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(54) **Modular kitchen system**

(57) According to the invention, a modular kitchen system (10) is provided having a plurality of modular kitchen units (12, 14, 16) assembled together and mounted to a kitchen wall. The plurality of modular units include at least a sink unit (12) and an appliance unit (14, 16). A mounting rail (30) is mounted to the kitchen wall, the mounting rail (30) being an elongated element having an upper portion (32) and a lower portion (34). A movable water tap (26) is slidably supported along the upper portion (32) of the mounting rail. A plurality of mounting brackets (52) slidably connect to the mounting rail (30) and include collar-like main bodies (56) for supporting the plurality of modular units (12, 14, 16) wherein the plurality of units include contiguous ends that sub-

stantially match each other and may be received into one of the collar-like main bodies of the mounting brackets for support along the mounting rail. The mounting rail (30) houses a plurality of utility conduits 42, 44 for supplying power and water to the modular units (12, 14, 16). The modular kitchen assembly may further include a hood member (24) extending from the upper portion 32 of the mounting rail (30) which is formed by a pair of frame elements extending upwardly from the mounting rail (30) for supporting a hood cover (90). Electrical power is supplied to a light element (92) mounted within the hood cover (90) through one of the pairs of frame elements and a switch (94) is provided on the mounting rail (30) for controlling energization of the light element.

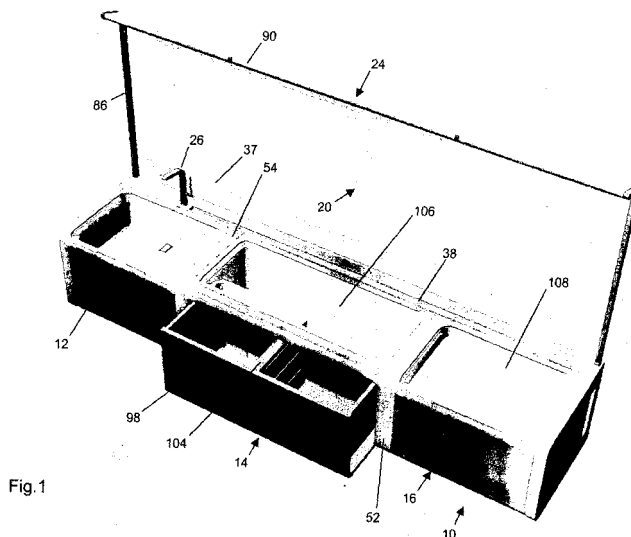


Fig. 1

Description

[0001] The present invention relates to a modular kitchen system, and more particularly to a system for interconnecting a plurality of modular kitchen units along a common base structure.

Background of the Invention

[0002] In the majority of kitchen constructions, the fabrication and assembly of the kitchen is performed as a plurality of steps by skilled kitchen installers. Plumbing layout and electrical wiring are often done prior to cabinet construction or installation. This is then followed by the installation of appliance units - ovens, dishwashers, refrigeration units. In some cases, it is necessary for plumbers to return after the appliances are installed to make water, drain and electrical connections to the appliances. The process of assembly a kitchen is relatively complex and labour intensive.

[0003] In order to reduce this complexity and simplify kitchen installation, it would be beneficial to develop a modular kitchen system wherein a plurality of storage, appliance and/or sink modules may be quickly assembled together to provide an attractive, functional and cost effective kitchen system.

[0004] The desirability of a modular kitchen system has been previously recognized as illustrated by U.S. Pat. Appl. No. 2003/0227240 A1 which describes a modular, vertically adjustable kitchen system having modular appliance units and modular base units for vertically adjusting the modular appliance units. U.S. Des. Pat. No. Des. 313,727 discloses an ornamental appearance of a kitchen work unit where it appears that a number of appliances and storage units are integrated into a common unit.

[0005] U.S. Pat. No. 5,513,908 discloses a modular system for assembling food service fixtures including a horizontal wall mounted rails having a number of leg assemblies fastened thereto. Different fixtures or modules - warmers, control panels, shelves - can be fastened between adjacent leg assemblies.

[0006] Regardless of the existence of prior proposed systems, there lacks a complete modular kitchen system where a plurality of different modules, including sink modules, may be connected together and easily provided with utilities.

Summary of the Invention:

[0007] According to the invention, a modular kitchen system is provided having a plurality of modular kitchen units assembled together and mounted to a kitchen wall. The plurality of modular units include at least a sink unit and an appliance unit. A mounting rail is mounted to the kitchen wall, the mounting rail being an elongated element having an upper portion and a lower portion. A movable water tap is slidingly supported along the upper

portion of the mounting rail. A plurality of mounting brackets slidably connect to the mounting rail and include collar-like main bodies for supporting the plurality of modular units wherein the plurality of units include contiguous ends that substantially match each other and may be received into one of the collar-like main bodies of the mounting brackets for support along the mounting rail.

