for example, buildings, offshore structures, ships, trains, or the like. They are preferably prefabricated under plant conditions and then moved to their erection sites. The erection in the erection site, particularly on board or in offshore structures, is often carried out on the deck, whereby no floor is separately made for the space unit, but a floor covering is installed after the space unit has been erected in place. The transport of the space element requires sufficient stiffness, whereby a metal supporting frame is provided in its lower part. To secure the transport, generally, separate auxiliary supporting frames are also used, which support the walls of the space unit and which are removed after the space unit has been transported to the site.

**[0003]** When so desired, the furniture of the space element can be partly preassembled, for example, by temporarily fastening them to the walls for the time of transportation. The furniture is often not installed until on site, however. An essential piece of furniture is a convertible sofa which, in the daytime, is partly folded into a sitting position and which can be spread into a bed, when needed. Not much room remains under such a sofa, and since the seat part slides against the floor in the bed position, any articles that are placed under the sofa should first be removed or they will break. This solution is also dangerous for children. Furthermore, the structure of a sofa that is provided with a moving seat requires many roller assemblies to be maintained.

**[0004]** The purpose of the invention is to provide a novel prefabricated, floorless, self-supporting space unit, wherein the above-mentioned problems and drawbacks of the prior art solutions can be eliminated, and a structurally advantageous and easy to move space unit can be provided, which is also easier to use and has improved safety features.

**[0005]** The objects of the invention can be achieved by the means which are described in detail in claim 1 and the other claims. According to the invention, one wall of the space unit and its abutting, adjacent walls are arranged so as to limit a space, in which a second supporting frame is installed and fastened to said walls at a distance from the lower edge of the walls. Furthermore, said second supporting frame is provided with furnishing equipment that is related to the use of the space unit.

**[0006]** The solution provides several advantages. Firstly, no separate auxiliary frames are needed, which would support the walls and which would be removed after transporting and moving the space unit, because

the second supporting frame, according to the invention, is fixed to the walls of the space unit, whereby it functions as a transportation support for the walls of the space unit and also stiffens the structure after the space unit has been installed in its application. The degree of prefabrication of the space unit can be improved, if the furnishing equipment is installed in the supporting frame before the space unit is moved to its application, even though, naturally, they can also be installed afterwards. Since the second supporting frame and the attached furnishing equipment are at a distance from the lower supporting frame of the space unit and, thus, from the floor, a permanent storage space is formed under them. Since said storage space does not collapse, the solution is also childproof. The fixed second supporting frame is also well-suited to muffling any sound vibrations.

**[0007]** Said furnishing equipment preferably comprises a sofa unit that is supported on the said second supporting frame and comprises a fixed seat portion and a backrest portion. The backrest portion can thus be folded on top of the seat portion to provide a bed.

**[0008]** Alternatively, the seat portion can also be used in various ways, whereby it can be designed so as to comprise, for example, a space for sitting and a table space.

**[0009]** In another embodiment, said furnishing equipment comprises a fixed piece of furniture, such as a double bed or a similar fixed bed or furniture, which is supported on the said second supporting frame.

**[0010]** In practice, said second supporting frame is preferably fastened to said three walls with screws or similar fastenings.

**[0011]** The distance of said second supporting frame from said first supporting frame is selected so that the space limited by the supporting frames can be used as a storage space for different purposes.

**[0012]** To obtain sufficient stiffness, the said second supporting frame is preferably manufactured from metal.

**[0013]** In the following, the invention is described by way of an example and with reference to the appended schematic drawings, wherein

Fig. 1 shows a perspective view of a space unit;

Fig. 2 shows a solution according to the invention, as viewed from inside and above the space unit; and

Fig. 3 shows section III-III of fig. 2.

**[0014]** Fig. 1 shows a typical self-supporting space unit, which is equally well-suited for a moving application, such as a ship, or a fixed application, such as a building or an offshore structure. It is essential that the floorless space unit is transported to its application in a prefabricated state and erected in place on the floor level (cf. floor 6 in Fig. 3), which in the case of, for example, a ship or an offshore structure is a deck, which after the installation of the space unit is provided with a suitable surface material. The space unit includes a door 1 b and walls 2 which, at their lower parts, are fastened to the first sup-

porting frame 3, which also defines the main shape of the space unit. Depending on the application, the walls can be constructed from different panel elements by assembling. In the embodiment of Fig. 1, the space unit is further provided with a bathroom unit 1 a.

