



- (51) **International Patent Classification:**
B64D 11/04 (2006.01) *B64D 11/06* (2006.01)
B64D 11/00 (2006.01)
- (21) **International Application Number:** PCT/EP2014/052858
- (22) **International Filing Date:** 13 February 2014 (13.02.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:** 61/764,018 13 February 2013 (13.02.2013) US
- (71) **Applicant:** SELL GMBH [DE/DE]; Dr.-Siegfried-Straße, 35745 Herborn (DE).
- (72) **Inventors:** PARRY, Trystan; 19 Clos Halkett, Cardiff, Wales CF118DZ (GB). DAOUT, Jean-Marie; 11103 60th ave West, Mukilteo, Washington 98275 (US). JIN, Zhao; 6300 Merrill Creek Pkwy, Everett, Washington 98203 (US). PIERAMICO, Martin; 2401 29th ave West, Seattle, Washington 98199 (US).
- (74) **Agent:** GROSSE, Wolf-Dietrich; Gihlske Große Klüppel Kross, Bürogemeinschaft von Patentanwälten, Hammerstraße 3, 57072 Siegen (DE).
- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

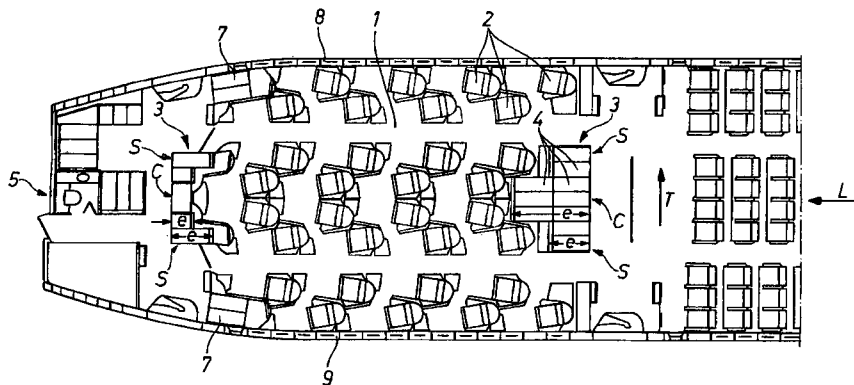
- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) **Title:** AIRCRAFT

Fig 1



(57) **Abstract:** The invention relates to an aircraft comprising at least one floor (1) on which a plurality of seats (2) is arranged, wherein furthermore at least one galley (3) is arranged on the floor (1), wherein the galley (3) comprises a plurality of carts and/or containers (4) for food and/or beverages and/or other utensils, wherein the floor (1) has a longitudinal axis (L) which is oriented in the flight direction of the aircraft. To create additional space for stowing the carts and/or containers the invention proposes that the galley (3) has a receiving space for a plurality of carts and/or containers (4), wherein the receiving space has an extension (e) in the direction of the longitudinal axis (L) and wherein the extension (e) varies in the direction (T) horizontally and perpendicular to the longitudinal axis (L).

WO 2014/125046 A1

Aircraft

The invention relates to an aircraft comprising at least one floor on which a plurality of seats is arranged, wherein furthermore at least one galley is arranged on the floor, wherein the galley comprises a plurality of carts and/or containers for food and/or beverages and/or other utensils, wherein the floor has a longitudinal axis which is oriented in the flight direction of the aircraft.

Aircraft galleys are well known in the art. The galley comprises a number of carts or containers for stowing food and beverages as well as other utensils. The available space for stowing carts is sometimes not used in a most efficient manner. This is a significant drawback as space in an aircraft is always limited and economical and environmental advantages can be taken when the space is used in an optimized way.

Currently, the different regions in an aircraft are regarded independently from another. Accordingly, so called "mid galleys" are designed as rectangular elements to optimize the space in the galley itself. At the other hand the arrangement of the seats especially in the business section is sometimes offset to provide the passenger with the available space as efficient as possible. At the transition between the different sections a dead space is created which cannot be used efficiently.

Thus, it is an object of the present invention to further develop an aircraft design with a galley in such a way that the available space for stowing carts and containers is used in an optimized manner. So, the limited space in an aircraft should be used as efficient as possible.

The solution of this object by the invention is characterized in that the galley has a receiving space for a plurality of carts and/or containers, wherein the receiving space has an extension in the direction of the longitudinal axis and wherein the extension varies in the direction horizontally and perpendicular to the longitudinal axis.

One possible design of this concept is characterized in that the extension of the receiving space is bigger in a center region of the galley than in the lateral region of the galley. In this case the galley has preferably a T-shaped design seen in a top plan view.

Another design is characterized in that the extension of the receiving space is bigger in a lateral region of the galley than in the center region of the galley. In this case the galley has preferably a U-shaped design seen in a top plan view.

The extension of the receiving space can comprise one or two sections with a smaller constant extension and one or two sections with a bigger constant extension. Here, a preferred solution provides that the extension in the bigger section is 1.5 times of the extension in the smaller section. Alternatively, the extension in the bigger section can be 2.0 times of the extension in the smaller section.

Furthermore, it can be provided that two levels are arranged in the galley for receiving and stowing carts and/or containers in two different heights. In this case elevator means can be provided to lift a cart and/or container to the upper level.

Furthermore, pulling means can be provided to pull a cart and/or container out of the receiving space. The pulling means can also be designed to clamp the cart and/or container in the receiving space. Here, a preferred solution provides that the pulling means are designed for a combined translational and rotational move-

ment to move the cart and/or container by the translational movement of the means and to clamp it by the rotational movement of the means.

A specific solution comes up with a galley having a T-shaped design seen in a top plan view which is arranged adjacent to a galley having a U-shaped design seen in a top plan view.

A first galley and a second galley can be arranged with distance in the direction of the longitudinal axis, wherein a plurality of seats is arranged between the two galleys. In this case it is preferred that the first galley in a forward location has a U-shaped design seen in a top plan view and that the second galley in a rear location has a T-shaped design seen in a top plan view.

Preferably, the galley is arranged in a center area of the floor.

Thus, the invention suggests that the shape of the galley is adapted according to the arrangement of the seat. So, the space on the floor can be used in a more efficient manner. Accordingly, due to the orientation of the galley different designs are possible.

According to the invention it becomes possible that additional carts or containers are stowed in the galley in a center region of the galley (T-shape of the galley in a top plan view) or in the lateral regions of the galley (U-shape of the galley in a top plan view).

Also a L-shaped design of the galley is possible; this design is mostly used when a galley is arranged near the doors. Also here, additional space for carts can be established.

Thus, a transition space between seating monument and galleys can be utilized to extend the galley and increase the capacity for stowing carts (trolley, inserts) and containers.

In the case of the U-shape the galley is extended parallel to the centerline of the aircraft, the passengers in the center being bordered by a galley on both sides.

In the case of the T-shape the galley is extended parallel to the centerline of the aircraft, the passengers in the left hand area and the right hand area being bordered by the extension of the galley on the centerline of the aircraft.

The side monuments can also be used to store carts (trolleys) and be converted in effect in a small galley.

"Full depth carts" and "half depth carts" can be used. I. e., depending on the seat configuration the extension of the "T" can be full depth (full size carts/trolleys can be fitted) and half depth (half size carts/trolleys can be fitted).

A carts/trolley lift system can further augment the galley capacity by adding a second layer of trolleys in the extension of the "T".

In the drawings embodiments of the invention are shown.

Fig. 1 shows a top plan view onto a part of a floor of an aircraft with seats and galleys,

Fig. 2 shows a view onto the galley according to a possible embodiment of the invention,

Fig. 3 shows a perspective view onto the galley seen from the position of the passengers,

Fig. 4 shows a perspective view onto the galley according to Fig. 3 seen from behind,

Fig. 5 shows a top plan view onto a part of the floor of the aircraft, wherein an alternative galley concept is realized,

Fig. 6 shows a perspective view onto the galley according to an alternative embodiment of the invention seen from behind,

Fig. 7 shows a perspective view onto the galley according to Fig. 6 seen from the position of the passengers,

Fig. 8a shows a top view onto a galley,

Fig. 8b shows a front view onto the galley according to Fig. 8a,

Fig. 8c shows a side view onto the galley according to Fig. 8a,

Fig. 8d shows a bottom view onto the galley according to Fig. 8a,

Fig. 9 shows a top plan view onto a part of the floor of the aircraft, wherein the galley consists of different element,

Fig. 10 shows a top view onto a galley,

Fig. 11 shows the top view onto the galley with pulling means for pulling out a cart,

Fig. 12 shows a cart pulled out by means of the pulling means,

Fig. 13 shows a part of a galley, wherein pulling means are depicted for pulling out a cart,

Fig. 14 shows a similar depiction as in Fig. 13,

Fig. 15 shows a galley with a T-shaped configuration with a full depth extension for carts,

Fig. 16 shows a corresponding galley with a T-shaped configuration with a half depth extension for carts,

Fig. 17 shows another galley with a T-shaped configuration with a full depth extension for carts,

Fig. 18 shows a corresponding galley with a T-shaped configuration with a half depth extension for carts,

Fig. 19 shows a further other galley with a T-shaped configuration with a full depth extension for carts,

Fig. 20 shows a corresponding galley with a T-shaped configuration with a half depth extension for carts,

Fig. 21 shows a side view of a galley with a T-shaped configuration with a full depth extension for carts,

Fig. 22 shows a corresponding galley with a T-shaped configuration with a half depth extension for carts,

Fig. 23 shows a top plan view of a galley with a T-shaped configuration with a full depth extension for carts and

Fig. 24 shows a corresponding galley with a T-shaped configuration with a half depth extension for carts.

