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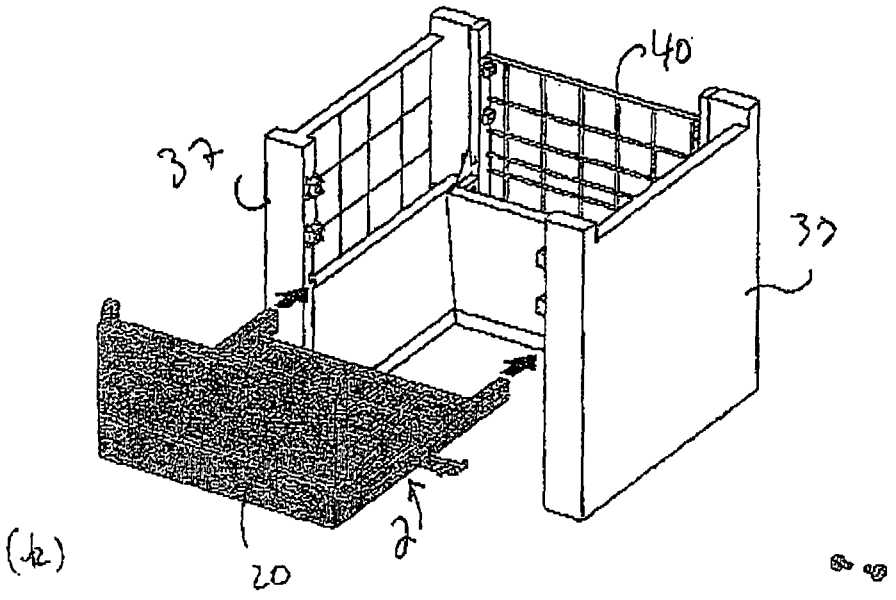
(54) Modular furniture system

(57) The invention provides a modular furniture system. The system includes one or more deck-backs that are can be used as a deck of a chair as well as a back of a chair. The system also includes one or more side-elements that can be used as a right-side of a chair as well as a left-side of a chair.

Figure 2



EP 2 227 987 A1

Description

FIELD OF THE INVENTION

[0001] This invention relates to furniture, and more particularly to modular furniture.

BACKGROUND OF THE INVENTION

[0002] It is known to provide modular furniture that can be assembled from pre-fabricated components. Modular furniture is more convenient and efficient to store and transport than non-modular furniture since the un-assembled components can be packed efficiently and shipped from the manufacturing facility to a store or home and then assembled, thereby reducing shipping costs. Also, some pieces of furniture are too heavy or are awkwardly-shaped to be conveniently moved through doorways, hallways or staircases. Modular furniture, on the other hand, can be delivered unassembled and then assembled in the room where it is to be used. Modular furniture is disclosed, for example, in US Patent No. 3,973,800 to Kogan.

[0003] A sofa or armchair is typically constructed with a seat base (or deck) section, a left arm rest and a right armrest, and a seat back. The left and right armrests are usually mirror images of each other. Thus, the manufacture of a modular sofa or arm chair requires the manufacture of at least four distinct elements.

SUMMARY OF THE INVENTION

[0004] The present invention provides a modular furniture system. The modular furniture system of the present invention can be implemented by manufacturing two distinct elements. The system of the invention comprises two or more of a first structural component, referred to herein as a *"deck-back"*. The system further comprises two or more of a second structural component, referred to herein as a *"side-element"*. Various types of furniture can be assembled using these two components. For example, a chair can be assembled using a first deck-back as the deck of the chair, a second deck-back for the back of the chair, a first side-element for the left side of the chair, and a second side-element for the right side of the chair. The modular system of the invention can also be used, for example, to construct a couch, sofa, ottoman, or table.

[0005] The invention thus provides a modular furniture system comprising:

(a) one or more deck-backs, each deck-back being configured for use as a deck of a chair and further being configured for use as a back of a chair;

(b) one or more side-elements, each side-element being configured for use as a right-side cover of a chair and further being configured for use as a left-side cover of a chair, or as the back side of the chair or sofa.

[0006] In the modular furniture system ov the invention each deck-back may comprise a panel and a frame. The panel may be integral with the frame of the deck-back. Similarly, each side-element may comprise a panel and a frame, and the panel may be integral with the frame. The panel of the deck-back may have dimensions essentially equal to the dimensions of a side-element panel. The panel and frame of a deck-back or of a side-element may be produced in a single injection molding processes.

[0007] The modular furniture system of the invention may be adapted for the construction of any one of an armchair, sofa, ottoman, and table.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] In order to understand the invention and to see how it may be carried out in practice, embodiments will now be described, by way of non-limiting example only, with reference to the accompanying drawings, in which:

Fig. 1 shows a modular furniture system in accordance with one embodiment of the invention;

Figs. 2a to Fig. 2n show assembly of the modular furniture system of Fig. 1 into an arm chair;

Fig. 3 shows a modular furniture system in accordance with a second embodiment of the invention; and

Figs. 4a to Fig. 4r show assembly of the modular furniture system of Fig. 3 into a sofa.

DETAILED DESCRIPTION OF EMBODIMENTS

[0009] Fig. 1 shows a modular furniture system **1** in accordance with one embodiment of the invention. The modular furniture system **1** comprises one or more deck-backs **2** and one or more side-elements **4.** The deck-backs **2** and the side-elements **4** may be made of any material known to be used in the manufacture of furniture. In a preferred embodiment, the deck-backs **2** and the side-elements 4 are made from plastic. Each deck-back comprises a panel **6** attached to a frame **8.** In a preferred embodiment, the panel **6** is integral with the frame **8.** The panel **6** and the frame **8** may be from-plastic and produced, for example, in a single injection molding process. Similarly, each side-element **4** comprises a panel **10** attached to a frame **12,** and the panel **10** and the frame **12** may be integral with each other. The frame **12** includes a plurality of notches **13** into which a nut retainer **15** may be inserted to retain a nut may, as explained below. In a preferred embodiment, the panel **6** is identical to the panel **10.**

[0010] The system **1** may further comprise one or more side cover panels **14** that are configured to be attached to either the frame **8** of a deck-back **2** or the frame **12** of a side-element **4,** and a front panel **20.** The system **1** may also include one or more cushions **16, 18** that can be incorporated into a piece of furniture assembled from

the system. The system may also include various brackets, for example, the brackets 22, and **24,** which can be used to attach an side cover panel **14** to either one of the frames **8** and **12,** or to provide structural reinforcement to a piece of furniture. The system my further comprise parts for assembling the deck-backs **2** and the side-elements 4 into a piece of furniture. Such parts may include, for example, screws **26,** nuts **28,** clips 30, and an assembly wrench **32.** Gliders **34** may also be provided for attachment to the underside of a piece of furniture in order to facilitate sliding of the piece over a floor.

[0011] Fig. 2 shows assembly of an armchair **36** from the system 1 (the assembled armchair is shown in Fig. 2n). First, as shown in Figs. 2a to 2c, a left-side frame **36** for the armchair **36** is assembled. One of the brackets **24** is snap-fitted onto the frames **12** of one of the side-elements **4** (Fig. 2a). Then a side cover panel **14** is attached as indicated by the arrows in Fig. 2b. Nut retainers **15** are inserted into the appropriate notches **13** and nuts **28** are inserted into the nut retainers **15** (Fig. 2c). The gliders **34** are then attached to the ends of the frame **12.** Now, as shown in Figs. 2d to 2f, a right-side frame **38** for the armchair **36** is assembled. Another one of the brackets **24** is snap-fitted onto the frame **12** of another one of the side-elements **4** (Fig. 2d). Then a side cover panel **14** is attached (Fig. 2e). Nuts **28** are then inserted into the nut retainers **15** and the gliders **34** are attached to the ends of the frame **12** (Fig. 2f).

[0012] Fig. 2g shows the assembly of a chair back **40** for the armchair **36.** A side cover panel **14** is screwed onto brackets **42** that are integral with a deck-back **2.** The brackets **42** are angled relative to the panel **6** of the deck-back, so that the side cover panel **14** is angled relative to the panel **6.** Figs. 2 h and i show the right-side frame **38,** the chair back **40** and the left-side frame **37,** being assembled together using the screws **26** and the wrench **32.**

[0013] Now, as shown in Fig. 2j, a chair deck **44** is assembled from another deck-back **2** and a front panel **20.** The front panel **20** of the chair deck **44** is attached at a right angle to the deck-back **2.** A clip **30** is then attached to each of the two lateral sides of the deck-back. The chair deck **44** is then assembled onto the assembly formed by the left and right side frames and the back (Figs. 2 k and l). One of the brackets **22** is then inserted into the underside of the chair, as shown in Fig. 2m, in order to enhance the sturdiness of the armchair. Cushions **16** and **18** may then be placed on the arm chair, as indicated in Fig. 2n, and assembly of the armchair **36** is complete.

[0014] Fig. 3 shows a modular furniture system **100** in accordance with another embodiment of the invention. The modular furniture system **100** has several components in common with the modular furniture system 1 shown in Fig. 1. Thus, the modular furniture system **100** comprises one or more deck-backs 2 and one or more side-elements **4,** where each side-element **4** comprises a panel **10** attached to a frame **12,** and each deck-back comprises a panel **6** attached to a frame **8.** The system **100** further comprises one or more side cover panels **14** that are configured to be attached to either the frame **8** of a deck-back **2** or the frame **12** of a side-element **4,** as shown below. The system **100** also includes front panels **20,** and one or more cushions **16, 18** that can be incorporated into a piece of furniture assembled from the system. The system may also include various brackets, for example, the brackets **21, 22, 23, 24**and **29,** which can be used to attach a side cover panel **14** to either one of the frames **8** and **12,** or to provide structural reinforcement to a piece of furniture. The system my further comprise parts for assembling the deck-backs **2** and the side-elements **4** into a piece of furniture. Such parts may include, for example, screws **26** and **27,** nuts **28,** and the wrench **32,** and connectors **17** and **19.** Gliders **34** may also be provided for attachment to the underside of a piece of furniture in order to facilitate sliding of the piece over a floor.