**[0015]** As shown in Figs. 2 and 3, a second supporting frame 4 is placed in the space defined by the three walls 2 of the space unit and it is preferably fastened to the walls 2 with screws 7. The supporting frame 4 is preferably of metal to be sufficiently stiff for supporting the walls 2 during the transportation and moving in place of the space unit. Since the structure is fixed, it is well-suited for stiffening the structure and preventing sound vibrations, also after being erected in place.

**[0016]** This second supporting frame 4 is placed at a specific suitable distance from the first supporting frame 3 and the floor 6, whereby the permanent space between the supporting frames can be used as a storage space. According to the invention, the supporting frame 4 is further provided with furnishing equipment, which in the embodiment of the figures comprises a sofa unit 5, which comprises a fixed seat portion 5b and a backrest portion 5a that are attached to the supporting frame 4. The backrest portion 5a is supported by means of a pivot 5d to be turnable on a supporting arm 5c that is fastened to the wall, forming a complete bed when folded on top of the seat portion 5b. In this version, the seat portion 5b is a sofa that seats three or more people. Alternatively, the seat portion 5b can be formed to comprise, for example,

a space for sitting and a table space.

**[0017]** The fixed supporting frame 4 can also be applied in connection with other types of furniture, for example, in double beds or similar fixed beds and other furniture.

**[0018]** The invention is thus not limited to the embodiment described above, but various modifications are conceivable within the appended claims.

## Claims

1. A prefabricated, floorless, self-supporting space unit (1), such as a cabin or the like, which includes at least walls (2) that limit the space and preferably consist of wall panel elements that are connected together and attached, at their lower edges, to a first supporting frame (3), which defines the main shape of the space unit, **characterized in that** one wall (2) of the space unit (1) and its adjacent, abutting walls (2) are arranged to define a space, in which a second supporting frame (4) is installed, which is attached to the said walls (2) at a distance from the lower edge of the walls, and that said second supporting frame (4) is provided with furnishing equipment that is related to the use of the space unit.
2. A space unit according to claim 1, **characterized in that** the said furnishing equipment comprise a sofa

unit (5) that is supported on the said second supporting frame (4) and comprises a fixed seat portion (5b) and a backrest portion (5a).

3. A space unit according to claim 2, **characterized in that** the backrest portion (5a) can be folded into a bed on top of the seat portion (5b).
4. A space unit according to claim 2 or 3, **characterized in that** the seat portion (5b) is designed to comprise a space for sitting and a table space.
5. A space unit according to claim 1, **characterized in that** the said furnishing equipment comprises a fixed piece of furniture, such as a double bed or a similar fixed bed or furniture that is supported on said second supporting frame (4).
6. A space unit according to any of the preceding claims, **characterized in that** said second supporting frame (4) is fastened to the said three walls (2) with screws (7) or similar fastenings.
7. A space unit according to any of the preceding claims, **characterized in that** the distance of said second supporting frame (4) from said first supporting frame (3) is selected so that the space defined by the supporting frames can be used as a storage space.
8. A space unit according to claim 1, **characterized in that** said second supporting unit (4) is made of metal.