In Fig. 1 a top plan view of an aircraft floor 1 is shown; on the floor 1 a plurality of seats 2 is arranged in known manner. The floor 1 is delimited laterally by side walls 8 and 9. The floor 1 and the aircraft respectively have a longitudinal axis L which extends in the longitudinal direction of the aircraft.

Furthermore, two galleys 3 – one in the (left) front region of the floor 1 and one in (right) center region of the floor 1 – are arranged in the center area 5 of the floor 1.

For both galleys 3 it applies that the galley 3 has a receiving space for a plurality of carts and containers 4 respectively, see Fig. 2. The receiving space has an exten-

sion e in the direction of the longitudinal axis L . Furthermore, the extension e varies in the direction T horizontally and perpendicular to the longitudinal axis L .

Due to the different extension of the receiving space "half size carts" and "full size carts" can be stowed accordingly.

Thereby, the carts can be arranged on the floor, while additional space for stowing is available above the carts.

A design which results from this concept is apparent from Fig. 2. Here it can be seen that the extension e of the receiving spaces for carts 4 is small in the center region C of the galley 3, while it is big in the lateral regions S of the galley 3. Thus, the U-shaped design is given as can be seen in Fig. 2.

The view which is seen from the seats 2, i. e. from the passengers, is shown in Fig. 3. A seat monument 10 is visible. Fig. 4 shows the galley 3 from the rear side.

In Fig. 5 a concept is depicted where two galleys 3 are arranged adjacent in the middle region of the floor; a further (left) galley 3 is arranged in the front region of the floor 1. The two adjacent galleys 3 have a specific design, namely a T-shaped top plan view (left one of the two adjacent galleys 3) and a U-shaped top plan view (right one of the two adjacent galleys 3). An aisle between the two galleys 3 remains.

In Fig. 6 and Fig. 7 a U-shaped galley 3 is shown from the rear side (Fig. 6) and from the front side (Fig. 7) as the passengers see it with a seat monument.

In Fig. 8a to 8d the galley 3 according to figures 6 and 7 is shown in a top plan view, a front view, a side view and a bottom view. The seat monument 10 is visible

for the passengers. The galley 3 has receiving space for carts 4 as well as for containers 11. Storage space 12 is also available.

In Fig. 9 it can be seen that also lateral galley sections 7 can be provided beside the galley or galleys in the center area 5 of the floor 1.

From figures 10 to 12 it becomes apparent that pulling means 6 can be employed to pull out carts 4 from the receiving space in the galley 3. This facilitates to pull out the carts 4 which are arranged in the elongated extension of the receiving space. Also the pulling means can be used for pushing a cart 4 back in the receiving space after use.

Another design of the pulling means 8 are shown in figures 13 and Fig. 14. The pulling means 6 are here rod-shaped. A further feature of the pulling means is that the pulling means 6 according to the embodiment of figure 13 and 14 can be rotated along their longitudinal axis to clamp the cart 4 in the receiving space by twisting. So, the cart 4 can be locked in the position as shown in one of figures 13 and 14 and can be pulled in the position which is shown in the other of the two mentioned figures.

In Fig. 15 to 24 different other embodiments of the galley according to the invention are depicted.

In Fig. 15 and Fig. 16 a galley 3 is depicted which has a T-shape in a top plan view. In Fig. 15 a "full depth" arrangement is shown, i. e. here in the extended portion of the galley 3 two full shaped carts 4 can be pushed in one after another. In Fig. 16 a "half depth" arrangement is shown; that means that a cart 4 having only 50 % of the regular extension can be pushed in the receiving space of the galley 3.

A similar design is shown in Fig. 17 and Fig. 18. Fig. 17 shows the "full depth" arrangement, Fig. 18 the "half depth" arrangement for a T-shaped galley 3.

Again, another similar design is shown in Fig. 19 and Fig. 20. Fig. 19 shows the "full depth" arrangement, Fig. 20 the "half depth" arrangement for a T-shaped galley 3.

The "full depth" arrangement and the "half depth" arrangement become especially apparent in Fig. 21 and Fig. 22. The "full depth" arrangement according to Fig. 21 has double the extension of a cart, while the "half depth" arrangement according to Fig. 22 has 1.5-times the extension of a cart.

This arrangement is also apparent in Fig. 23 and Fig. 24. In Fig. 23 the top plan view onto a T-shaped galley 3 is depicted. As can be seen the big extension e is twice of the small extension e . With respect to Fig. 24 it can be seen that the big extension e is about 1.5 times of the small extension e . Thus, in the enlarged part of the galley 3 two carts 4 can be arranged, wherein one cart 4 has a regular extension and the other cart has an extension of only 50 % of it.

The specific design of the galley 3 with its enlarged sections depends on the arrangement of the seats on the floor.

Due to the proposed concept additional stowing space is created for the galley. So, at another location space for arranging additional seats is developed. The degree of utilization of the aircraft can thus be enhanced, i. e. more passengers can be transported.

List of References:

1	Floor
2	Seat
3	Galley
4	Cart / Container
5	Center area
6	Pulling means
7	Lateral galley section
8	Side wall
9	Side wall
10	Seat monument
11	Container
12	Storage space
e	Extension
L	Longitudinal axis of the floor
T	Direction horizontally and perpendicular to the longitudinal axis
C	Center region of the galley
S	Lateral region of the galley

Patent Claims:

1. Aircraft comprising at least one floor (1) on which a plurality of seats (2) is arranged, wherein furthermore at least one galley (3) is arranged on the floor (1), wherein the galley (3) comprises a plurality of carts and/or containers (4) for food and/or beverages and/or other utensils, wherein the floor (1) has a longitudinal axis (L) which is oriented in the flight direction of the aircraft,

characterized in that

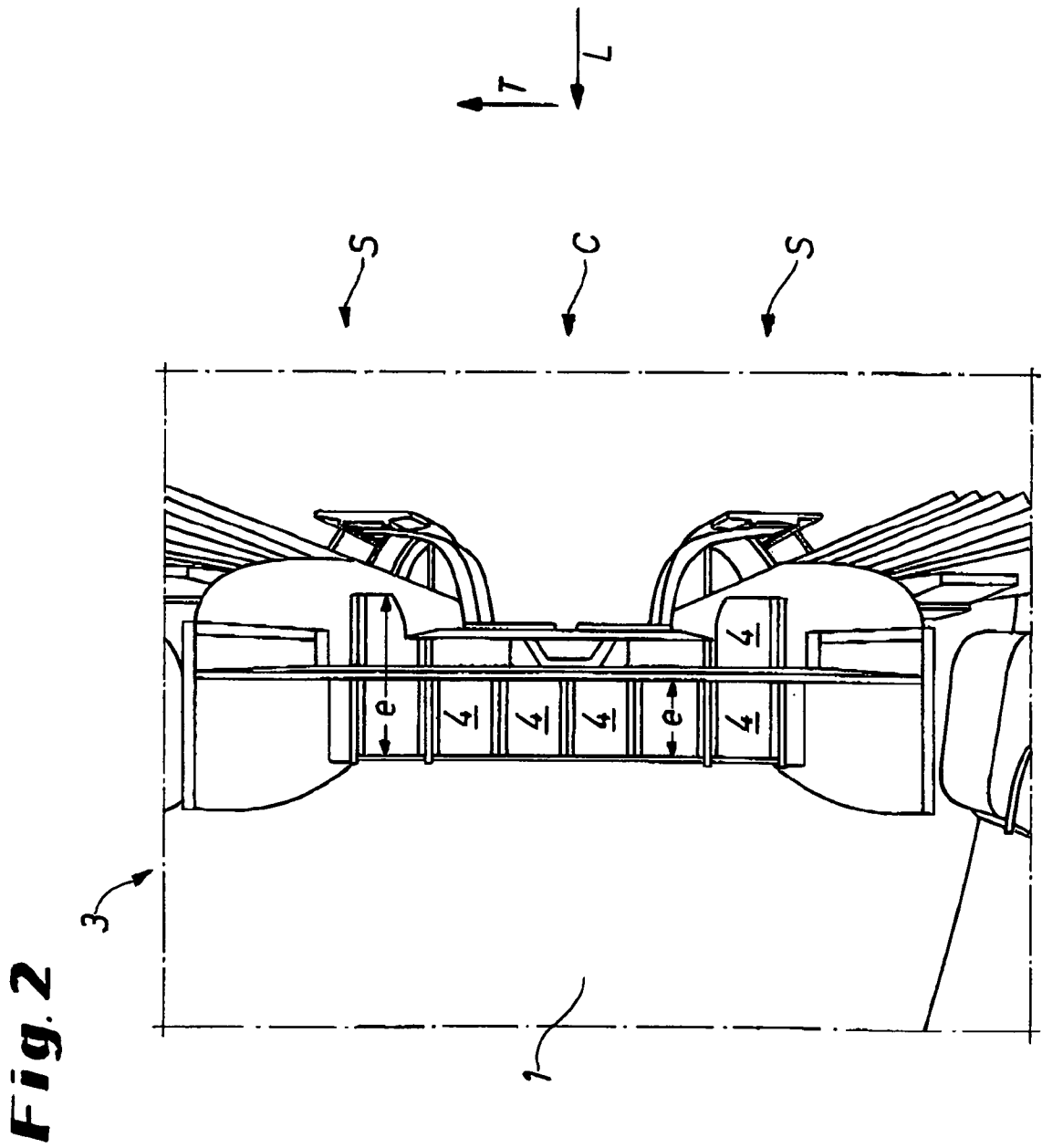
the galley (3) has a receiving space for a plurality of carts and/or containers (4), wherein the receiving space has an extension (e) in the direction of the longitudinal axis (L) and wherein the extension (e) varies in the direction (T) horizontally and perpendicular to the longitudinal axis (L).