[0015] Fig. 4 shows assembly of a sofa **102** from the system **100** (the assembled sofa is shown in Fig. 4r). First, as shown in Figs. 4a to 4c, a left-side frame **136** for the sofa **102** is assembled. One of the brackets **24** is snap-fitted onto the frame 12 of one of the side-elements **4** (Fig. 4a). Then a side cover panel **14** is attached (Fig. 4b). Nut retainers 15 are inserted into the appropriate notches **13** and nuts **28** are inserted into the nut retainers **15** (Fig. 4c). The gliders **34** are then attached to the ends of the frame **12.** Now, as shown in Figs. 4d to 2f, a right-side frame **138** for the sofa **102** is assembled. Another one of the brackets **24** is snap-fitted onto the frame **12** of another one of the side-elements **4** (Fig. 4d). Then a side cover panel **14** is attached (Fig. 4e). Nut retainers **15** are inserted into the appropriate notches 13 and nuts **28** are inserted into the nut retainers **15.** The gliders **34** are then attached to the ends of the frame **12** (Fig. 4f).

[0016] Fig. 4g shows the assembly of a chair back **140** for the sofa **102.** A side cover panel **14** is screwed onto brackets **42** that are integral with a deck-back **2.** The brackets **42** are angled relative to the panel **6** of the deck-back, so that the side cover panel **14** is angled relative to the panel **6.** A second chair back **140** is then assembled, and then, as shown in Fig. 4h and i, the two chair backs **140** are joined together using one of the connectors **17** and the nuts **28.**

[0017] Figs. 4j and k shows assembly of a deck for the sofa **102** by joining together two deck-backs 2 using another one of the connectors **17** and the nuts **28.** In Fig. 4l, two front panels **20** are joined together using a connector **19,** nuts **28** and the bracket **23.** Then, as shown in Fig. 4m, the back assembly and the side frames are joined together. The deck of the sofa is then inserted (Fig. 4n), and secured with the bracket **29** (Fig. 4o). The two brackets **22** are then inserted into the underside of the sofa, as shown in Fig. 4p, in order to enhance the sturdiness of the sofa. The front panel assembly is then attached (Fig. 4q). Cushions **16** and **18** may then be placed on the arm chair, as indicated in Fig. 4n, and assembly

of the sofa **102** is complete.

Claims

1. A modular furniture system comprising:

(a) one or more deck-backs, each deck-back being configured for use as a deck of a chair and further being configured for use as a back of a chair;
(b) one or more side-elements, each side-element being configured for use as a right-side of a chair and further being configured for use as a left-side of a chair.

2. The modular furniture system according to Claim 1 wherein each deck-back comprises a panel and a frame.

3. The modular system according to Claim 2 wherein the panel of each deck-back is integral with the frame of the deck-back.

4. The modular furniture system according to Claim 1 wherein each side-element comprises a panel and a frame.

5. The modular system according to Claim 4 wherein the panel of each side-element is integral with the frame of the side-element.

6. The modular furniture system according to Claim 1 wherein each deck-back comprises a panel, each side-element comprises a panel, and the dimensions of a deck-back panel are essentially equal to the dimensions of a side-element panel.

7. The modular furniture system according to Claim 3 wherein the panel and frame of a deck-back are produced in a single injection molding processes.

8. The modular furniture system according to Claim 5 wherein the panel and frame of a side-element are produced in a single injection molding processes.

9. The modular furniture system according to any one of the previous claims adapted for the construction of any one of an armchair, sofa, ottoman, and table.

10. The system according to any one of the previous claims further comprising one or more side cover panels configured to be attached a frame of a deck-back and further configured to be attached to a frame of a side-element.

11. The system according to any one of the previous claims further comprising one or more front panels.

12. The system according to any one of the previous claims further comprising one or more cushions.

13. The system according to any one of the previous claims further comprising one or more brackets.

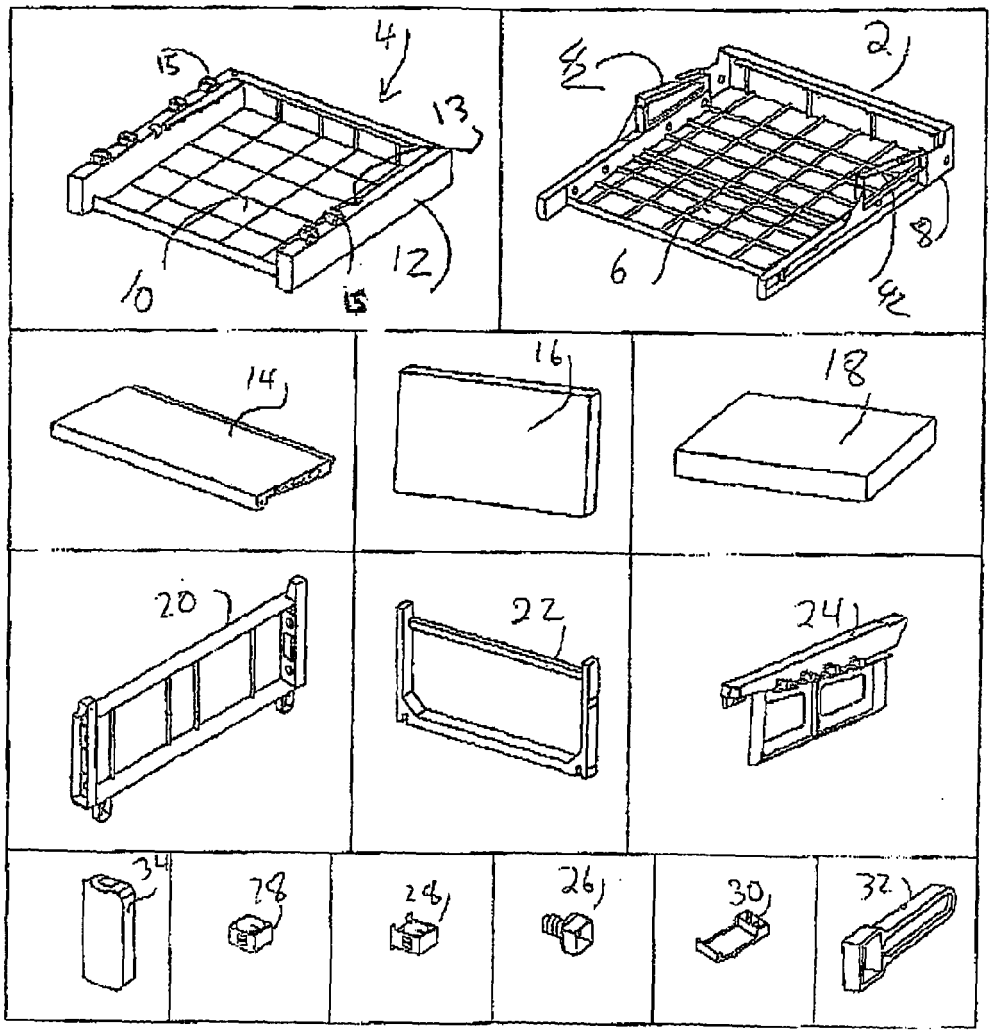


FIG 1

Figure 2 (continued on sheet 3/17)

