A framework/skeleton table with accompanying trays does not have a flat platform table-top, unlike other normal and standard table. This framework/skeleton table with accompanying trays comprises of a framework/skeleton top mounted to a rigid underside structure which in turns mounted onto a rigid base structure which may be fixed or foldable and accompany trays. The framework/skeleton top is made with round rods. The accompanying trays will act as the flat platform table-top when they are placed to rest on the framework/skeleton top. The round rods can also act as clothes drying rack when the trays are removed.
This application is being filed on 11th April 2012, as a PCT International Patent Application in the name of Heng Slew Mio and Chan Yee Leong.

Field of Present Invention

The present invention relates to the efficiency of the workflow of clearing and cleaning process, and in particular, to a table that do not have any flat platform top but only the framework/skeleton top of the table with accompanying trays which will act as flat platform top to facilitate and improve the workflow of clearing and cleaning process in an eating place such as Hawker Centre, Foodcourt, Eating house or Restaurant, and to a table which will serve as clothes drying rack at home without the accompany trays.

Background of Present Invention

Clearing and cleaning of table after each meal may be very demanding in busy eating places with heavy human traffic, especially during peak hours.

Most patrons of Hawker Centre, Foodcourt, Eating house and Restaurant in some countries such as Singapore, depend mostly on cleaners to clear and clean up the tables after each meal. In Singapore, the job as a cleaner is not popular among the locals and the cleaning companies/contractors always find it difficult to get local cleaners. The recent tightening policy on foreign manpower, with a reduction in Dependency Ratio Ceilings and increase in Foreign Worker Levy as the Singapore government hopes to reduce our reliance on foreign workers, has added to the woes of the employer of cleaning companies which are facing high turnover rate and labour shortage in this labour-intensive industry.

Unless to find ways to reduce the workload of a cleaner so that one will not be too tiring on this job, cleaner tends to leave the job after a while. As this kind of job usually attracts the elderly locals, it will be more worthwhile to look into ways to make this job less exhausting to provide a more conducive working environment to work in, especially when we are facing ageing populations.

During meal-time or peak hours, especially in a busy eating place with large seating capacity, the shortage of cleaner becomes obvious when used eating utensils are left on the table, leaving the next patrons not able to occupy and to have their meals at the table until the cleaners clear away the eating utensils and left-over and clean the table.

The uncleared eating utensils and left-over on the table is an unsightly scene. This unsightly scene is even worsen when birds are attracted to poach on the left-over food, and this is unhygienic, especially when they left their droppings on the table and the surroundings.

We may reduce such dependency on labour by increasing the productivity of the existing pool of cleaners in the market with the help of appropriate tools and a more efficient procedures, as well as by cultivating good habit and practice in the patrons who dine in.

We may cultivate the culture of having each patron to clear their own plate, bowl, saucer, cutlery, and/or other eating utensils after each meal.

In addition, it is also a common sight for one or two patrons to occupy the whole of a 4-seated table by placing their plates or bowls of dishes, or even putting their belongings such as handbags and umbrellas, all over the 4-seated table, depriving other patrons to occupy the empty seats whereby sharing of the table is discouraged. This ungracious behaviour may be minimise with my present invention.

On the other hand, my present invention can also be put into good use in household. In country where land is precious and properly price is escalating, resulting smaller units of houses and apartments such as Shoebox
and Studio apartments being built, especially so in Singapore, it will be worth finding ways to maximise space at one’s home. My present invention will have multi-purpose usage at home.

Summary of Present Invention

This present invention is directed to improve and assist the cleaners in the clearing and cleaning process in the eating place in a more efficient way and to improve their productivities in a more friendly and hygiene working environment. In addition, this present invention may assist in cultivating good habits and practice among the patrons. This present invention uses the idea of framework/skeleton table with accompanying trays to achieve a more efficient clearing and cleaning process. At the same time, this framework/skeleton table can be a clothes drying rack too if used at home.