2. Aircraft according to claim 1, characterized in that the extension (e) of the receiving space is bigger in a center region (C) of the galley (3) than in the lateral region (S) of the galley (3).
3. Aircraft according to claim 2, characterized in that the galley (3) has a T-shaped design seen in a top plan view.
4. Aircraft according to claim 1, characterized in that the extension (e) of the receiving space is bigger in a lateral region (S) of the galley (3) than in the center region (C) of the galley (3).

5. Aircraft according to claim 4, characterized in that the galley (3) has a U-shaped design seen in a top plan view.
6. Aircraft according to one of claims 1 to 5, characterized in that the extension (e) of the receiving space comprises one or two sections with a smaller constant extension (e) and one or two sections with a bigger constant extension (e).
7. Aircraft according to claim 6, characterized in that the extension (e) in the bigger section is 1.5 times of the extension (e) in the smaller section.
8. Aircraft according to claim 6, characterized in that the extension (e) in the bigger section is 2.0 times of the extension (e) in the smaller section.
9. Aircraft according to one of claims 1 to 8, characterized in that two levels are arranged in the galley (3) for receiving and stowing carts and/or containers (4) in two different heights.
10. Aircraft according to claim 9, characterized in that elevator means are provided to lift a cart and/or container (4) to the upper level.

11. Aircraft according to one of claims 1 to 10, characterized in that pulling means (6) are provided to pull a cart and/or container (4) out of the receiving space.
12. Aircraft according to claim 11, characterized in that the pulling means (6) are also designed to clamp the cart and/or container (4) in the receiving space.
13. Aircraft according to claim 12, characterized in that the pulling means (6) are designed for a combined translational and rotational movement to move the cart and/or container (4) by the translational movement of the means and to clamp it by the rotational movement of the means.
14. Aircraft according to one of claims 1 to 13, characterized in that a galley (3) having a T-shaped design seen in a top plan view is arranged adjacent to a galley (3) having a U-shaped design seen in a top plan view.
15. Aircraft according to one of claims 1 to 14, characterized in that a first galley (3) and a second galley (3) are arranged with distance in the direction of the longitudinal axis (L), wherein a plurality of seats (2) is arranged between the two galleys (3).
16. Aircraft according to claim 15, characterized in that the first galley (3) in a forward location has a U-shaped design seen in a top plan view and that the second galley (3) in a rear location has a T-shaped design seen in a top plan view.

17. Aircraft according to one of claims 1 to 16, characterized in that the galley (3) is arranged in a center area (5) of the floor (1).



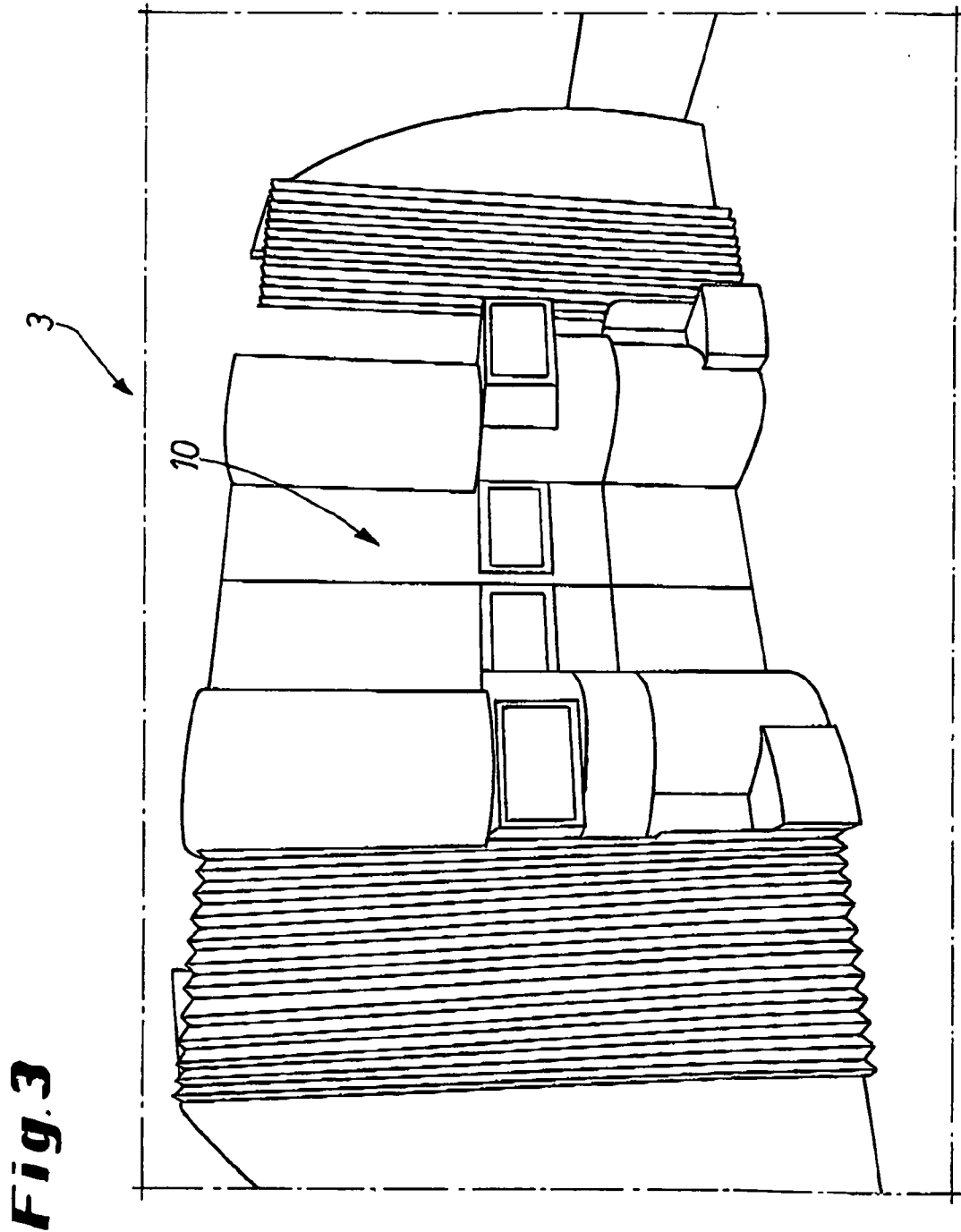
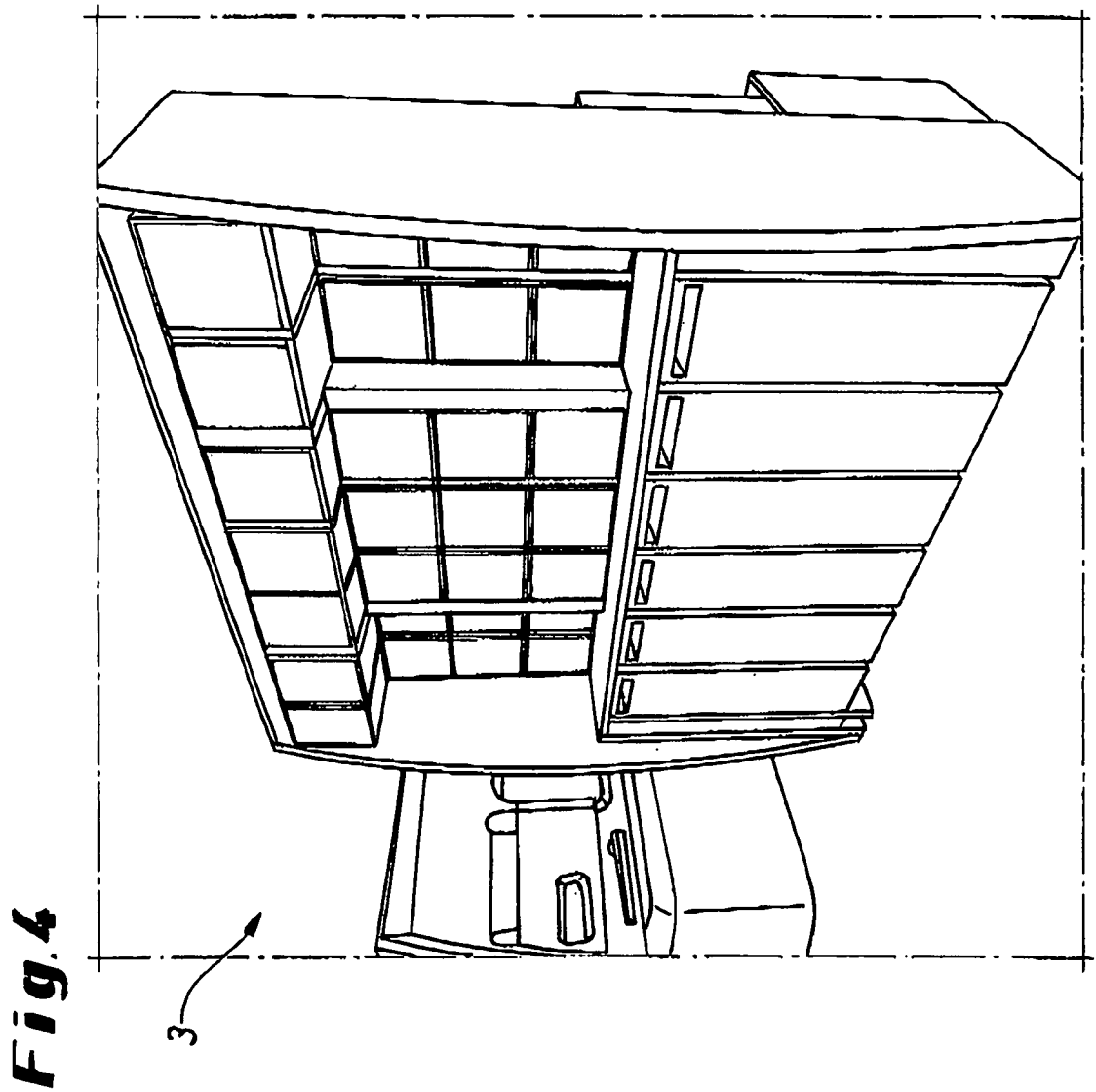