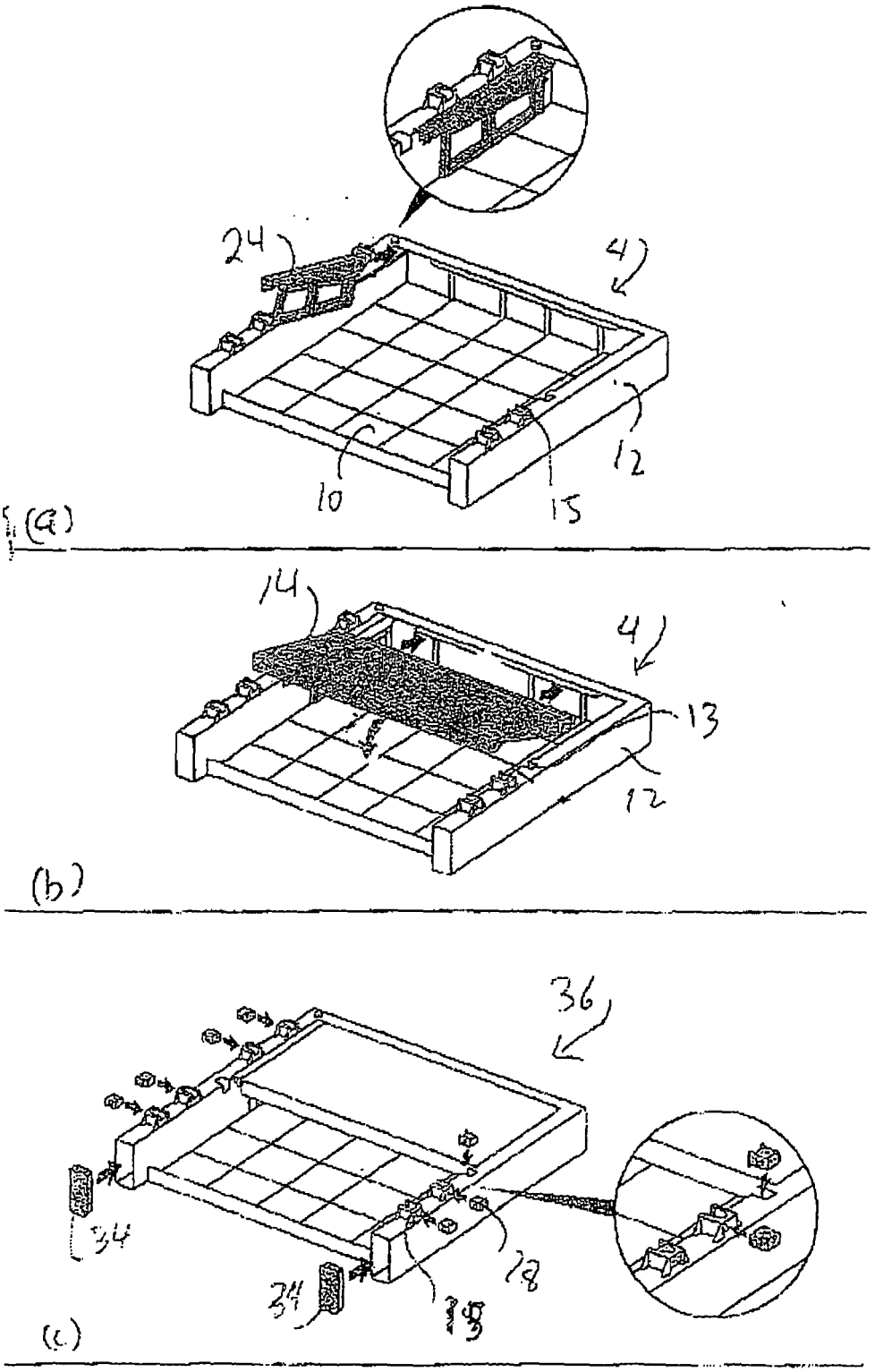
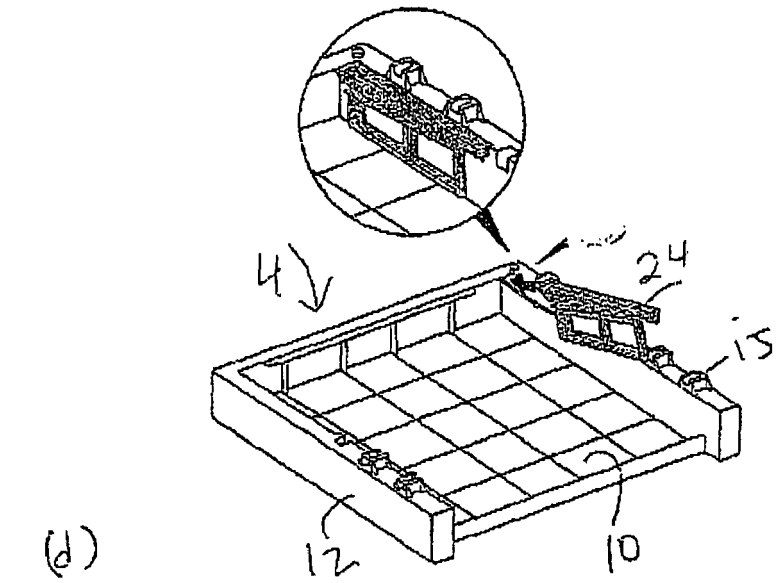
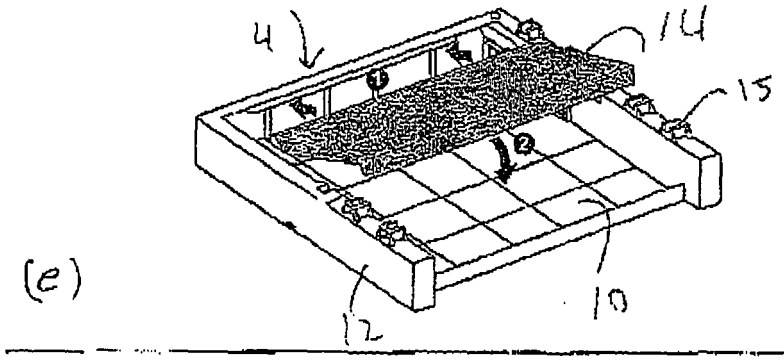
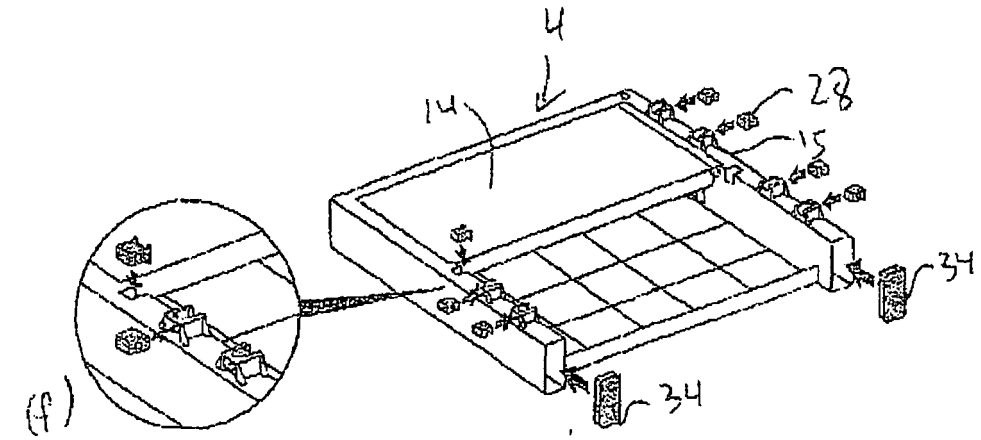


Figure 2 (continues from sheet 2/17)







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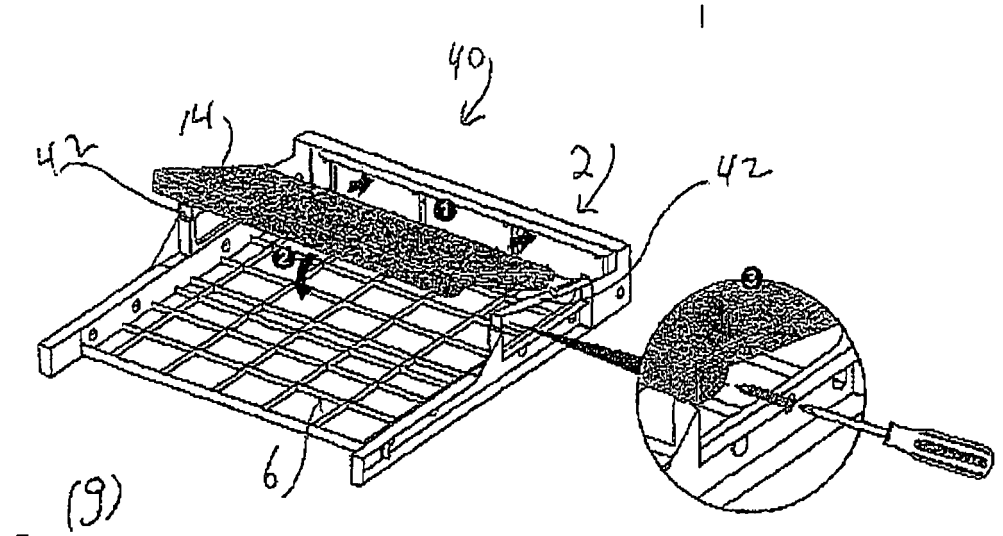