With the framework/skeleton table, a patron will require a tray to lay on the framework/skeleton top of the table so that the tray will act as a solid table-top in order for the patron to dine on the table without dropping the eating utensils onto the floor through the gap/hole created in the table's framework/skeleton top as the tray will be the base support to hold the eating utensils. In another word, the patron will have to eat his/her food with the eating utensils on the tray. This idea of framework/skeleton table with accompanying trays will confine the patrons to dine within the trays.

Firstly, since the patron will be constraint to have his/her food within the tray, the eating utensils, cutlery and left-over food will still be within the tray after he/she left the table. As such, the cleaner will be able to clear away the eating utensils, cutlery and left-over altogether from the framework/skeleton top faster as the cleaner will just have to remove the whole tray, together with the eating utensils, cutlery and left-over, from the framework/skeleton top onto a clearing trolley, rather than to clear each piece of eating utensil onto the clearing trolley one at a time which is time-consuming.

Besides, only the trays, which may be easily removed, will be soiled as the dining is confined within the trays since the trays act as table-tops. In this way, no cleaning of table-top (since there is no table-top when the trays are removed) is required but only clearing away of the whole tray together with the used eating utensils and cutlery and/or left-over.

The normal/standard table used in the eating place has a solid table-top. When the cleaner is not able to clear the table in time, the next patron to occupy the table will usually push and stack the plates, bowls, cutlery or the like disorderly at one corner/side of the table-top conveniently, leaving the cleaning job to be even more tedious. Without any table top at the other corner/side of the table, the next patron will not be able to conveniently push the used eating utensils and cutlery left behind by the previous patron, to the other space/part of the table.

Secondly, the operator of the eating house may require the patron to collect a tray from a Central Area (usually around the central washing area) and to pay a deposit for the tray before he/she orders food from the stall. The deposit shall be returned upon returning of the tray with the eating utensils if the patron has dine-in or without the eating utensils if the patron decides not to have any food after collecting the tray.

Alternatively, a stall-holder may collect a certain number of trays and pay upfront the deposits for the trays whereby the stall-holder will then collect the deposits from the patrons later when they order some food from the stall. This will avoid the trouble of collecting the tray before a patron can order food since the stall-holder will provide the tray and collect the deposit on behalf. Unused trays can be returned and refunded to the stall-holders after each business day.

By collecting a deposit on the tray, patron will have the tendency to return the tray together with the eating utensils to the Central Area since he/she just has to remove the whole tray from the framework/skeleton top. In this way, the eating utensils and left-over are cleared too. Even when the patron chooses to leave the tray and eating utensils behind, the next patron or cleaner may easily clear the table by just removing wholly the soiled tray with the eating utensils, cutlery and left-over on it.

The above may cultivate the good practice and habit in a patron for having to clear his/her own mess after each meal. If most patrons have this practice and habit, the efficiency of workflow of clearing and cleaning
of the tables will be greatly increased. Thus, less cleaners may be required to be deployed to clear and clean the tables.

Thirdly, with the faster clearing process and minimum cleaning required on the framework/skeleton table, the time of exposure of left-over food on the table will be shortened. Hence, the risk of birds poaching will be reduced, eventually, the cleaners will have lesser to clean up as they no longer worry of having to clean the birds' droppings left on the table. This is especially so when there is no solid table-top for the birds to land on. Moreover, the frame/bone of the table is made of smooth and round rod, which makes it even difficult for the birds to grip and land on.

When the framework/skeleton table is used at home, it can serve as clothes drying rack when the trays are removed. In Singapore where the newly built house is getting smaller and with the humid weather, especially during rainy season, this present invention will provide an alternative space and way for the household to dry their clothes and towels.