Fig. 3



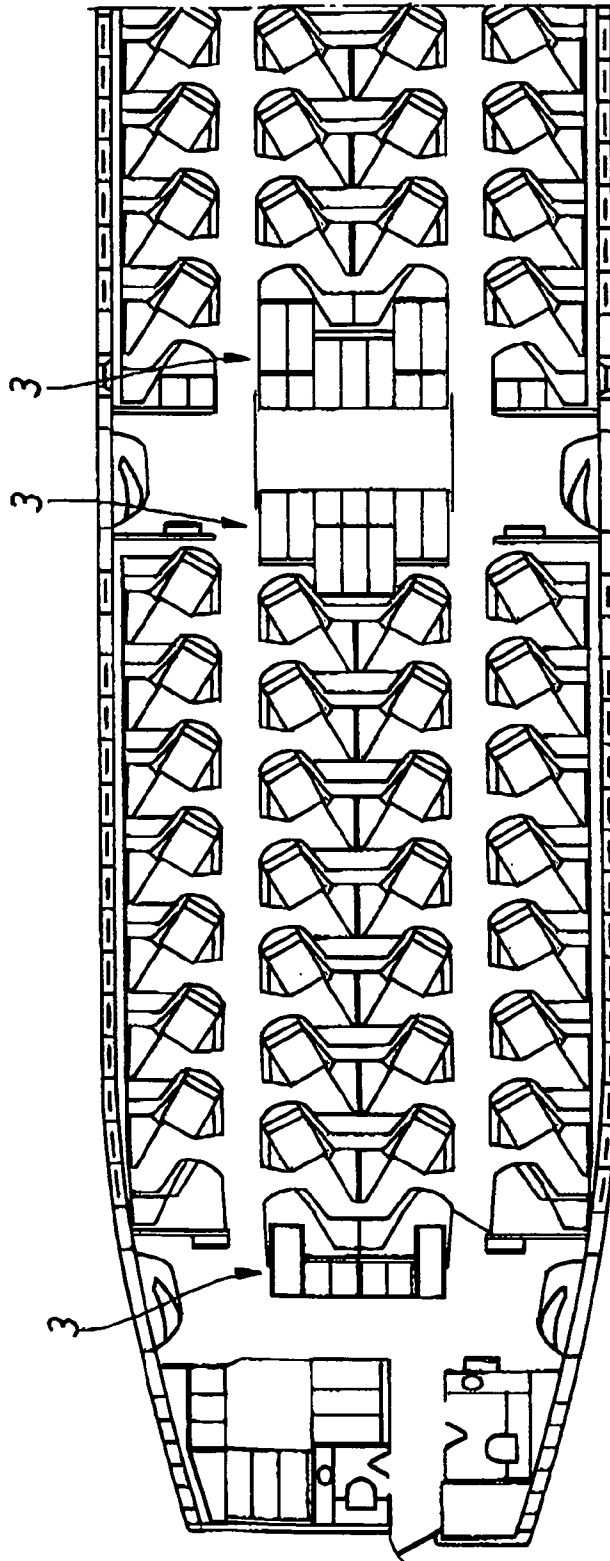


Fig. 5

Fig.7

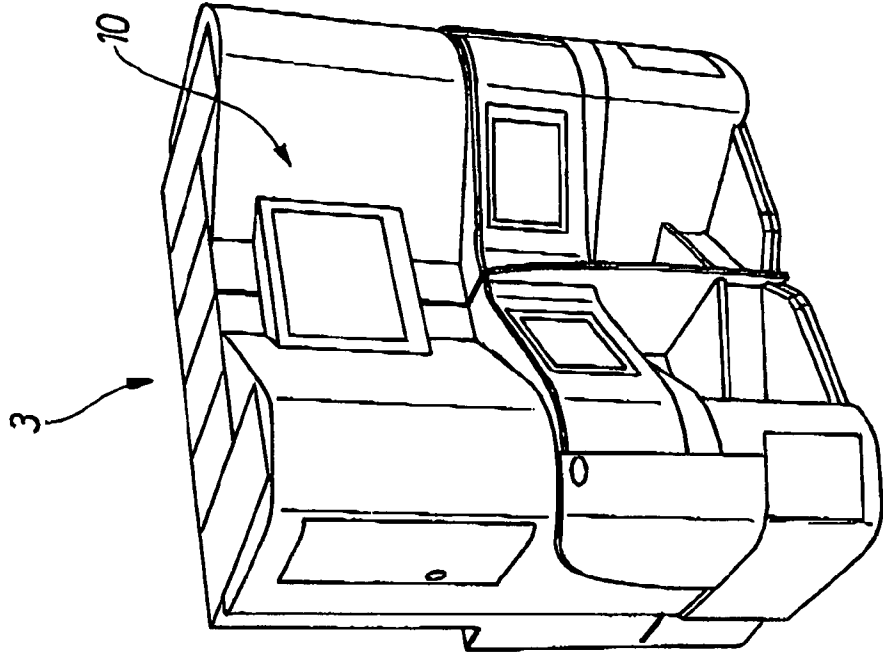
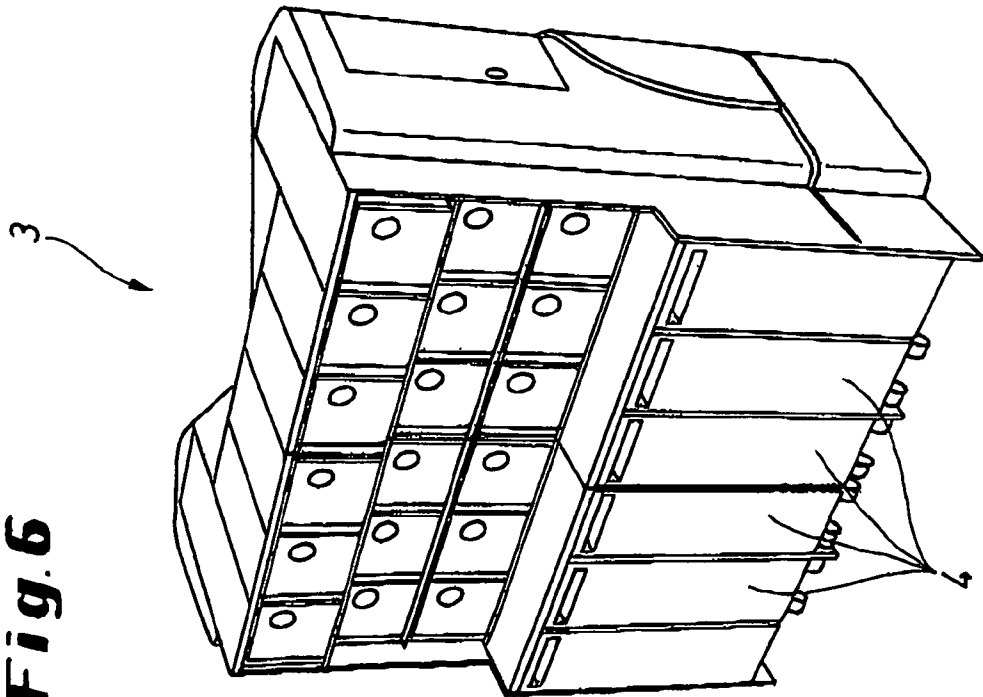
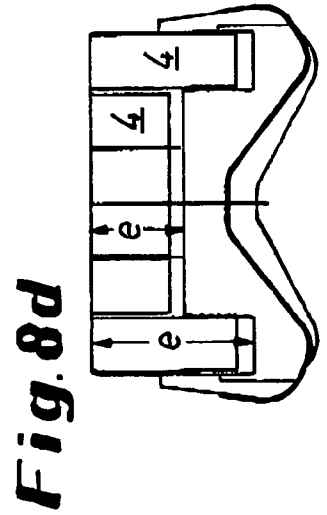
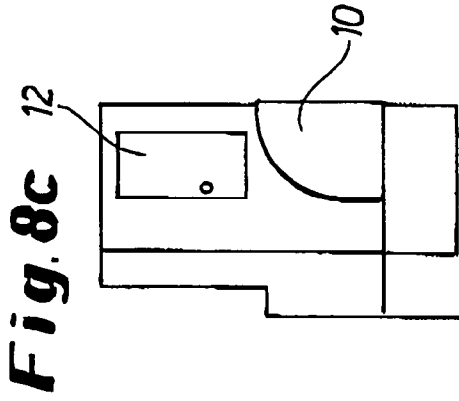
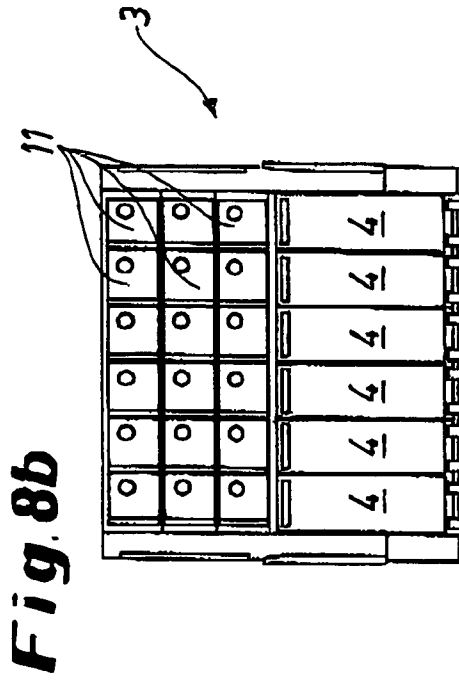
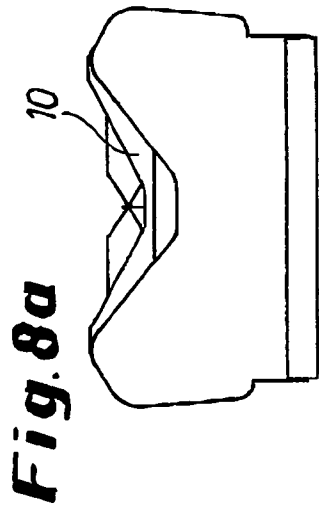