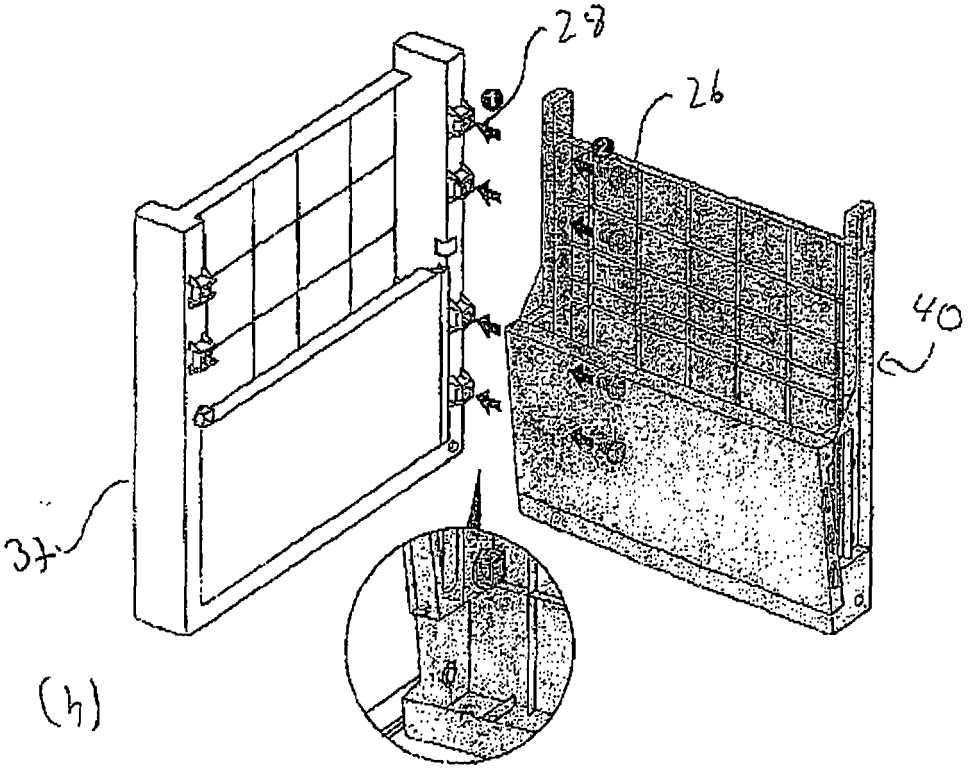

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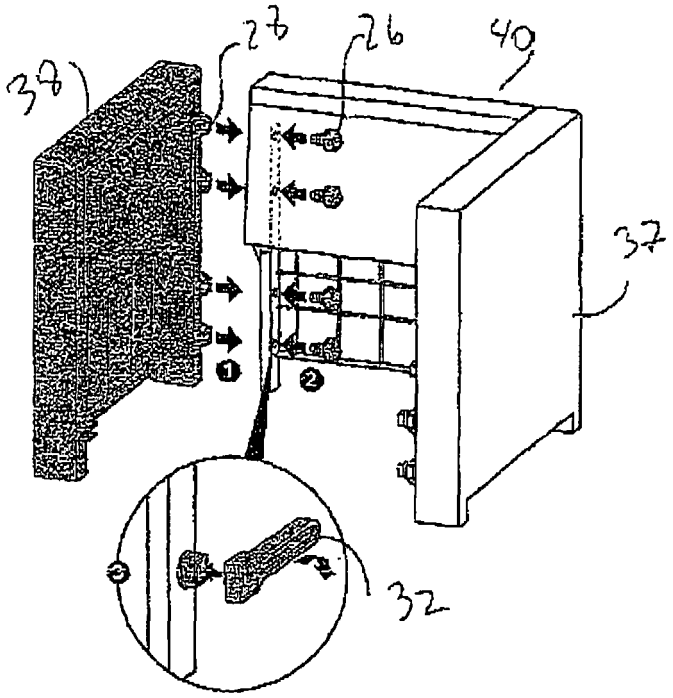
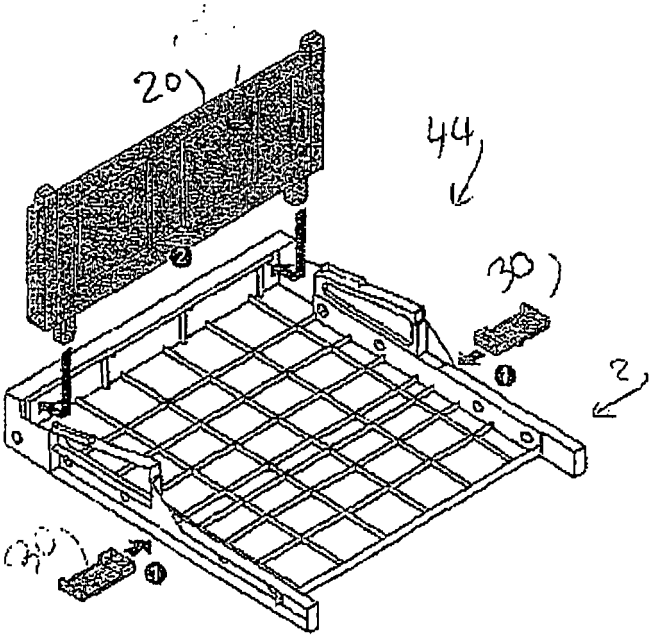


(i)



(j)

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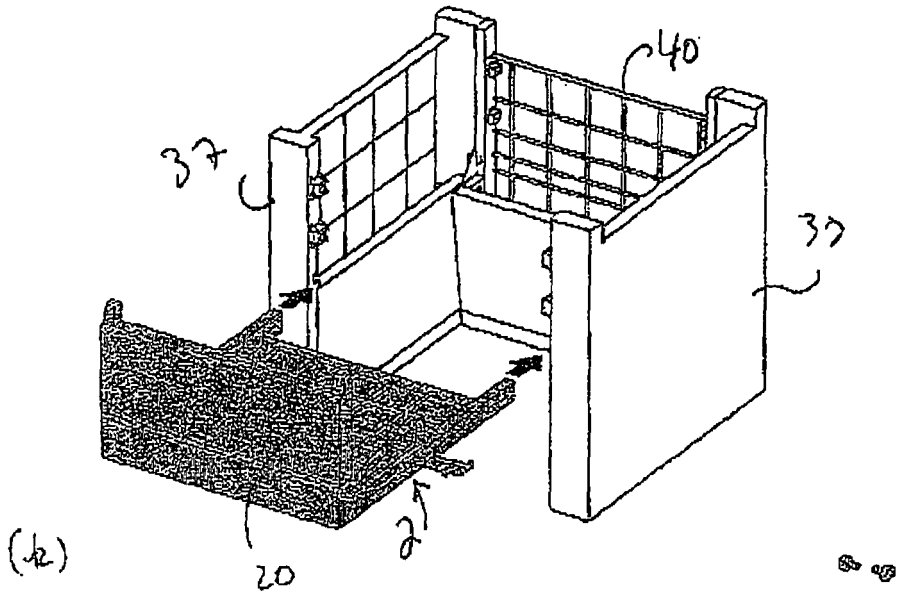

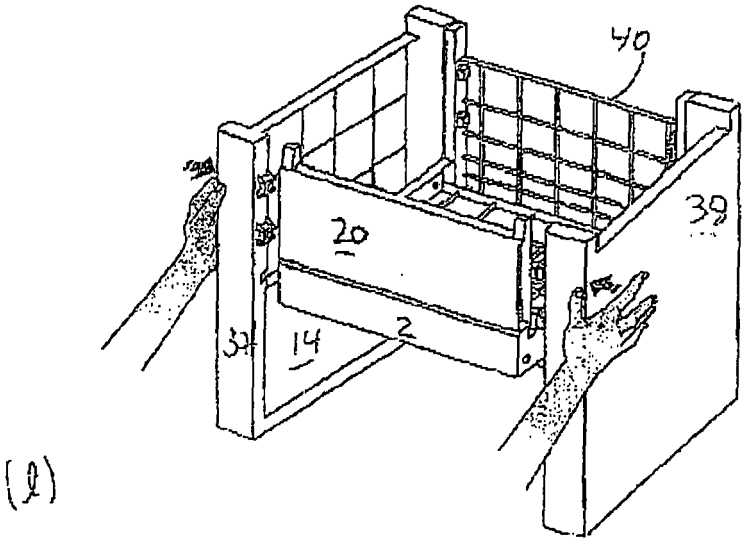

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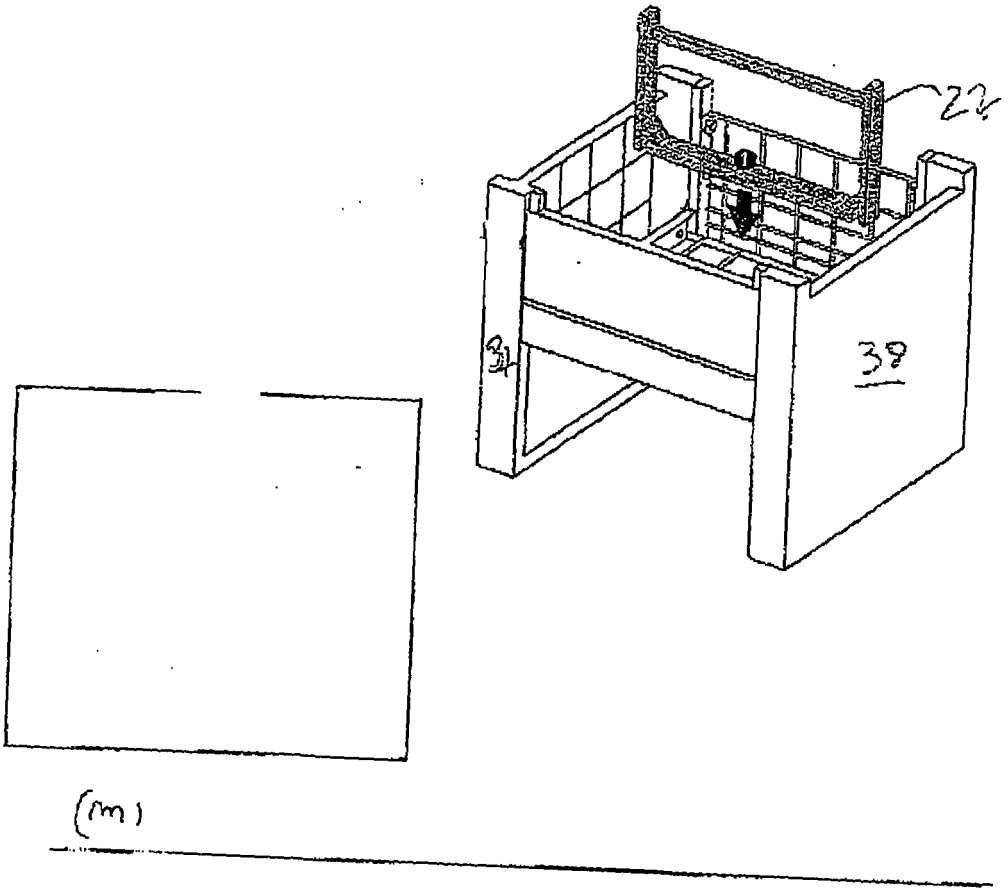