**Brief Description of the Drawings**

Preferred embodiments of the present invention will be fully described with reference to the drawings wherein like reference numerals and letters indicate corresponding structure throughout the several views and how this framework/skeleton table with tray system works:

Figure 1 is a perspective view of first embodiment of the framework/skeleton table with trays according to the principles of the present invention in a used/occupied position;

Figure 2 is an end elevational view of the framework/skeleton table with trays shown in Figure 1;

Figure 3 is a side elevational view of the framework/skeleton table with trays shown in Figure 1;

Figure 4 is a top plan view of the framework/skeleton table with trays shown in Figure 1;

Figure 5 is a perspective view of the embodiment of the framework/skeleton table (shown in Figure 1) without tray according to the principles of the present invention in an unused/unoccupied position;

Figure 6 is an end elevational view of the framework/skeleton table without tray shown in Figure 5 in an unused/unoccupied position;

Figure 7 is an side elevational view of the framework/skeleton table without tray shown in Figure 5 in an unused/unoccupied position;

Figure 8 is a top plan view of the framework/skeleton table without tray shown in Figure 5 in an unused/unoccupied position;

Figures 9a is the perspective view of one side of the tray used in the framework/skeleton table according to the principles of the present invention in the used/occupied position shown in Figure 1;

Figures 9b is the perspective view of another side of the tray used in the framework/skeleton table according to the principles of the present invention in the used/occupied position shown in Figure 1;

Figure 10a is the side elevational view of one side of the tray shown in Figure 9a;

Figure 10b is the side elevational view of another side of the tray shown in Figure 9b;

Figure 11 is the end elevational view of the tray shown in Figures 9a and 9b;

Figure 12 is the top plan view of the tray shown in Figures 9a and 9b;
Figure 13ai, 13bi and 13ci are the perspective views of various or different rigid base structure 106 and 107 used to support the framework/skeleton top in the framework/skeleton table according to the principles of the present invention shown in Figure 1:

Figure 14ai is the perspective view of second embodiment of the framework/skeleton table with trays according to the principles of the present invention in the used/occupied position;

Figure 14a(ii) is the top plan view of the framework/skeleton table with trays shown in Figure Mai;

**Detailed Description of the Framework/Skeleton Table with Accompanying Trays and Clothes Drying Rack Capability**

Referring now to the drawings and in particular to Figure 1, there is shown an embodiment of a framework/skeleton table with trays, generally designated 100. The framework/skeleton table with trays 100 includes round rods 102 and 104, which form the framework/skeleton top, supported by an underside rigid structure 106 which is mounted on another rigid structure 107 that determines the height of the framework/skeleton table.

Rigid structures 106 and 107 can be of different shape or style/pattern as shown in Figures 13a, 13b and 13c to support the framework/skeleton top. Rigid structure 107 can be of foldable type as shown in Figure 13c. They may be made of stronger and heavier materials such as steel to give a firm support.

Round rod 104 is underneath round rod 102 so as that round rod 104 will not be of the same horizontal level as round rod 102 in order to create any instability or imbalance should any object be placed on the orthogonal corner formed by round rods 102 and 104 as step is formed with one rod beneath another rod at the junction. Round rod 104 is to support the flat platform 151 of the tray as shown in Figures 9a and 9b whereas round rod 102 is to allow the two semi-cylindrical-like sides 153 of the tray as shown in Figures 9a and 9b to hook and rest onto round rod 102 to ensure the tray is fixed firmly in a stable position.

Round rods 102 and 104 can be made with smooth and strong but lighter materials such as aluminium and polymer-like materials, or even heavier materials such as steel. Smooth and round rods 102 and 104 are used so as to firstly create instability if plates and bowls are placed on them, thus, not possible to dine without tray, and secondly make it difficult for any bird to land on the framework/skeleton top. Round rods 102 and 104 which form the framework/skeleton top may not be necessarily straight. Bended and curved rods may be used to give different design of the framework/skeleton top as shown in Figures 14. However, when round rod 102 are not of the straight type, the tray as shown in Figures 9a and 9b used in this present invention must be modified accordingly which the principles of the present invention still holds.

The holes 105 created in the framework/skeleton top must be big enough so that placing of standard plates and bowls between the round rods 102 and 104 are not possible.

The end part 101 of round rod 102 and the end part of 103 of the round rod 104 can be of circular or spherical shape, so long is not a sharp end, will act as a safety precaution against any injury.