Fig.6





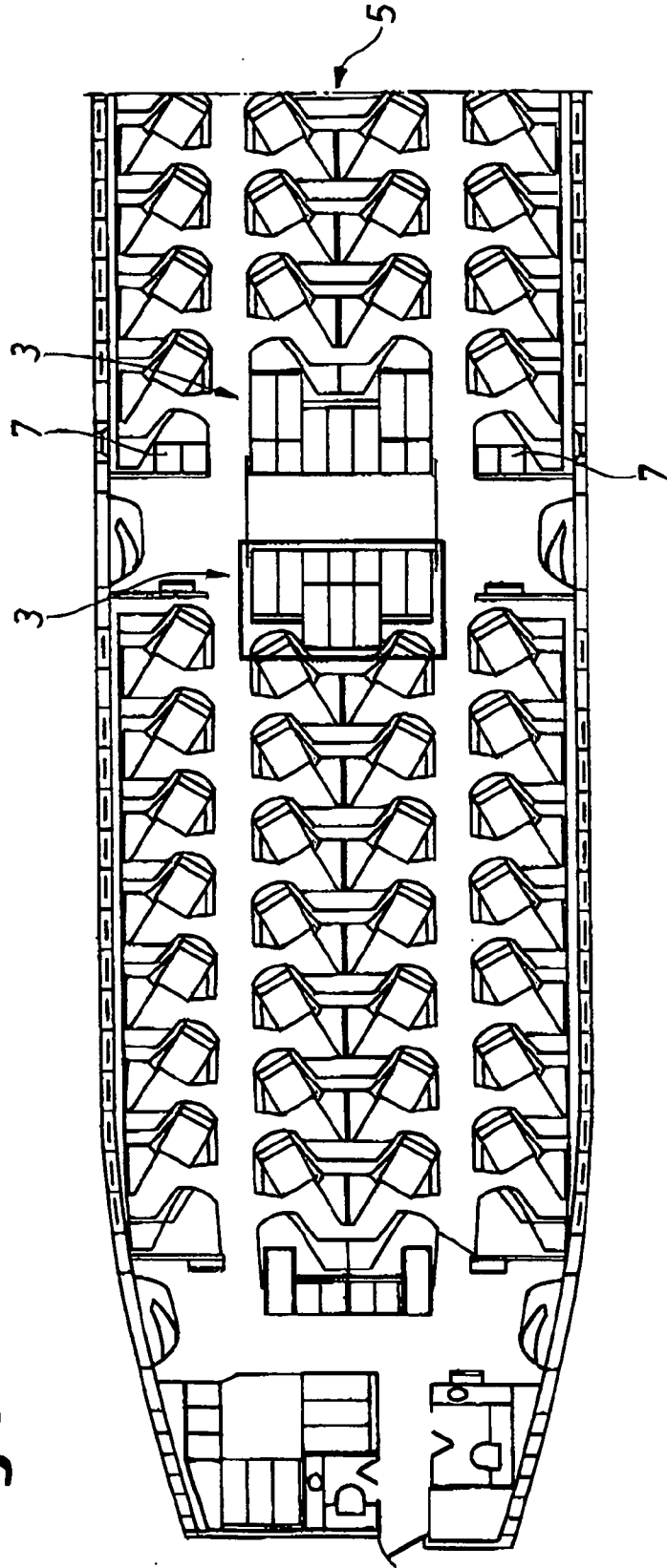


Fig. 9

Fig.11

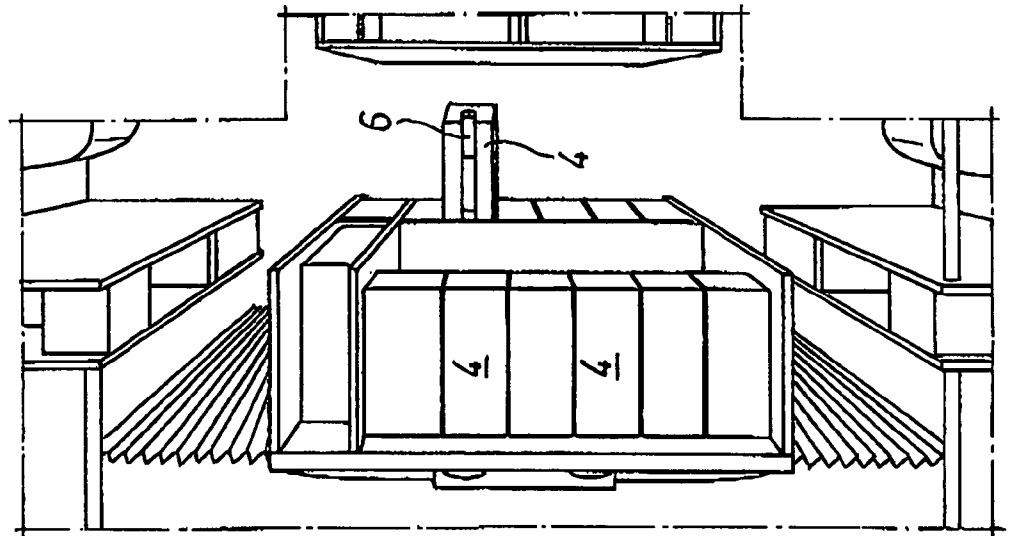


Fig.10

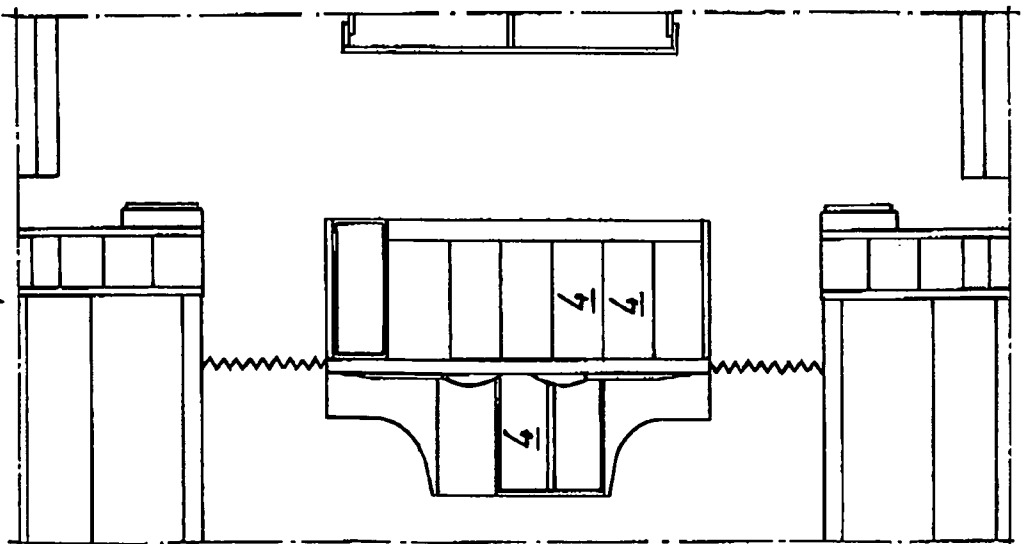


Fig.12

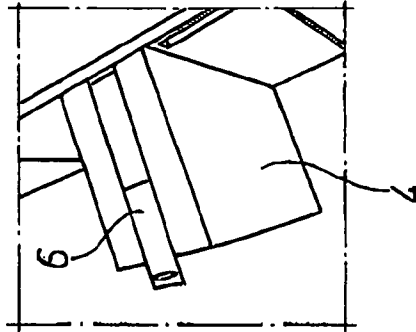


Fig.14

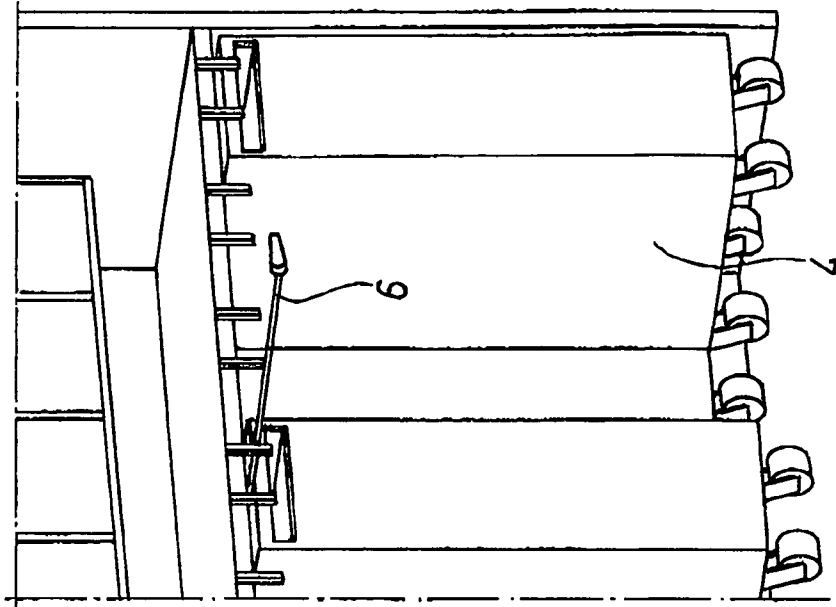


Fig.13

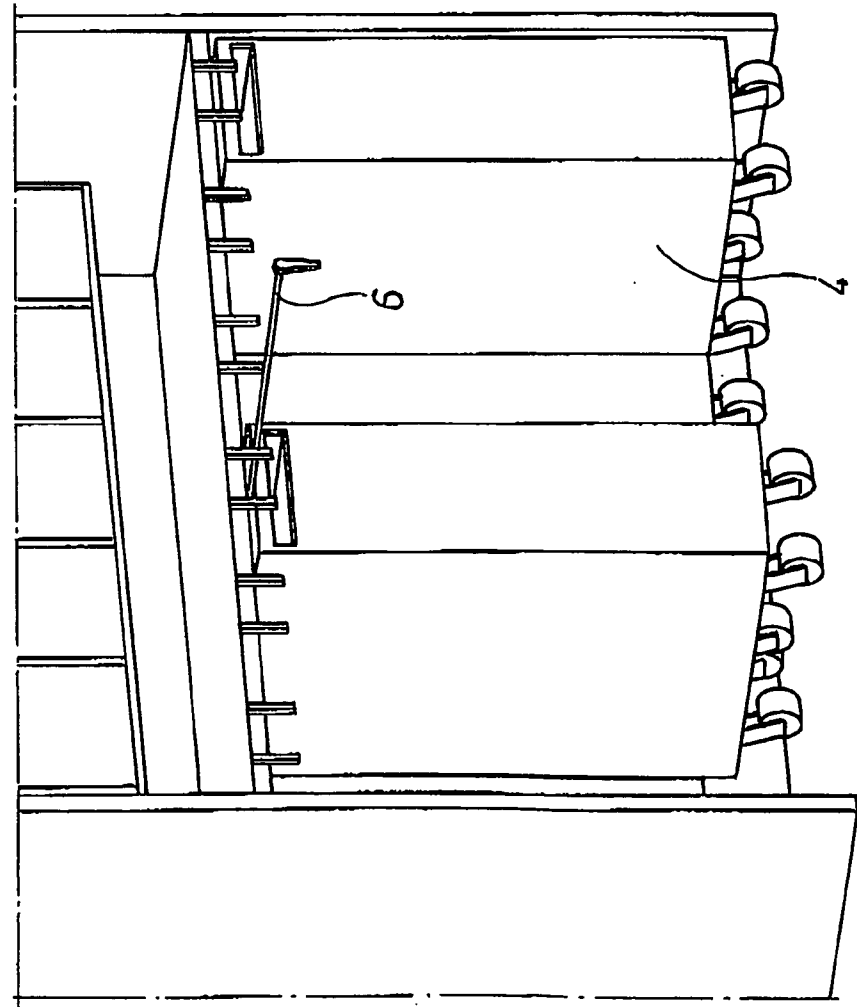


Fig.16

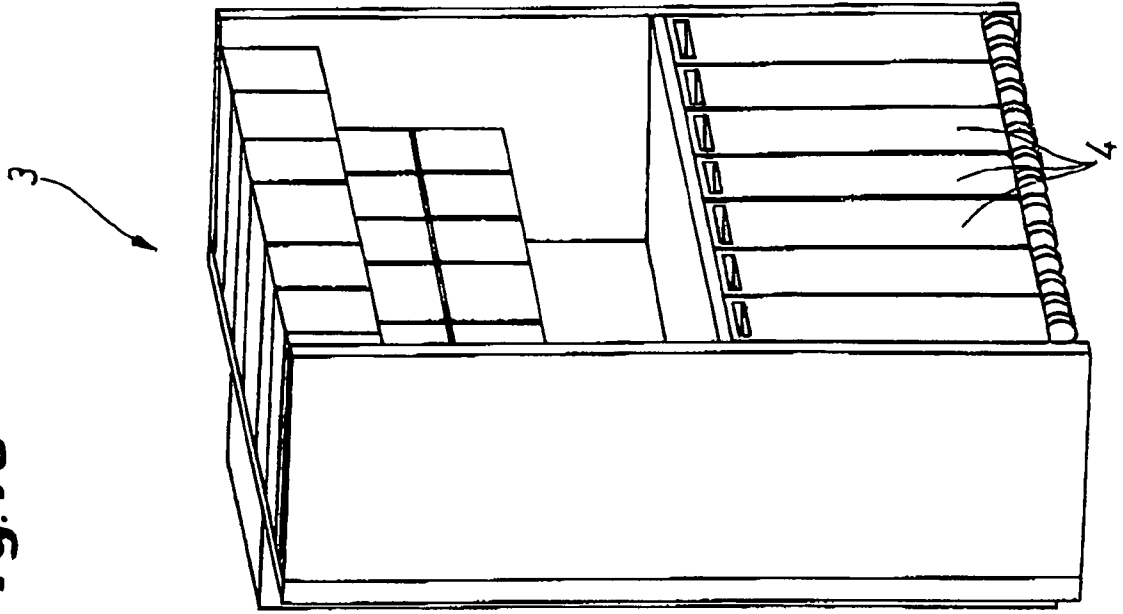


Fig.15

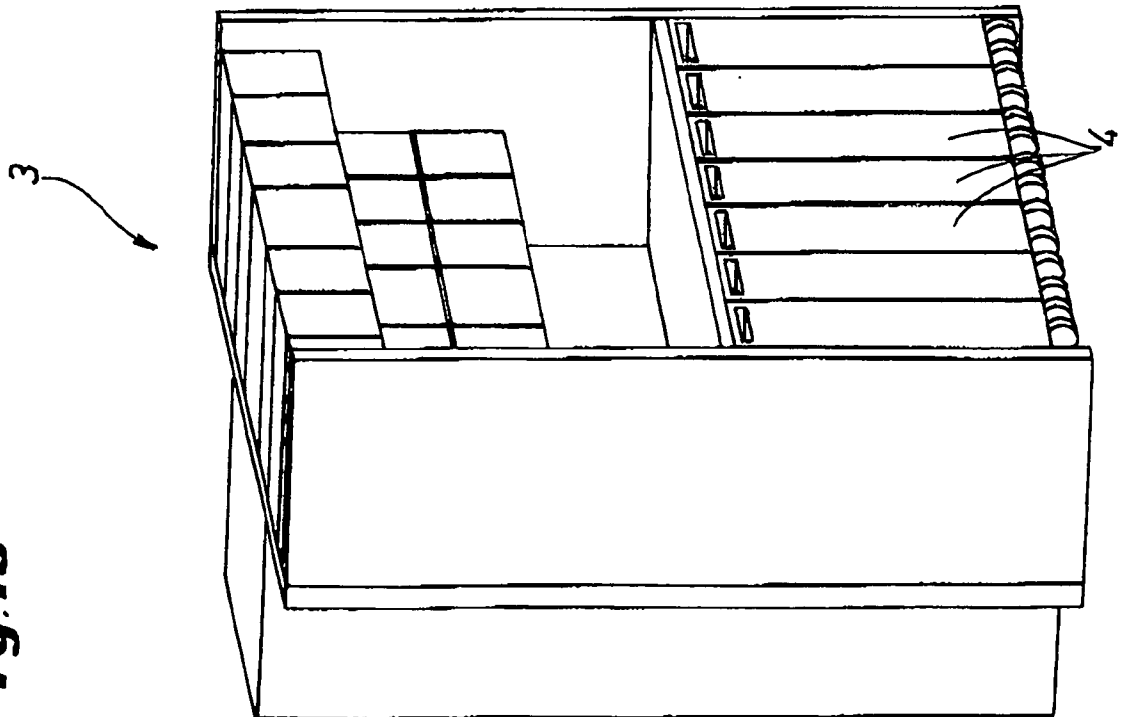


Fig.18

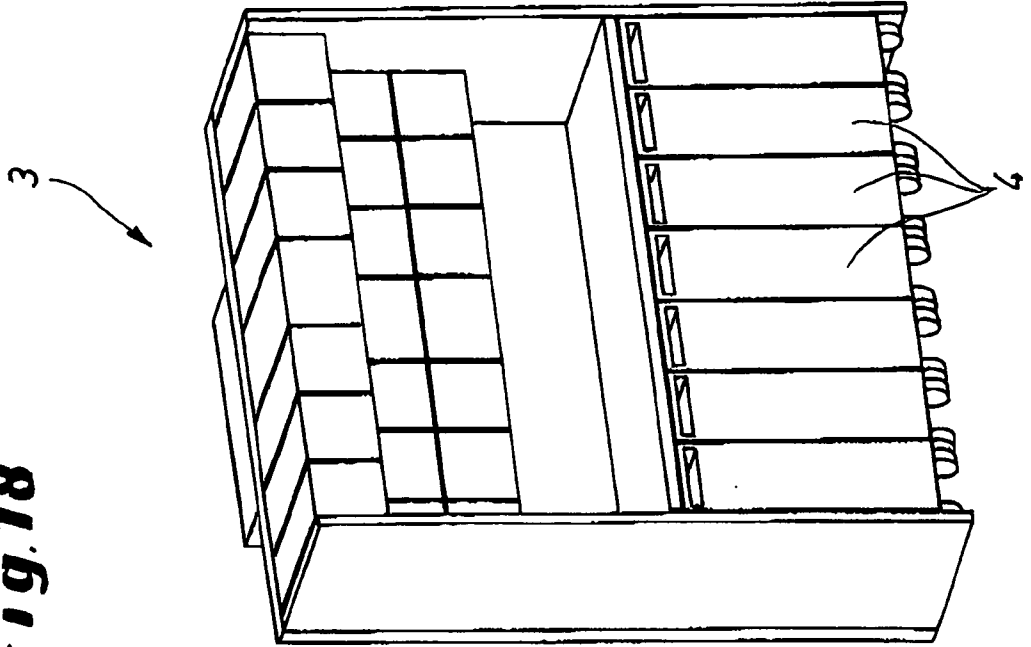


Fig.17

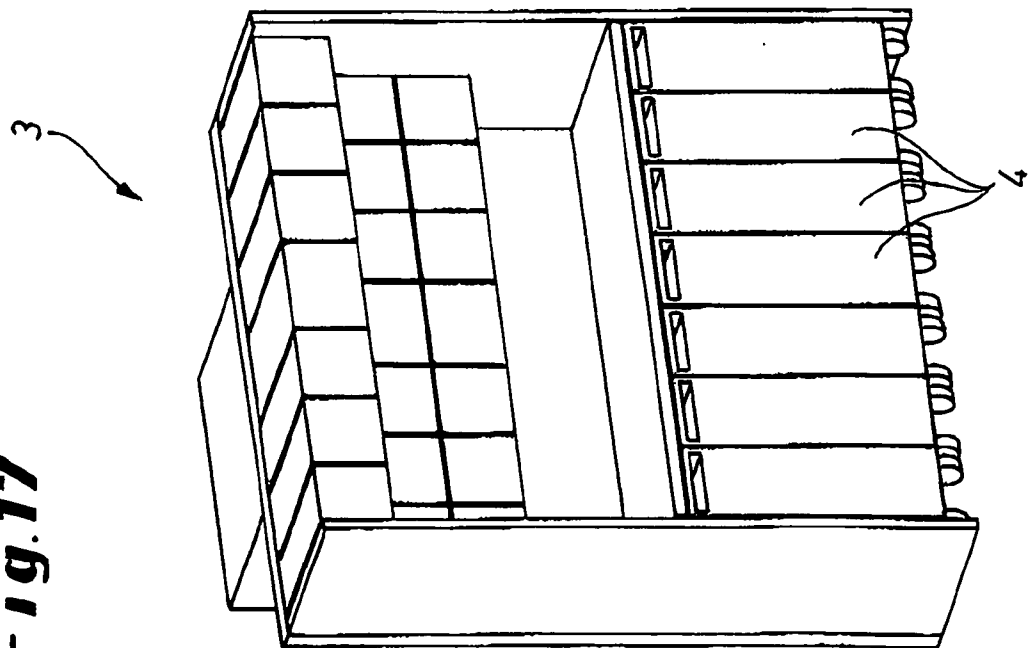


Fig. 20

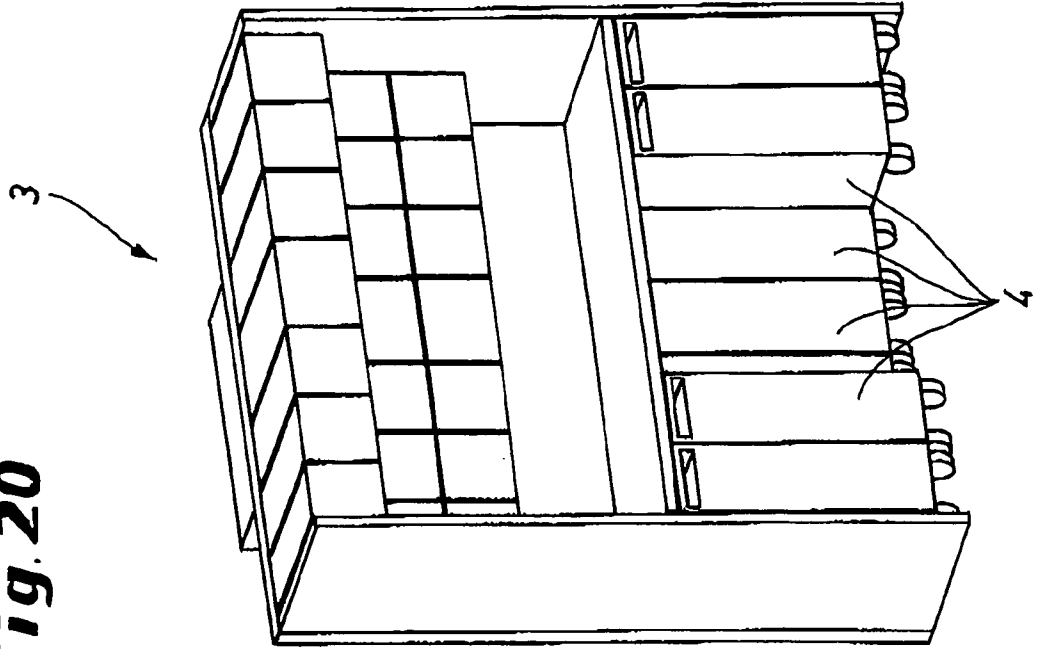


Fig. 19

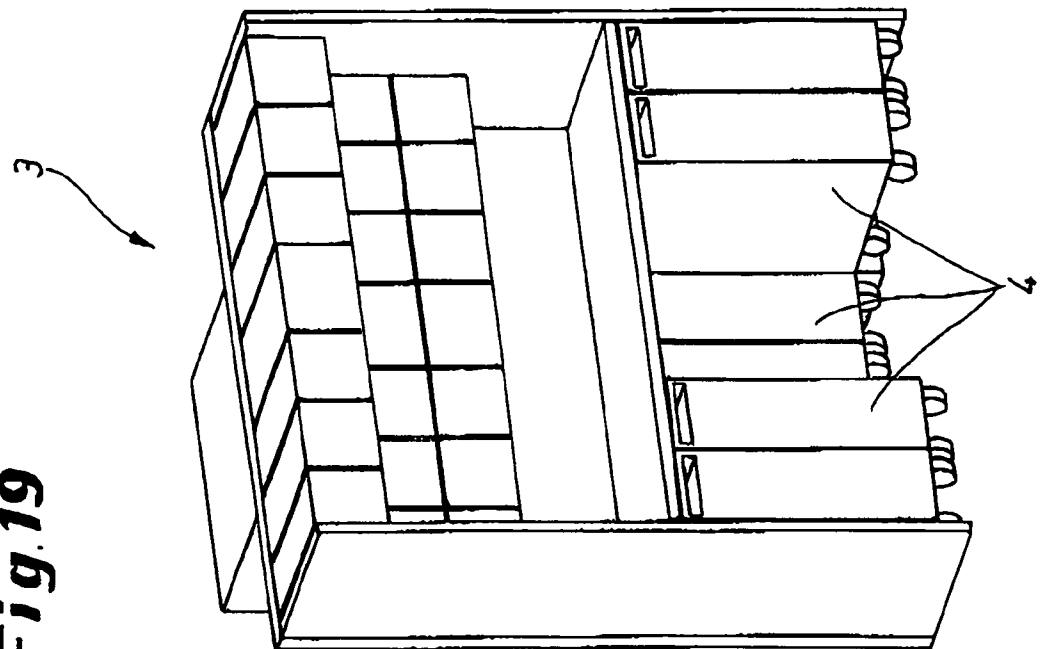


Fig. 22