[0008] The plurality of modular units may include at least a sink unit, a refrigeration unit, and a cooking unit. The mounting rail houses a plurality of utility conduits for supplying power and water to the modular units.

[0009] The modular kitchen assembly may further include a hood member extending from the upper portion of the mounting rail which is formed by a pair of frame elements extending upwardly from the mounting rail for supporting a hood cover. Electrical power is supplied to a light element mounted within the hood cover through one of the pairs of frame elements and a switch is provided on the mounting rail for controlling energization of the light element.

Brief Description Of The Drawings

[0010] The present invention will be more apparent from the accompanying drawings, which are provided by way of non-limiting example and in which:

FIG. 1 is a perspective view of a modular kitchen system embodying the principles of the present invention.

FIG. 2 is an exploded, perspective view of the modular kitchen system of FIG. 1 but without the modular appliance units.

FIG. 3 is a sectional view taken along lines 3-3 of FIG. 2.

FIG. 4 is a sectional view of an alternate embodiment of the mounting rail.

FIG. 5 is a perspective view of one of the modular units and associated mounting brackets.

FIG. 6 is a perspective view of the modular kitchen system of the present invention with surrounding kitchen cabinetry.

Detailed Description Of The Preferred Embodiments

[0011] With reference to FIG. 1, an overall modular kitchen system constructed in accordance with the present invention is generally indicated at 10. As shown, the kitchen system includes a wall assembly which includes a plurality of modules such as a sink unit 12, a refrigeration unit 14, and a cooking unit 16 which extend from a kitchen wall surface 20. The refrigeration unit 14 and cooking unit 16, may be each referred to as appliance units. Appliance units may also refer to a dishwasher type unit or even an automatic washer type unit. While these units or modules are shown, it can be readily understood that other modules may be incorporated

into this modular kitchen system including storage units. All of these units or modules are constructed and assembled together in accordance with the present invention as described more fully below.

[0012] The different units or modules 12, 14, 16 are mounted to the wall 20 through use of a mounting rail 30, as shown in FIG. 2. The mounting rail 30 is a multi-functional member which serves to provide: structural support to the appliance units 12, 14 and 16; a mechanism to supply utilities to the appliance units 12, 14 16; support for a lighting/hood member 24; support to a movable or slidable water tap 26; and finally, a rear portion of the work surface formed by the appliance modules. The mounting rail 30 is securely mounted to the wall 20 through the use of known fastening techniques.

[0013] The mounting rail 30 is an elongated member having an upper portion 32 and a lower portion 34. The upper portion 32 includes a top surface 36 which forms part of the work surface of the kitchen assembly 10 and also provides a support for the slidable water tap 26. A vertically extending back splash portion 37 may extend from the top surface 36 upwardly along the wall 20. The back splash may be integrally part of the mounting rail or a separate member. The slidable water tap 26 is located in a guide or slot 38 and is connected to a flexible hose 40 such that the tap 26 may be allowed to move longitudinally along the kitchen system 10. In this way the tap 26 may be located above the sink unit 12 or above the cooking unit 16 for filling a cooking vessel with water or along any other section of the kitchen system 10.

[0014] The lower portion 34 of the rail 30, best shown in FIG. 3, may house a plurality of utility conduits - such as a water inlet 42 and a power or electricity inlet 44. Further, a drain outlet conduit 46 may be provided. At predetermined locations, inlet pipes 43 and 45 for water inlet and power are provided teed off from the utility conduits 42 and 44 for connection with appliance or sink units 12, 14, 16. Moreover, a drain tube 47 may also be teed off from the drain outlet conduit 46. In this way, appliance units 12, 14 and 16 may be mounted to the rail 30 and also readily connected to the necessary utilities. The rail 30, when mounted to the wall 20, is connected to external utilities at one location and then distributes these utilities along the lower portion. The utility conduits may also be housed in the upper portion 32.

[0015] The mounting rail 30 may be a unitary structure or may be constructed from a plurality of separate parts. FIG. 4 illustrates an alternative embodiment of the mounting rail 30' where the rail is separated into two elements. In this embodiment, the rail 30' includes a first upper member 32' and a lower member 34'. The upper member 32' supports a movable water tap 26 and houses a plurality of utility inlet pipes 43', 45' that extend from the utility conduits 42 and 44. The lower member 34' houses a drain tube 47' which extends from a drain outlet conduit 46 - in a similar manner as described above.

[0016] One of the functions of the mounting rail 30 is

to support the modular units 12, 14, 16 and to that end, the mounting rail 30 includes a guide channel 50, as shown in FIG. 3. The guide channel 50 extends along the length of the mounting rail 30 and provides an engagement location for a plurality of mounting brackets 52 which are slidably received onto the mounting rail 30 in a manner wherein an engagement portion 54 is received into the guide channel 50 (see FIG. 3). The mounting brackets 52 may be preferably formed from metallic material such as stainless steel or aluminum. The mounting brackets include a collar-like main body 56 that is positioned between the contiguous ends of adjacent modular units 12, 14, 16 for supporting the units. Shown in greater detail in FIG. 5, the collar-like main body 56 receives the end 58 of a unit. The unit end 58 may be formed with a recessed portion 58a to nest or fit within the collar-like main body 56. Additionally, the collar-like main body 58 may be provided with a mechanism (not shown) for tightening the main body 56 about the end 58 of the unit.