Referring now to Figures 9 to 12, the tray 150 has a flat platform 151 to act as a solid table-top for the framework/skeleton table and two semi-cylindrical-like sides 153 to hook and rest onto the frame/bone of the framework/skeleton top to have a more secured position.

The edge 152 of the tray has a risen height from the flat platform 151 so as to prevent any spillage of liquids such as soup and drinks onto the tray from flowing and dripping down onto the floor from the flat platform 151.

A semi-circular flat structure 155 as shown in Figure 9a fixed to one end portion 154 of semi-cylindrical-like side 153 is to act as a stopper lest the tray is being slide or pushed inwards towards the opposite side of the framework/skeleton top. On the other end portion 156 as shown in Figure 9b of semi-cylindrical-like side 153 does not have this semi-circular flat structure 155 so that firstly the whole of semi-cylindrical-like 153 can rest onto and cover the round rod 102 as shown in Figure 1, and secondly, both end portions 156 of the
opposite trays can meet edge to edge, covering the whole of round rod 102. Since the framework/skeleton top will beneath the trays, dirtying or soiling of the framework/skeleton top while eating or drinking normally is almost not possible as the trays act as a protective covering to the framework/skeleton top. Hence, cleaning of framework/skeleton top is not required, which inevitably increased efficiency of the clearing and cleaning workflow and process.

The tray may be made of durable, strong and light materials such as polymer-like materials.

When the framework/skeleton table is used at home, the round rods 102 and 104 can be used as poles to hang clothes and towels after removing the trays.

The above description, drawings and examples illustrate the preferred embodiments of the present invention, and it will be appreciated that various modifications and improvements can be made without departing from the scope of the present invention.

Further embodiments are possible with different framework/skeleton top shapes and with different number of trays and different tray type and shape, as well as the different supporting and mounting base structures, giving various combinations of framework/skeleton table with tray system. The present invention provides a safe, cost-effective and reliable embodiment to increase the efficiency of the clearing and cleaning workflow and process, and inevitably provides a more clean and hygienic dining environment and scene that is neither known nor obvious from the prior invention.

It is to be understood, however, that even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with the details of the structure and function of the invention, the disclosure is merely exemplary, and changes may be made in detail, especially in matters of shape, size and arrangement of the parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.
Claims:

1. A framework/skeleton table with accompanying tray and clothes drying rack capability, comprising:
   - a framework/skeleton top with at least one gap/hole in-between the frame/bones (rods) and having round smooth frame/bones (rods) and edges;
   - an underside and a mounting structure beneath supporting the framework/skeleton top;
   - at least one tray having at least one semi-cylindrical-like edge/side that hook and rest onto the table frame/bone and a flat platform wherein the edges are heightened.

2. A framework/skeleton table with accompanying tray according to claim 1, wherein at least one frame/bone of the framework/skeleton top comprises smooth and cylindrical rod.

3. A framework/skeleton table with accompanying tray according to claim 1, wherein the framework/skeleton top comprises at least one gap/hole in-between the frame/bones (rods).

4. A framework/skeleton table with accompanying tray according to claim 1, wherein the ends of the frame/bone (rod) is circular or spherical.

5. A framework/skeleton table with accompanying tray according to claim 1, wherein at least one frame/bone (rod) to secure a tray in a fixed position whereby the semi-cylindrical edge of the tray can hook and rest onto and cover the frame/bone (rod).

6. A framework/skeleton table with accompanying tray according to claim 1, wherein at least one frame/bone (rod) is to support the flat platform of the tray.

7. A framework/skeleton table with accompanying tray according to claim 1, wherein one frame/bone (rod) is beneath the other frame/bone (rod) when they are connected at a junction to create a step between the frame/bones (rods).

8. A framework/skeleton table with accompanying tray according to claim 1, comprising a plurality of trays.

9. A framework/skeleton table with accompanying tray according to claims 1 and 3, wherein the at least one gap/hole is covered or filled by the flat platform of the tray.