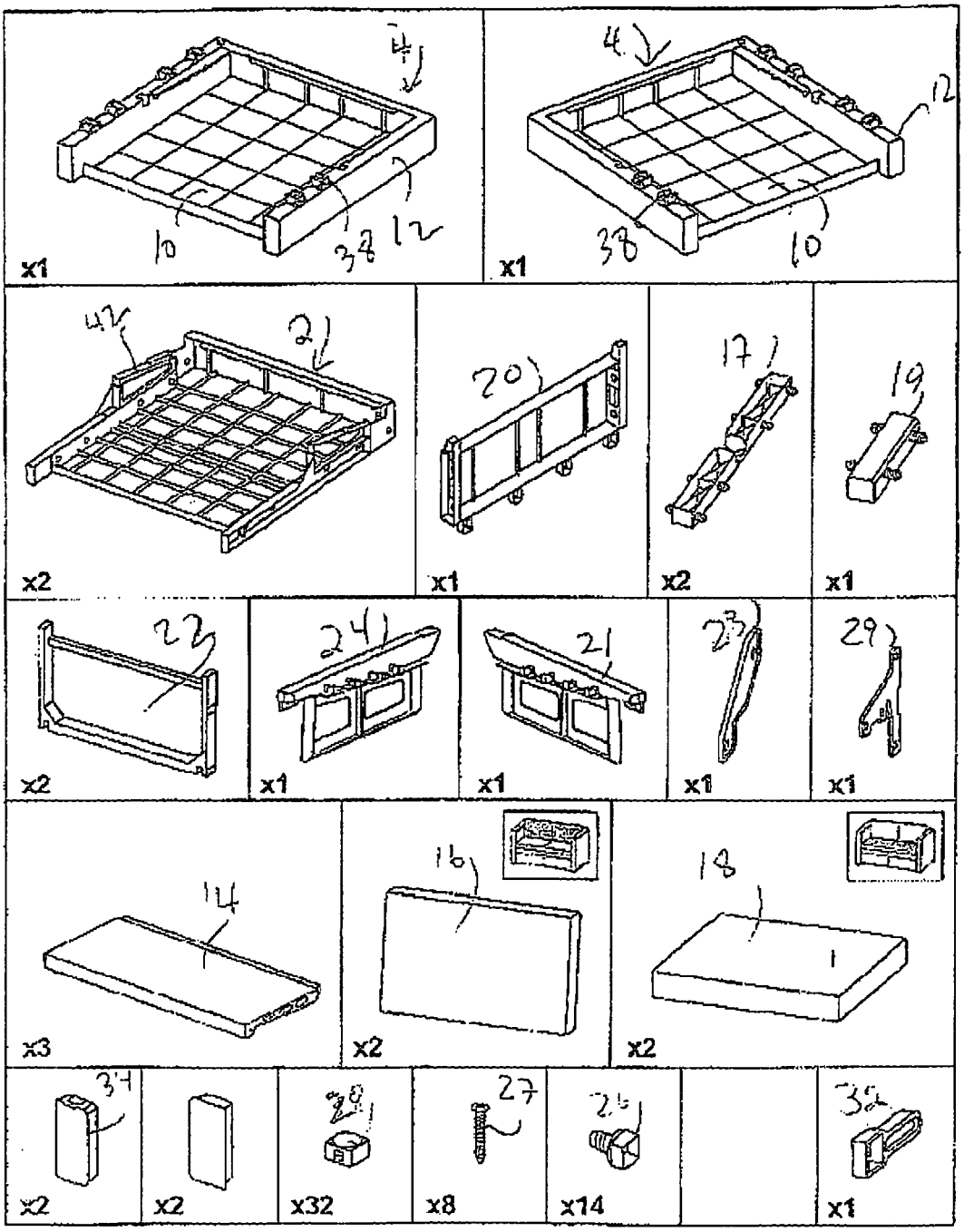
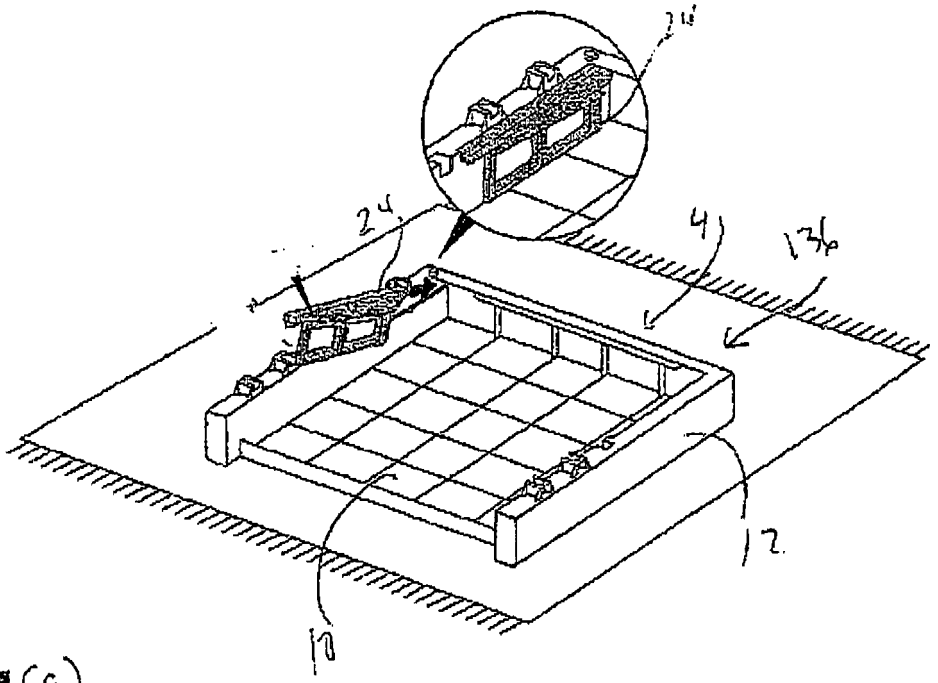
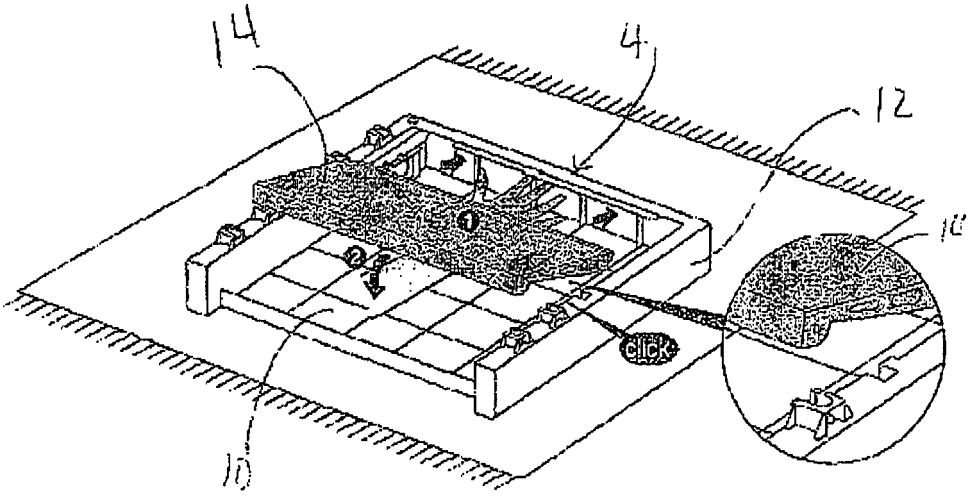

100
4
10
38
12
x1
4
12
38
10
x1
42
2
x2
20
x1
17
x2
19
x1
22
x2
24
x1
21
x1
23
x1
29
x1
14
x3
16
x2
18
x2
37
x2
x2
28
x32
27
x8
26
x14
32
x1

FIG. 3

Figure 4 (continued on sheet 10/17)



1 (a)



2 (b)

Figure 4 (continues from sheet 9/17)

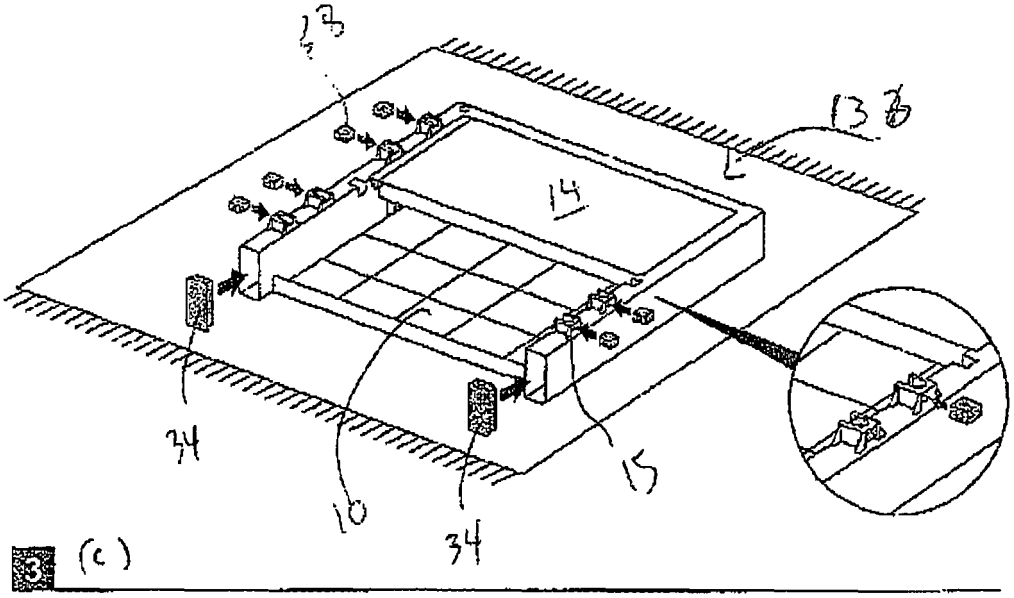


Fig 3 (c)