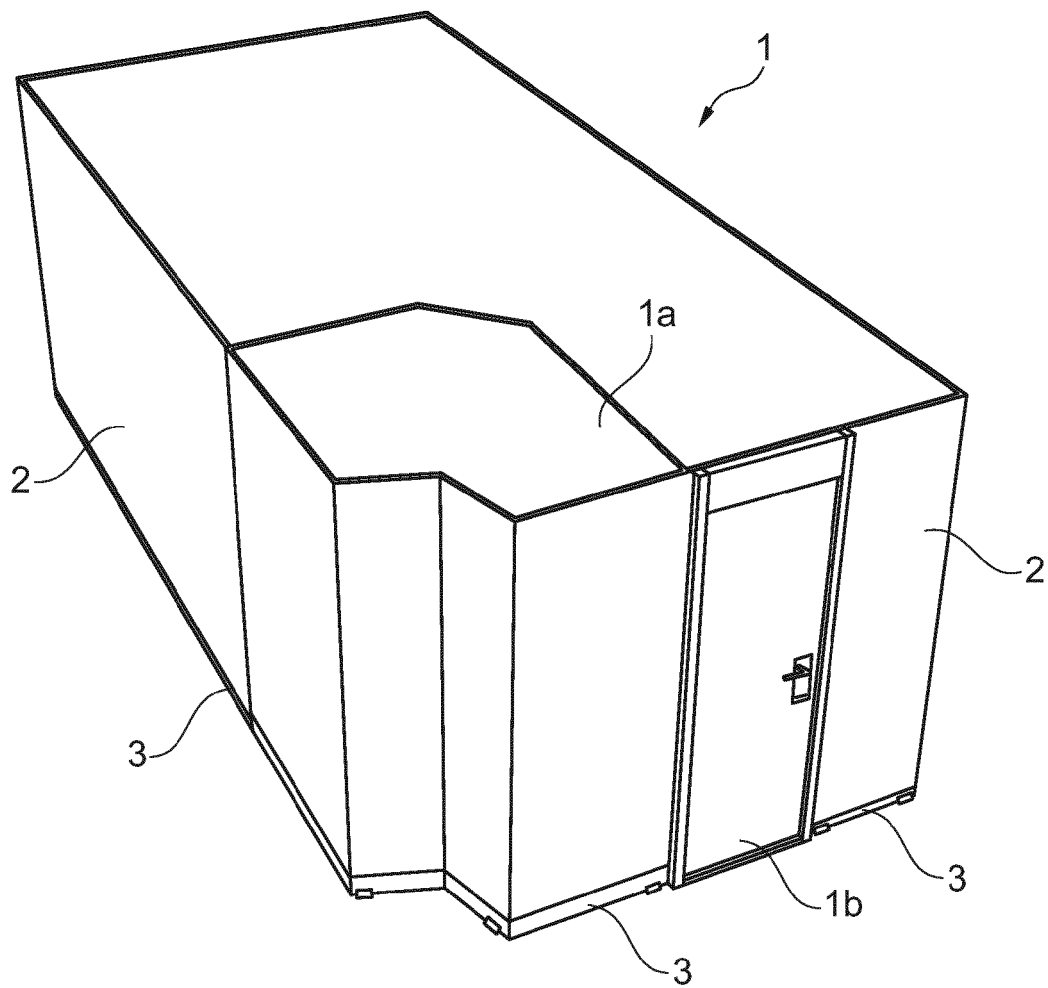


Fig. 1

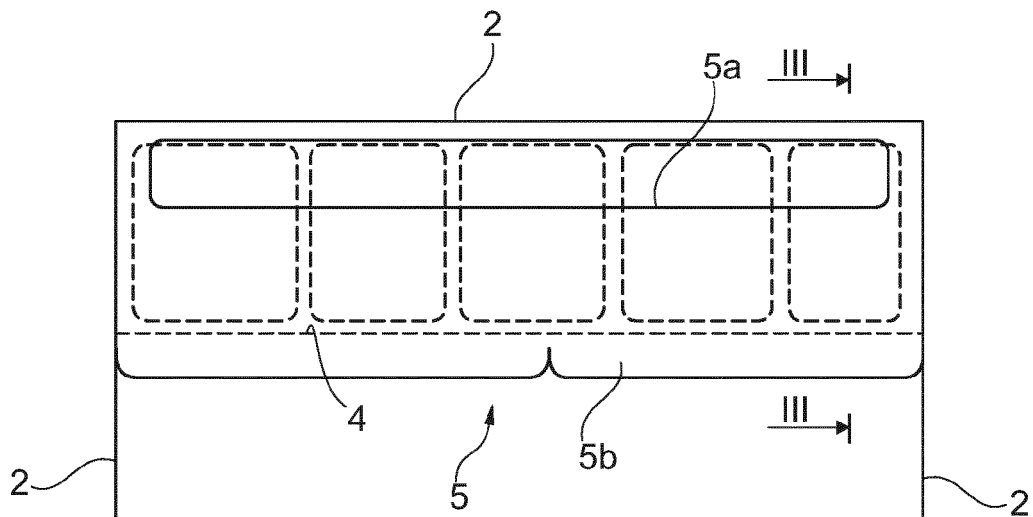


Fig. 2

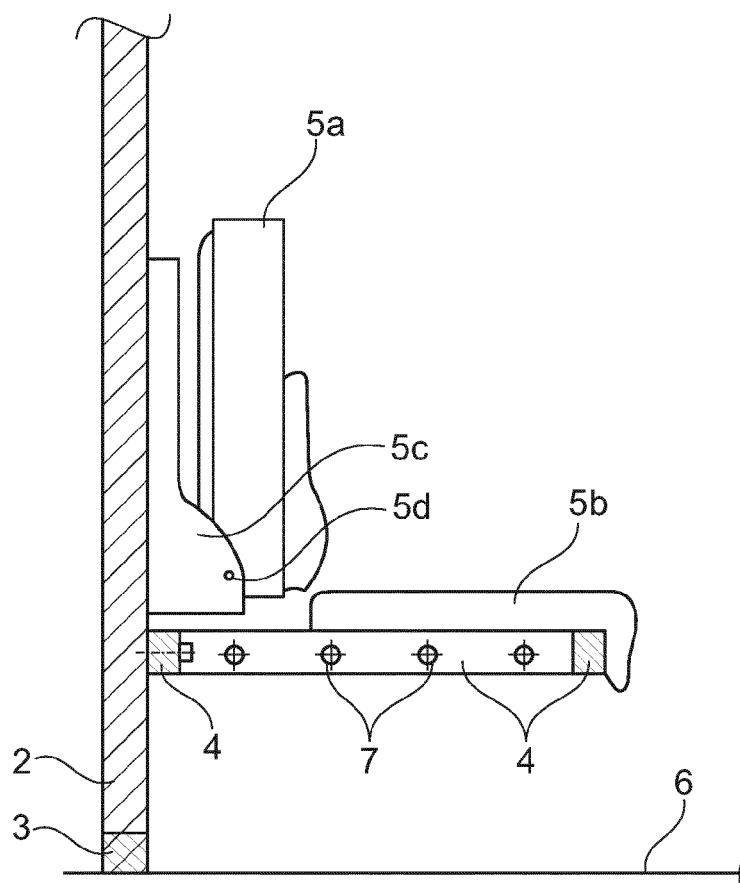


Fig. 3



## EUROPEAN SEARCH REPORT

Application Number  
EP 12 16 3892

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 088 292 A (WAERTSILAE OY AB) 9 June 1982 (1982-06-09)	1,5-8	INV. E04B1/343 B63B29/02
Y	* page 2, lines 26-44; claims 1,3; figures 1,2,3 *	2,3	
A	----- WO 98/56999 A1 (GE CAPITAL MODULAR SPACE BVBA [BE]; BOOMSMA HARMEN [NL]; ROSCAM ABBING) 17 December 1998 (1998-12-17) * page 4, lines 28-34; figure 2 *	1-8	
A	----- US 4 073 101 A (YOSHIDA NOBORU) 14 February 1978 (1978-02-14) * column 2, lines 32-35; figures 8,10 *	1-8	
Y	----- US 2 316 710 A (PETER PARKE) 13 April 1943 (1943-04-13) * page 2, lines 22-34; figures 5,6 *	2,3	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04B B63B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 28 August 2012	Examiner Rosborough, John
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 ..... &amp; : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

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

EP 12 16 3892

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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28-08-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2088292 A	09-06-1982	BE 890843 A2	15-02-1982
		CA 1210279 A1	26-08-1986
		DE 3142124 A1	27-05-1982
		DK 470081 A	25-04-1982
		FI 803333 A	25-04-1982
		GB 2088292 A	09-06-1982
		HK 80585 A	25-10-1985
		JP 1707947 C	27-10-1992
		JP 2047391 B	19-10-1990
		JP 57099493 A	21-06-1982
		NL 8104782 A	17-05-1982
		NO 813576 A	26-04-1982
		SE 446076 B	11-08-1986
		SE 8106255 A	25-04-1982
		US 4528928 A	16-07-1985
WO 9856999 A1	17-12-1998	AU 8131898 A	30-12-1998
		EP 0988428 A1	29-03-2000
		NL 1008629 C2	14-12-1998
		WO 9856999 A1	17-12-1998
US 4073101 A	14-02-1978	NONE	
US 2316710 A	13-04-1943	NONE	