[0017] FIG. 4 illustrates an alternate embodiment of the mounting brackets 52. In this embodiment, mounting brackets 70 are formed as reverse C shaped members. A collar-like main body 72 includes two engagement ends 74 and 76. These engagement ends are received into a pair of guide channels 80 and 82 provided on the mounting rail 30'. Additionally, it can be seen that a support leg 77 may extend downwardly from one or more of the mounting brackets 70 to provide further support for the modular units.

[0018] Located at either end of the modular kitchen system 10 is a final mounting bracket 52 and an end panel 110, 112. The end panels are design to assemble to the end mount bracket 52 and provide a finished visual appearance.

[0019] Looking again at FIGS. 1 and 2, it can be seen that mounting rail 30 further supports a lighting hood member 24. The hood member 24 includes a pair of upwardly extending frame elements 86 and 88 which support the hood cover 90. The hood cover 90 may support a light element 92. The power supply to the light element 92 is provided through one of the frame elements. A control switch 94 may be provided along the top surface 36 of the mounting rail 30.

[0020] As discussed above, the modular kitchen system may include a sink unit 12, a refrigeration unit 14, and a cooking unit 16. The individual units include end portions 58 that may be received into the main body 56 of the mounting brackets 52. Moreover, each end 58 of the units 12, 14, 16 substantially conform to a fixed shape or configuration so that the individual units 12, 14, 16 may be assembled both in any desired order. Moreover, by utilizing different length mounting rails 30, it is also possible to utilize different numbers of units.

[0021] In FIG. 1 it is shown that the refrigeration unit 14 may comprise a drawer element 98 which includes two cavities 100 and 102 that may be varied in size by movement of a middle divider element 104. The two cav-

ities 100 and 102 are a fresh food cavity and freezing cavity respectively. By adjusting the location of the middle divider 104, the size of the cavities can be varied. Moreover, the top surface 106 of the refrigeration unit 14 may be a transparent material such that it is possible to view the contents of the refrigeration unit 14 without opening the drawer element 98.

[0022] The cooking unit 16 may be provided with a cooktop surface 108 which includes a plurality of heating element (not shown). Below the cooktop surface 108, there is an oven cavity which can be either a conventional oven cavity or a microwave. As previously discussed, it is possible to move the water tap 26 to directly fill cooking vessels located on the cooktop surface.

[0023] It can be seen that the top surface of the modular kitchen system 10 is formed from a combination of the modular appliance units 14, 16, along with the top surface 36 of the mounting bracket 30. Together, these elements form the top work surface of the modular kitchen system 10 such that no additional counter top material or structure is required.

[0024] Turning now to FIG. 6, the modular kitchen system 10 of the present invention is shown incorporated into a kitchen environment with additional storage units and work surface areas. In this way, the space around and below the modular kitchen system 10 may be beneficially used.

[0025] As is apparent from the foregoing specification, the invention is susceptible of being embodied with various alterations and modifications which may differ particularly from those that have been described in the preceding specification and description. It should be understood that we wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of our contribution to the art.

Claims

1. A modular kitchen system having a plurality of modular kitchen units (12, 14, 16) assembled together and mounted to a kitchen wall, **characterized in that**

the plurality of modular units (12, 14, 16) include at least a sink unit (12) and an appliance unit (14, 16),

a mounting rail (30) is mounted to the kitchen wall, the mounting rail (30) being an elongated element having an upper portion (32) and a lower portion (34),

a movable water tap (26) slidingly supported along the upper portion (32) of the mounting rail,

a plurality of mounting brackets (52) slidably connect to the mounting rail (30) and include collar-like main bodies (56) for supporting the

plurality of modular units (12, 14, 16) wherein the plurality of units include contiguous ends that substantially match each other and may be received into one of the collar-like main bodies of the mounting brackets for support along the mounting rail.