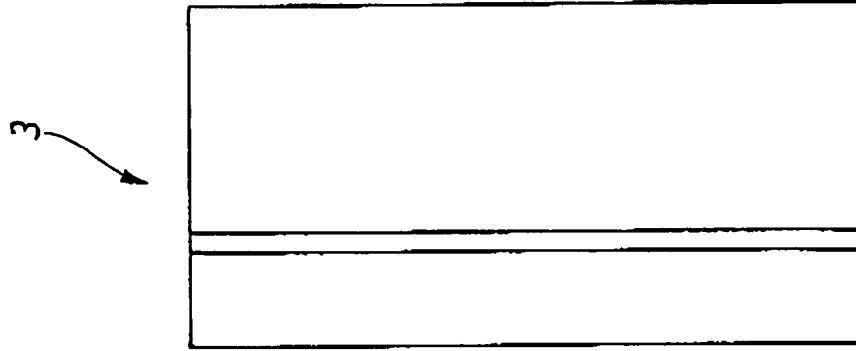


Fig. 21

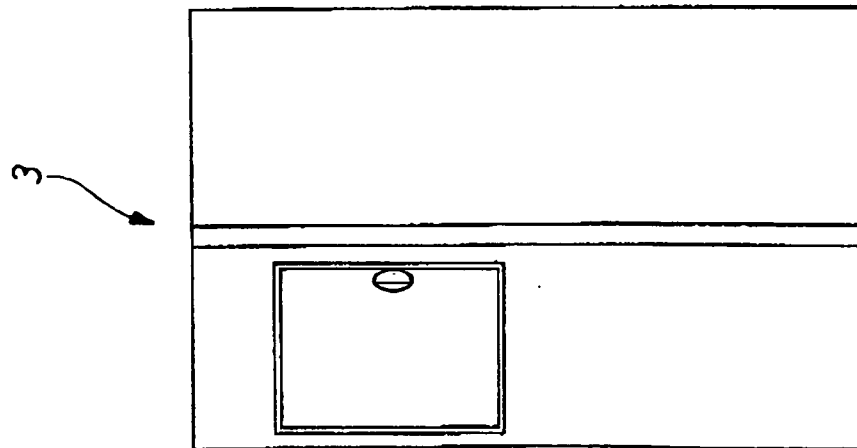


Fig. 24

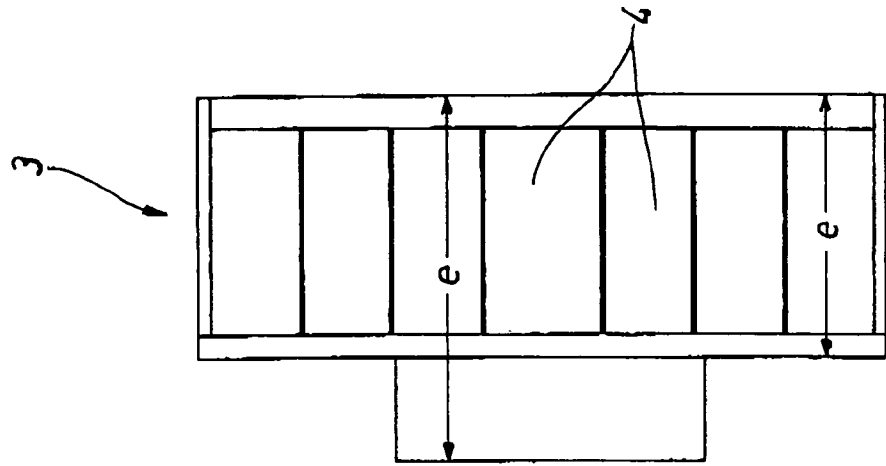
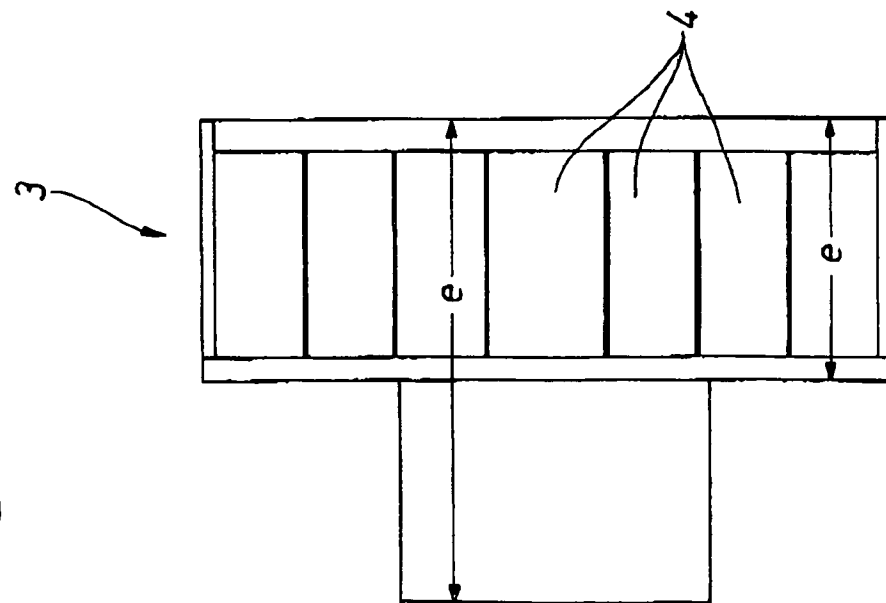


Fig. 23



INTERNATIONAL SEARCH REPORT

International application No PCT/EP2014/052858

A. CLASSIFICATION OF SUBJECT MATTER INV. B64D11/04 B64D11/00 B64D11/06 ADD.				
According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) B64D				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 2009/261200 A1 (SAINT-JALMES BRUNO [FR] ET AL) 22 October 2009 (2009-10-22) page 2, paragraph 29 - page 3, paragraph 45; figures -----	1-8, 11-14,17 9,10		