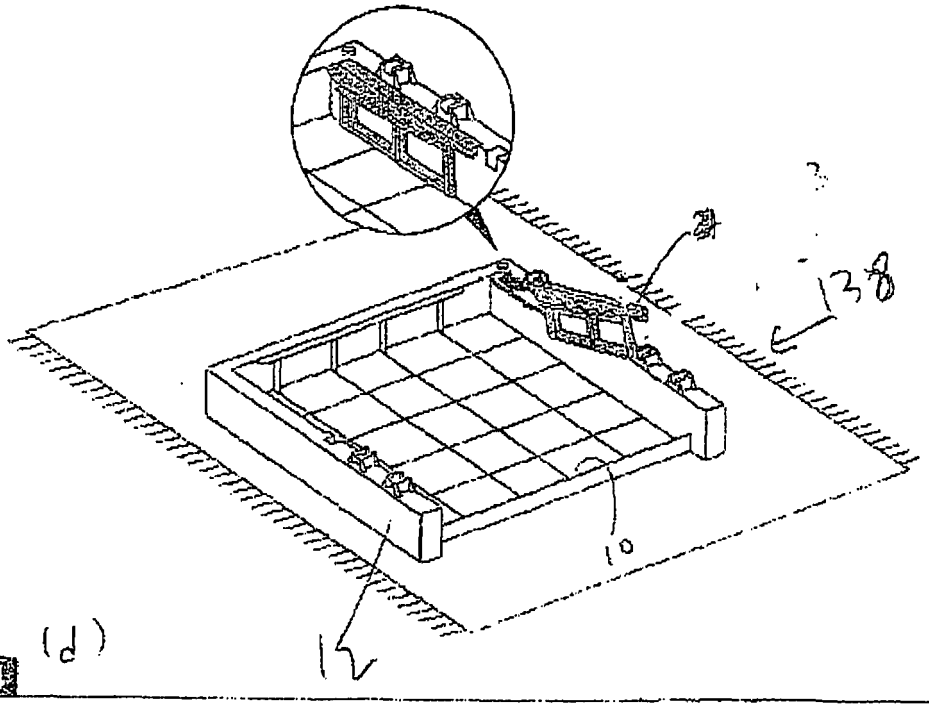
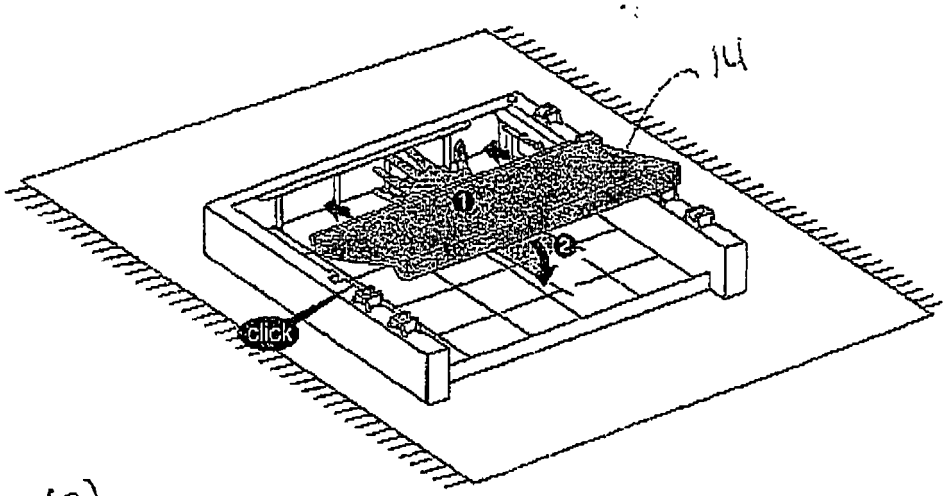
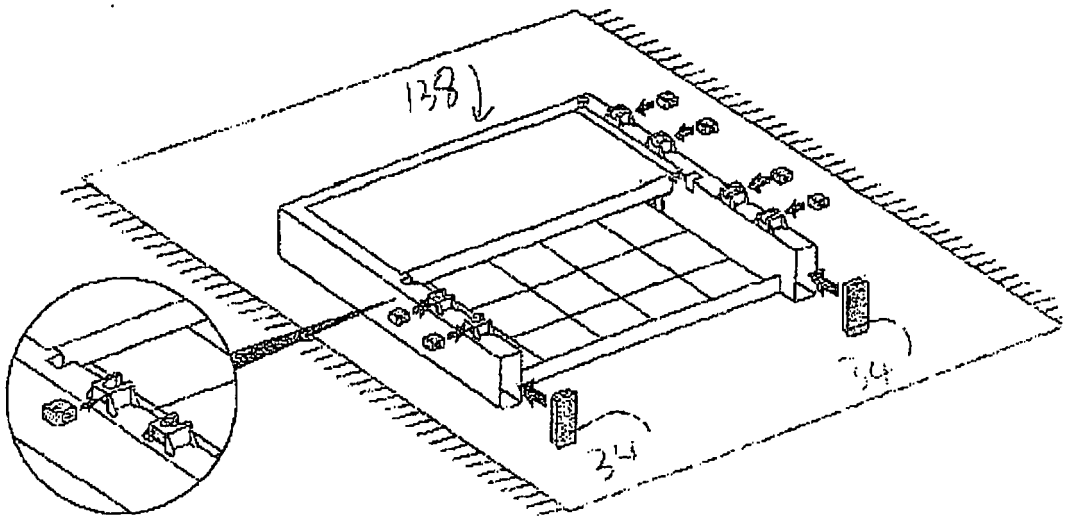


Fig 4 (d)

Figure 4 (continues from sheet 10/17)

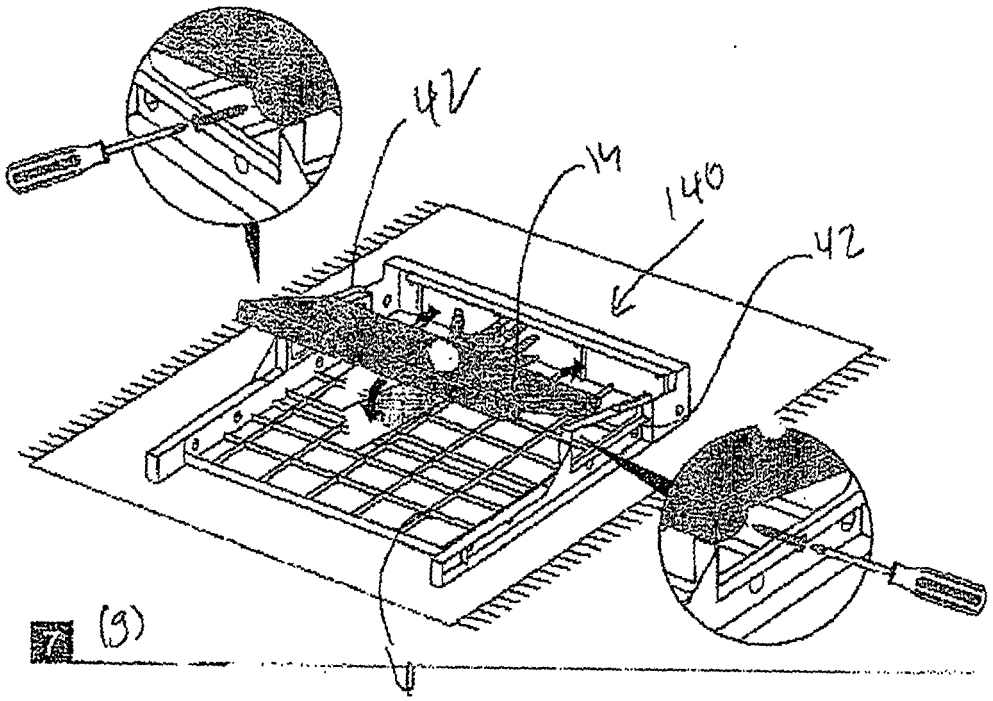


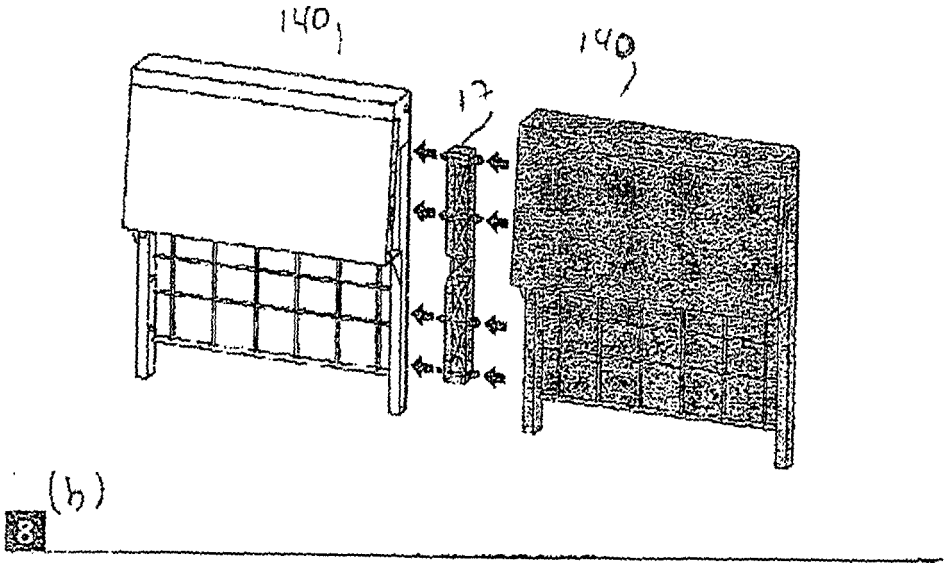
5 (e)



6 (f)

Figure 4 (continues from sheet 11/17)





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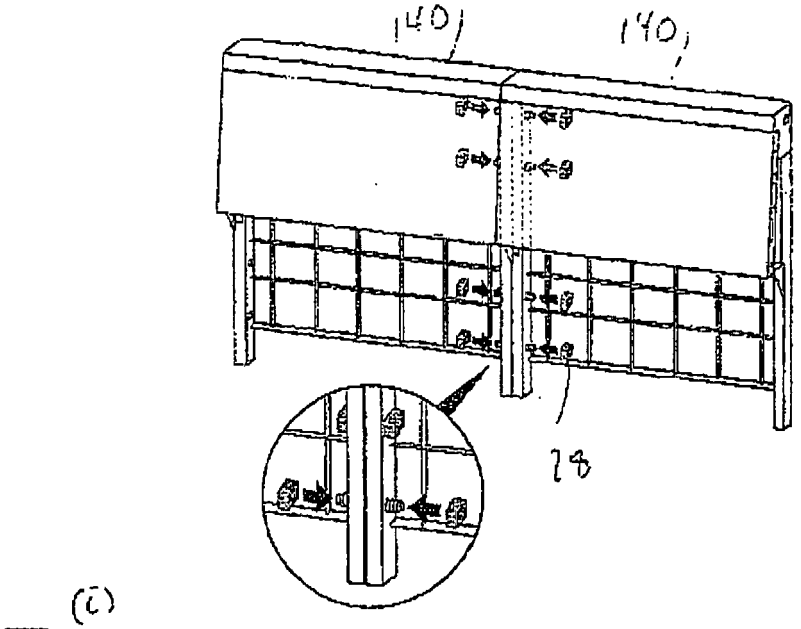