2. The modular kitchen assembly as claimed in claim 1, **characterized in that** the plurality of modular units (12, 14, 16) include at least a sink unit (12), a refrigeration unit (14) and a cooking unit (16).
3. The modular kitchen assembly as claimed in claim 1, **characterized in that** the mounting rail (30) houses a plurality of utility conduits (42, 44) for supplying power and water to the modular units (12, 14, 16).
4. The modular kitchen assembly as claimed in claim 1, **characterized in that** the mounting rail (30) is formed from an upper member (32') and a separate lower member (34').
5. The modular kitchen assembly as claimed in claim 4, **characterized in that** the upper member (32') houses a plurality of utility conduits (42, 44) for supplying power and water to the modular units (12, 14, 16).
6. The modular kitchen assembly as claimed in claim 1, **characterized in that** a hood member 24 extends from the upper portion (32) of the mounting rail (30).
7. The modular kitchen assembly as claimed in claim 6, **characterized in that** the hood member (24) is formed by a pair of frame elements extending upwardly from the mounting rail (30) for supporting a hood cover (90).
8. The modular kitchen assembly as claimed in claim 7, **characterized in that** the electrical power is supplied to a light element (92) mounted within the hood cover (90) through one of the pairs of frame elements and a switch (94) is provided on the mounting rail (30) for controlling energization of the light element.
9. The modular kitchen assembly as claimed in claim 1, **characterized in that** the modular kitchen system includes a top work surface formed by a combination of the modular units and the upper portion of the mounting rail.
10. The modular kitchen assembly as claimed in claim 9, **characterized in that** the plurality of modular units (12, 14, 16) include at least a sink unit (12) and a refrigeration unit (14) and wherein the refrig-

eration unit includes a drawer (98) and a transparent top surface (106).

11. The modular kitchen assembly as claimed in claim 10, **characterized in that** the plurality of modular units (12, 14, 16) also include a cooking unit (16) upon which cooking vessels may be placed and the movable water tap (26) may be slidingly positioned adjacent the cooking unit for supplying water to such cooking vessels.

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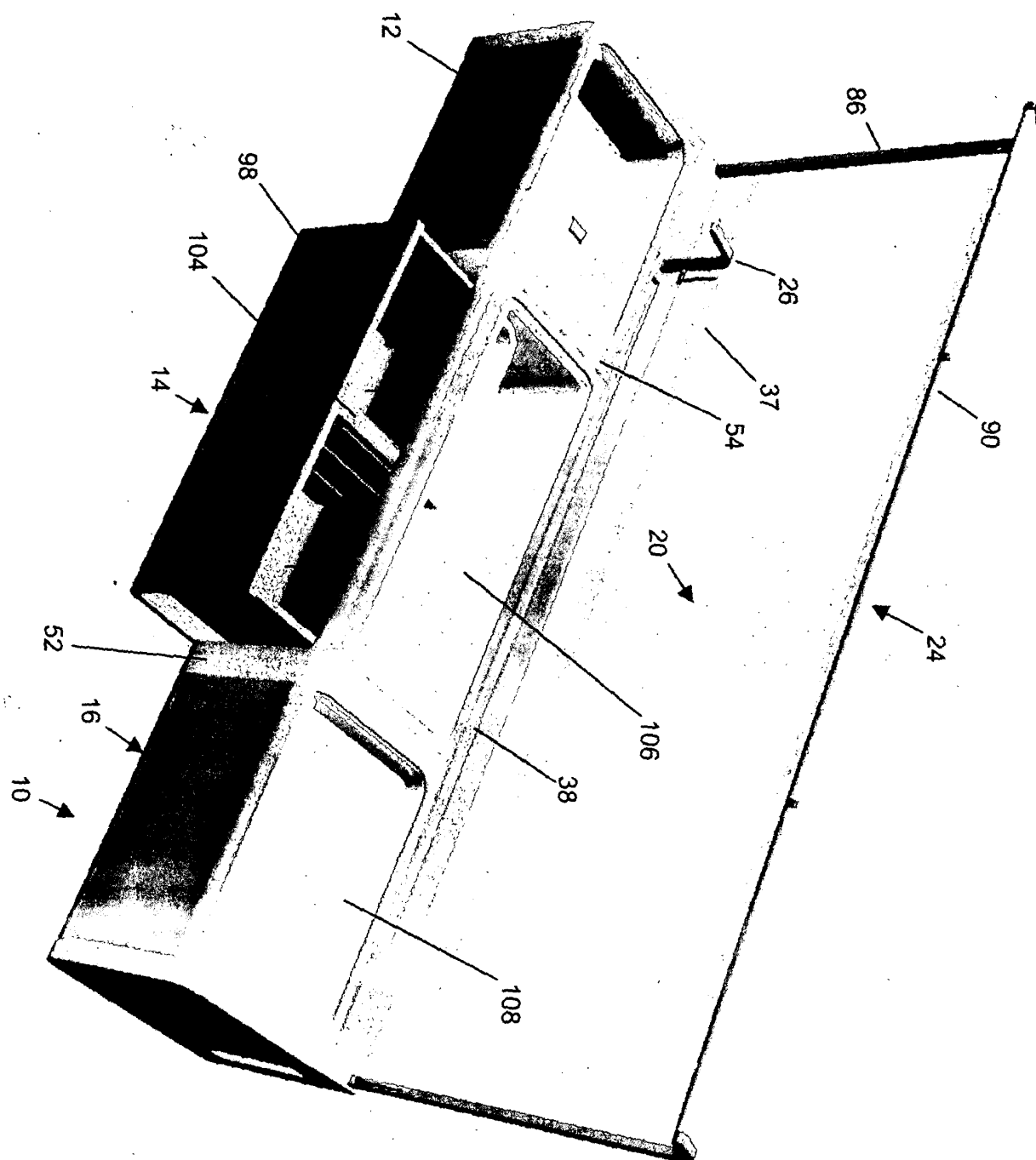