Y	US 2007/233433 A1 (LEE DAVID J [US] ET AL) 4 October 2007 (2007-10-04) paragraph [0036] - paragraph [0038] -----	1,15,16		
X	WO 2008/070835 A1 (BE AEROSPACE INC [US]; ARNOLD GERALDINE [US]; CUNNINGHAM CRAIG [GB]; B) 12 June 2008 (2008-06-12) paragraph [0018] - paragraph [0021]; figures -----	9,10		
Y	US 2007/018046 A1 (BOREN KELLY L [US]) 25 January 2007 (2007-01-25) paragraph [0019] - paragraph [0026]; figures -----	1-17		
A				
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents : <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed </td> <td style="width: 50%; border: none; vertical-align: top;"> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family			
Date of the actual completion of the international search 23 June 2014	Date of mailing of the international search report 30/06/2014			
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Silva d'Oliveira, M			

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2014/052858

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009261200	A1	FR 2929244 A1 US 2009261200 A1	02-10-2009 22-10-2009
US 2007233433	A1	NONE	
WO 2008070835	A1	AT 485219 T CN 101595030 A EP 2089275 A1 JP 5318775 B2 JP 2010512269 A US 2008136299 A1 WO 2008070835 A1	15-11-2010 02-12-2009 19-08-2009 16-10-2013 22-04-2010 12-06-2008 12-06-2008
US 2007018046	A1	NONE	