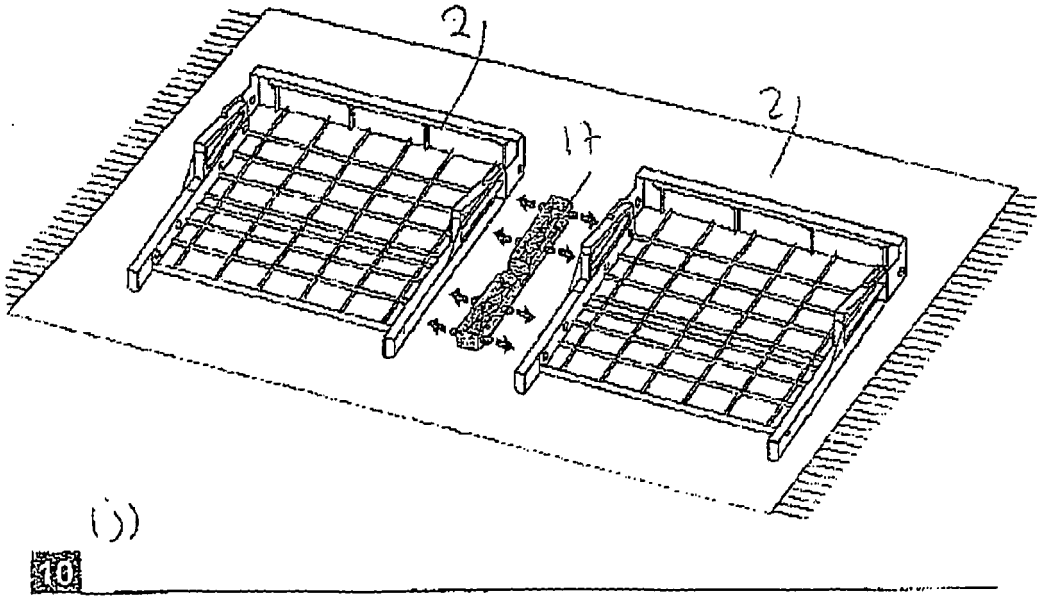

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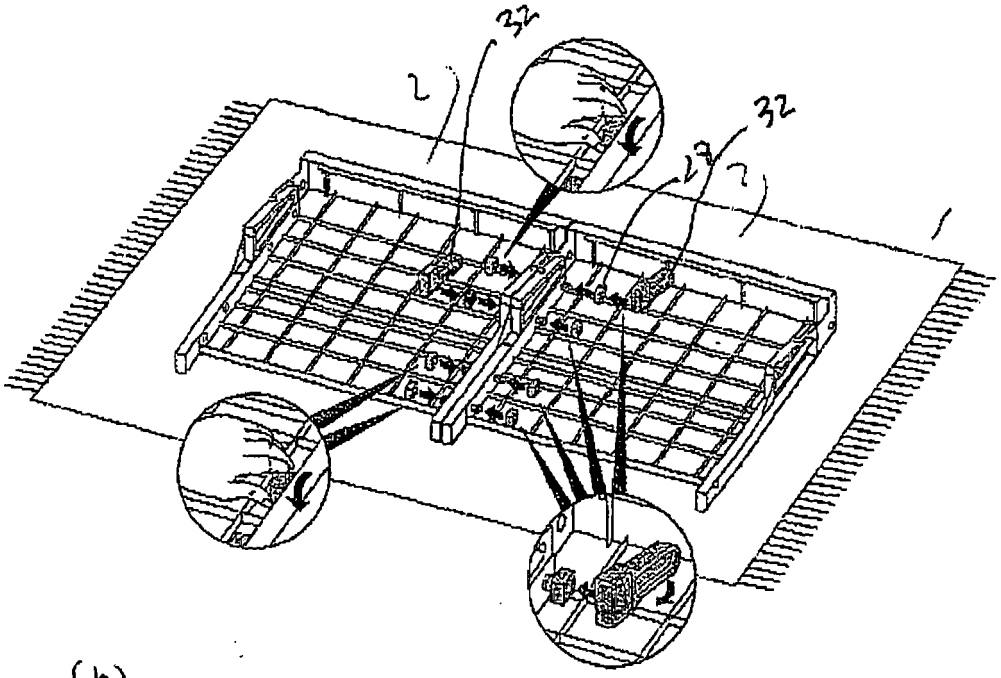
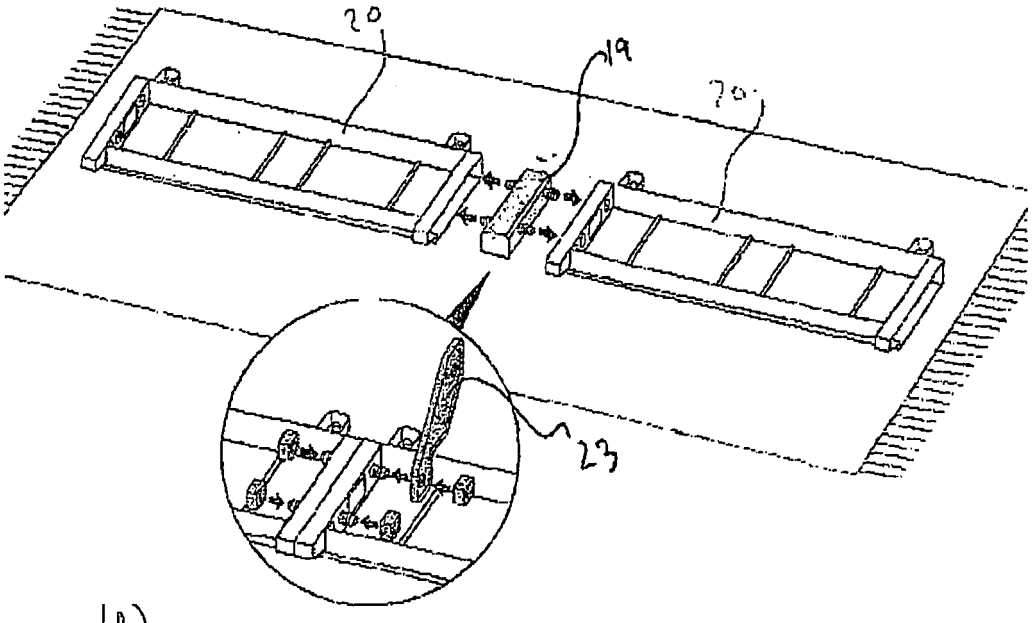
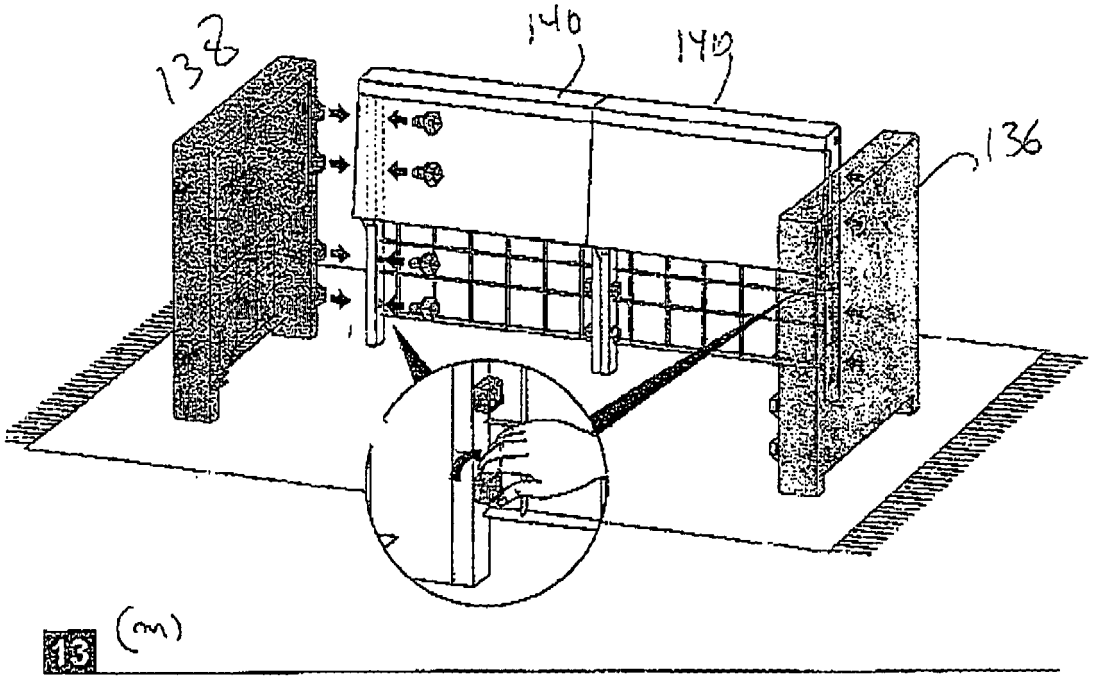


11 (h2)