Fig. 1

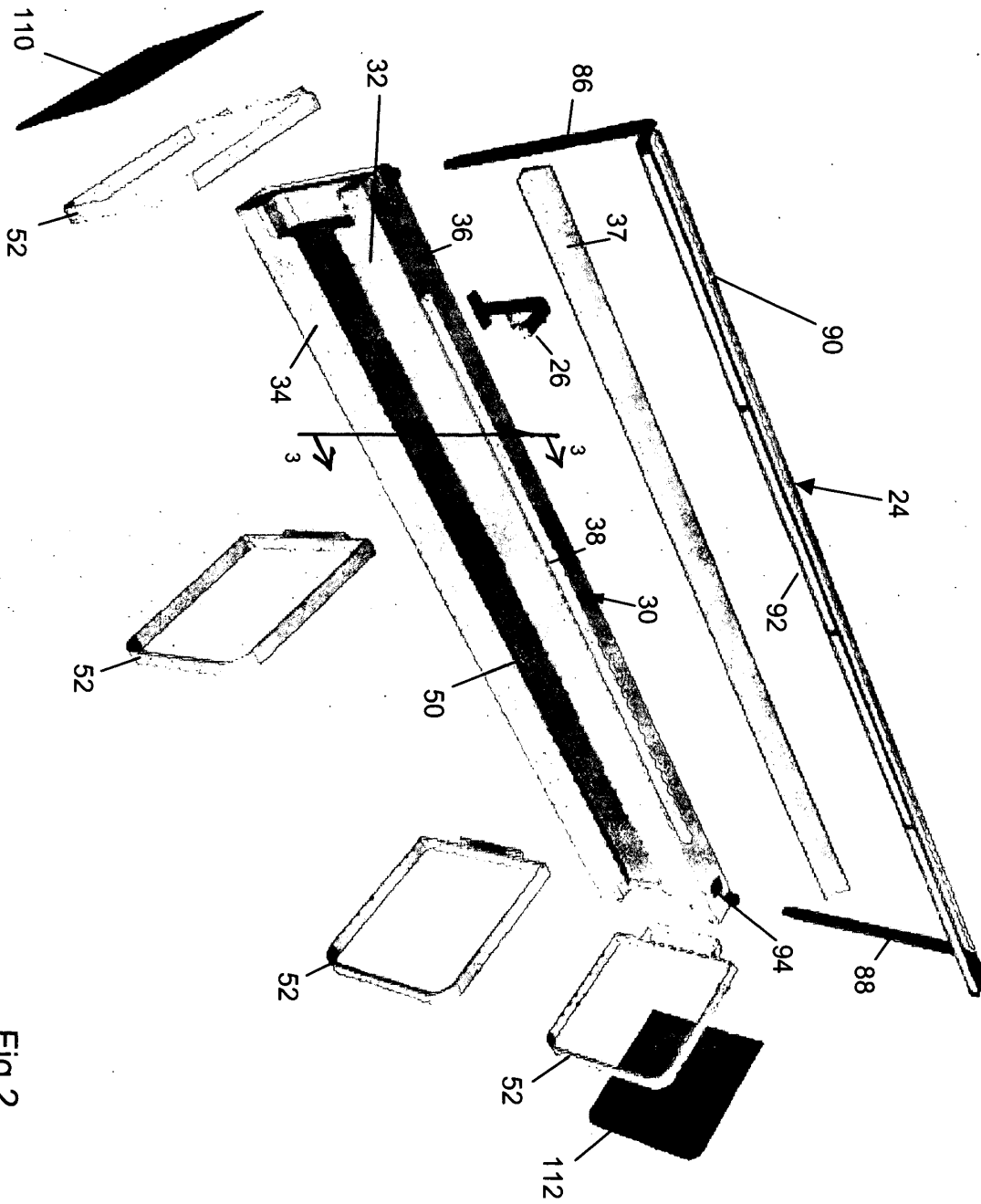


Fig.2

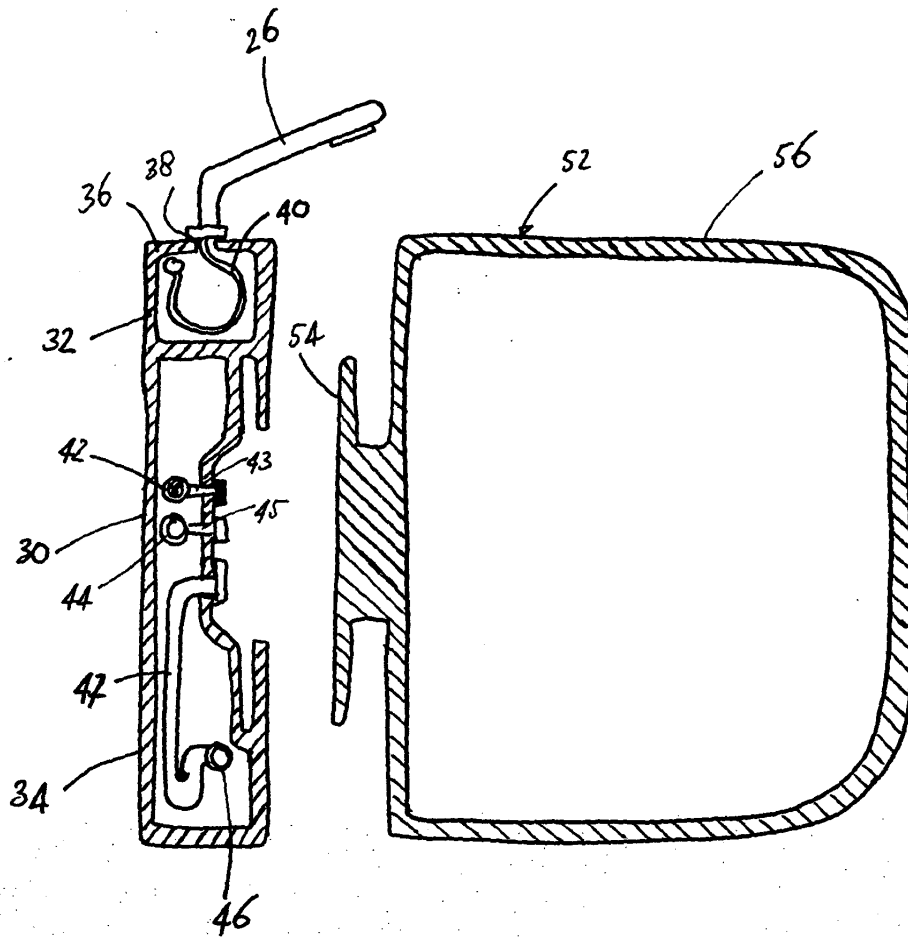


Fig. 3

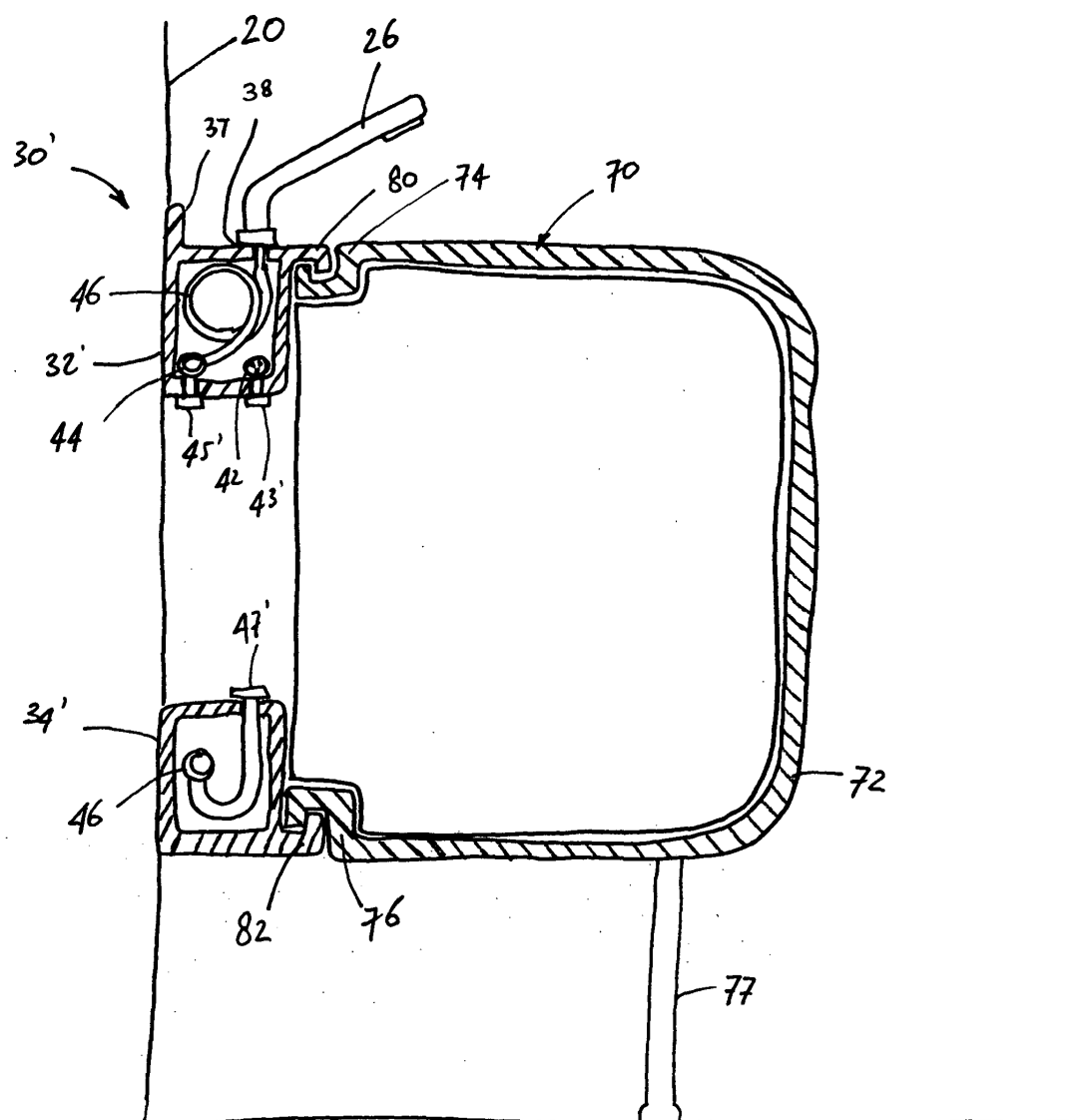


Fig. 4

Fig.5

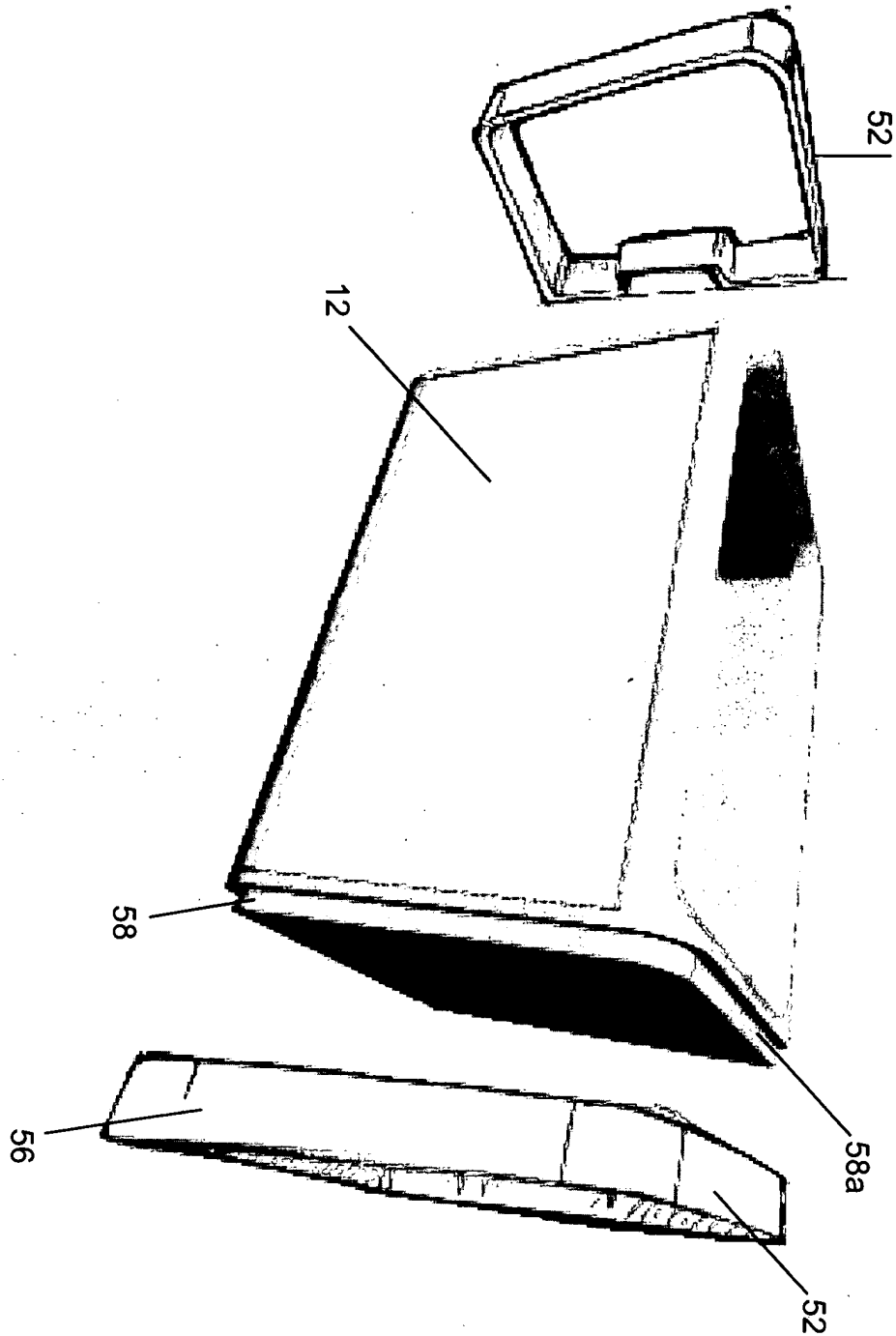
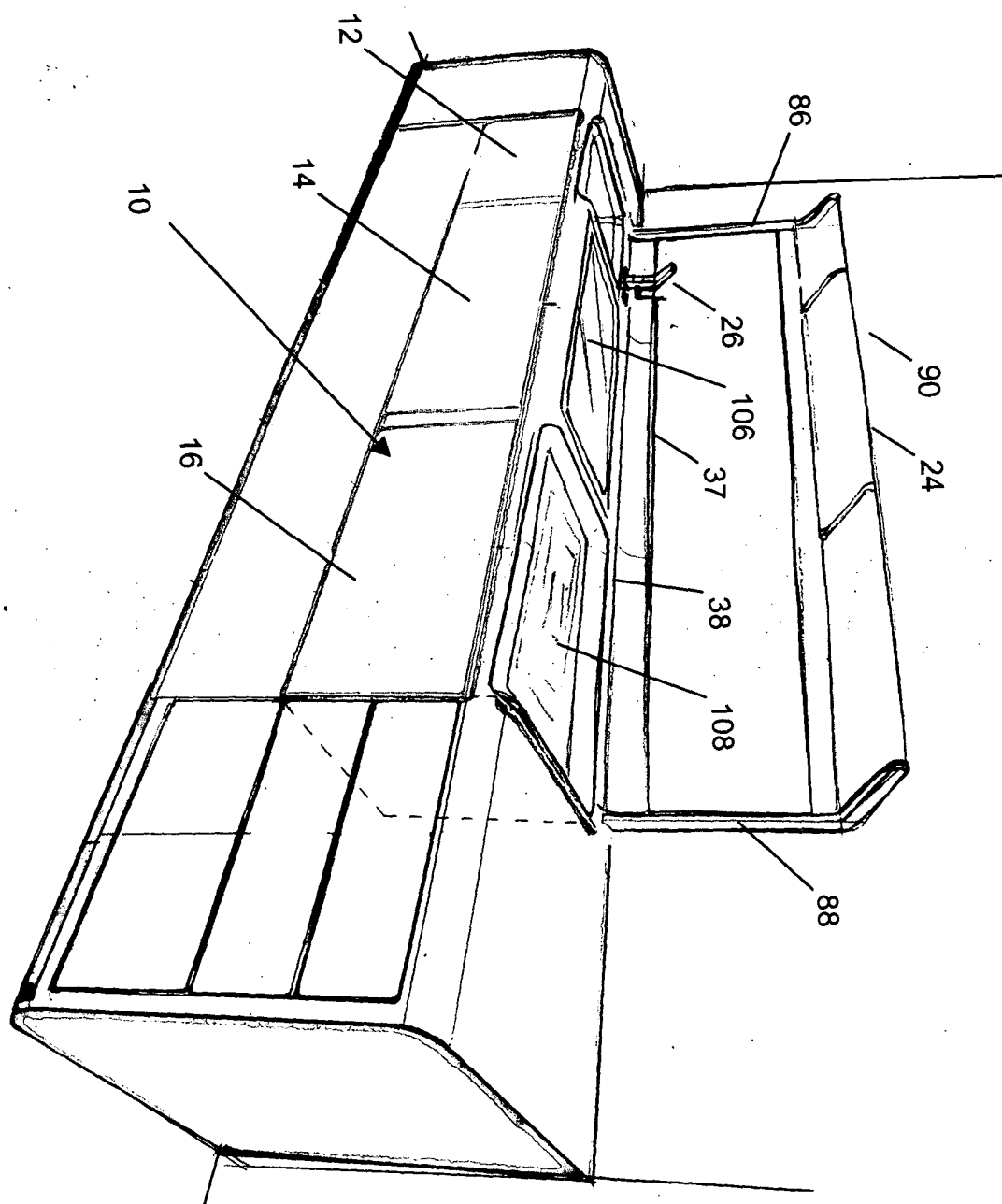


Fig.6





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 04 00 4963

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.7)
A	US 5 392 934 A (FOX LARRY G) 28 February 1995 (1995-02-28) * column 7, line 35 - line 43 * * figures 8-14 *	1-11	A47B77/02 A47B77/06 A47B96/06
A	US 3 101 486 A (TILLER JAMES A) 27 August 1963 (1963-08-27) * figures *	1-11	
A	DE 102 35 776 A (BSH BOSCH SIEMENS HAUSGERAETE) 26 February 2004 (2004-02-26) * the whole document *	1-11	
A	EP 0 363 868 A (BONNET SA) 18 April 1990 (1990-04-18) * abstract * * figures *	1	
A	US 3 899 228 A (SCHREIBER VICTOR M) 12 August 1975 (1975-08-12) * figures *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 13 August 2004	Examiner van Hoogstraten, S
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			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 00 4963

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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13-08-2004

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