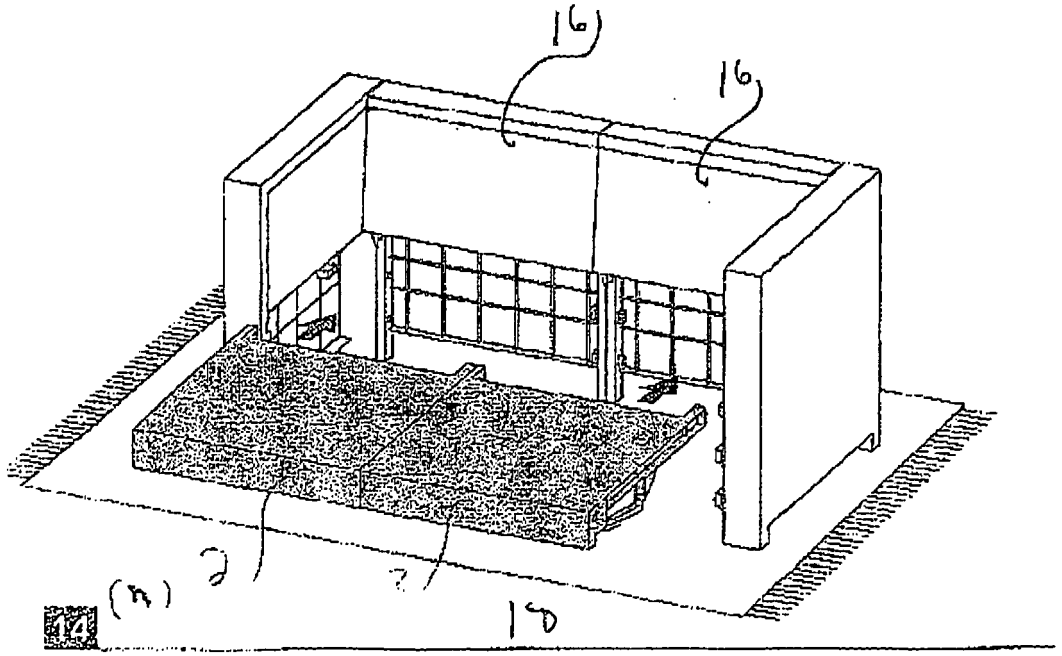


12 (l)

Figure 4 (continues from sheet 14/17)



13 (m)



14 (n)

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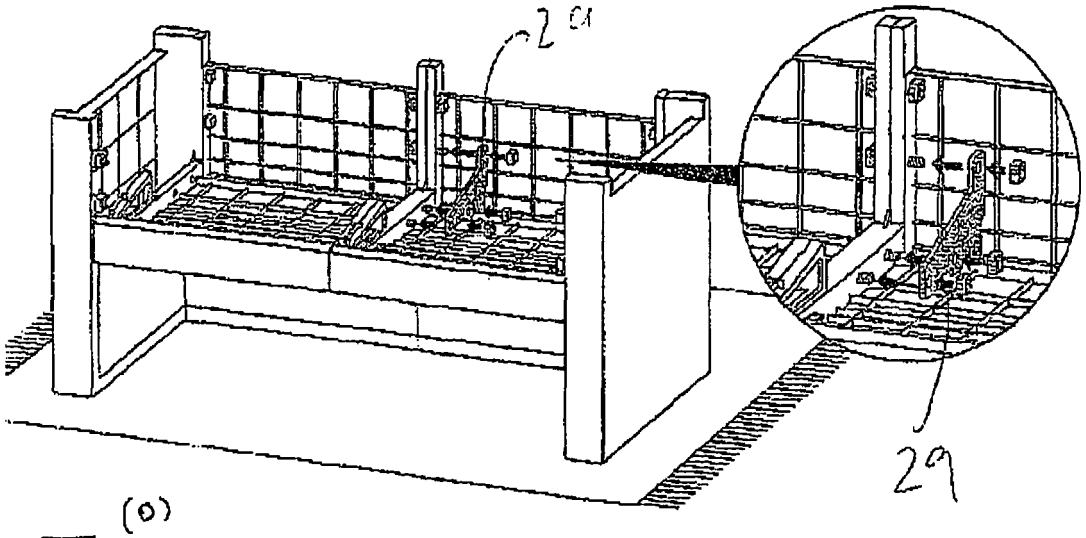

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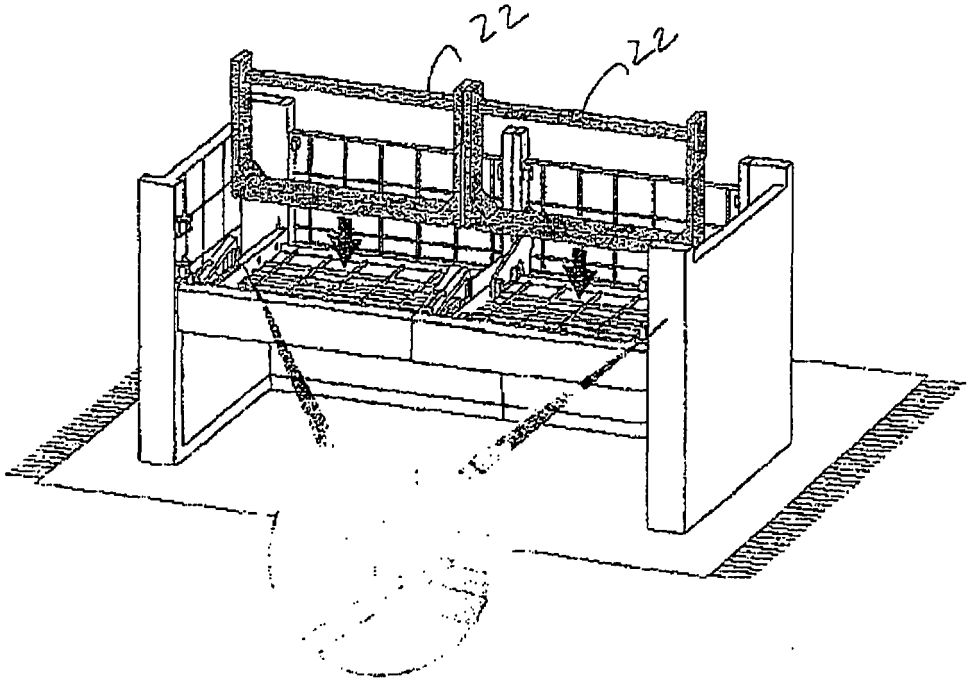

16

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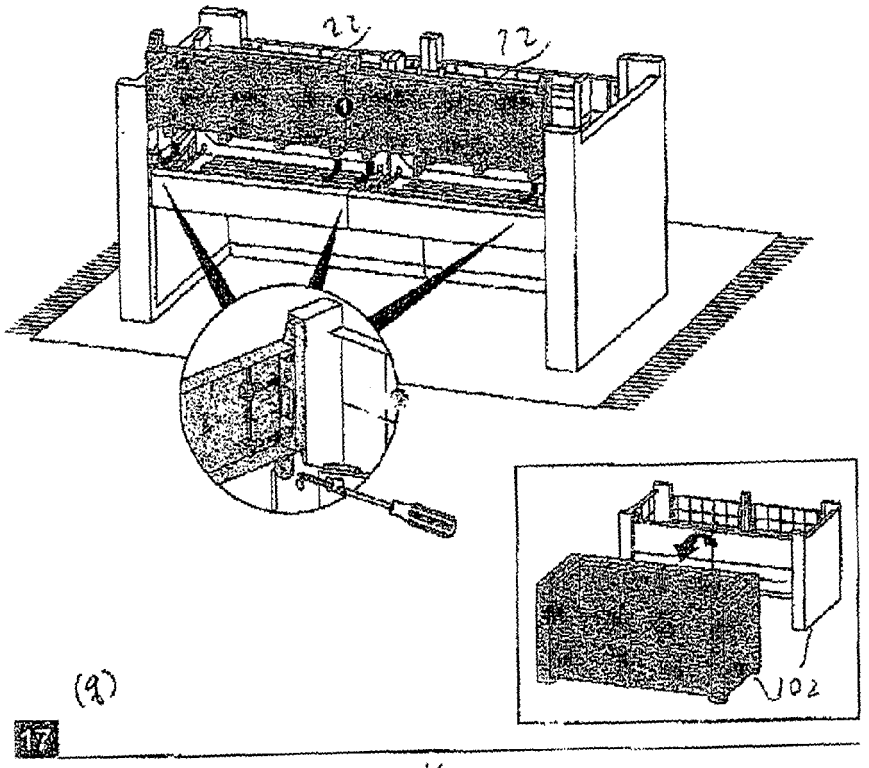

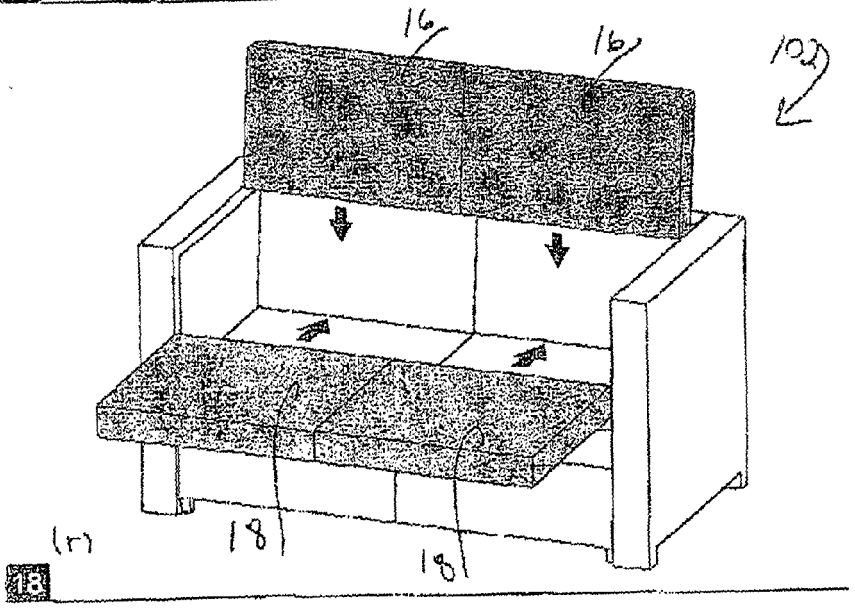

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EUROPEAN SEARCH REPORT

Application Number
EP 10 00 2562

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 June 2010	MacCormick, Duncan

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