10. A framework/skeleton table with accompanying tray according to claim 1, wherein the framework/skeleton top is hidden below the trays whereby the trays act as protective covering for the framework/skeleton top.

11. A framework/skeleton table with accompanying tray according to claim 1, wherein the at least one tray comprises of at least one semi-cylindrical-like edge/side.

12. A framework/skeleton table with accompanying tray according to claim 1, wherein the at least one tray comprises of flat platform.

13. A framework/skeleton table with accompanying tray according to claim 1, wherein the at least one tray comprises of heightened edges.

14. A framework/skeleton table with accompanying tray according to claim 1], wherein the at least one semi-cylindrical-like edge/side comprises one semi-circular structure at one end.

15. A framework/skeleton table according to claims 2 and 3, wherein the smooth and round rods act as poles for hanging clothes and towels, and the gap/hole in-between the frame/bones (rods) space out the poles.
AMENDED CLAIMS
received by the International Bureau on 04 February 2013 (04.02.2013)

Claims :

1. A framework/skeleton table with accompanying tray comprising:
   - accompanying tray being the removable table-top and
   - frame/bone/rod being the support for the flat platform of the accompanying tray.

2. A framework/skeleton table with accompanying tray according to claim 1, wherein there are
   big gaps/spaces between the frames/bones/rods whereby bowls, plates and cutlery normally used in
   restaurants, eating house and food centre will go through the gaps/holes without the accompanying
   tray.

3. A framework/skeleton table with accompanying tray according to claim 1, wherein there is at
   least one semi-cylindrical edge on the accompanying tray that can hook and rest onto the
   frame/bone/rod.

4. A framework/skeleton table with accompanying tray according to claim 1, wherein the
   accompanying trays completely cover the frames/bones/rods and any support underneath to prevent
   soiling of any underneath.

5. A framework/skeleton table with accompanying tray according to claims 1 and 9, wherein the
   at least one semi-cylindrical-like edge/side comprises one semi-circular flat structure at one end, to act
   as a stopper, to prevent the accompanying tray from sliding/moving while it acts as a table-top,
   mentioned in claim 9.

6. A framework/skeleton table with accompanying tray according to claim 1, wherein at least
   one frame/bone/rod is to support the flat platform of the accompanying tray.

7. A framework/skeleton table with accompanying tray according to claim 1, wherein one
   frame/bone/rod is beneath the other frame/bone/rod when they are connected at a junction to create a
   step between the frames/bones/rods.

8. A framework/skeleton table with accompanying tray according to claim 1, wherein each
   frame/bone/rod will move in rotating directions when an object is placed on frame/bone/rod, to create
   instability/imbalance for the object.

9. A framework/skeleton table with accompanying tray according to claim 1, wherein the
   accompanying tray becomes a table-top when it is placed on the framework/skeleton table, for diners
   to be able to have their meals on the trays.

10. A framework/skeleton table with accompanying tray according to claims 1 and 9, wherein the
    table-top, which is the accompany tray, is removable and interchangeable between tables.

11. A framework/skeleton table with accompanying tray according to claim 1, wherein any joint
    or bending part of the accompanying tray is made up of smooth curve/slope where there is no angle
    formed or obvious line along the joint or bending part so that there is no angle along the edges or
    corners for dirt to be hidden or stuck and in this way, wiping/cleaning of tray is made easier.
Claims 1, 2, 3, 4 and 5 show the novelty and inventive steps that may concern the invention (frame and tray) as a whole or taken as a unity.

Claim 5 concerns the semi-circular flat structure 155 mentioned in figure 1.

New claims 8 to 11 are added with regard to novelty, inventive steps and industrial applicability of the whole scope of the invention.

New claim 8 concerns the structures 101 and 104 mentioned in figure 1 which produce circular rotational motion when an object or animal, such as plate and bird, attempts to be balanced on a single structure 101 or 104.

New claim 9 concerns the structure 151 mentioned in figure 1 wherein the flat platform becomes a table-top when it rests on the framework/skeleton table, and new claim 10 concerns the mobility of such table-top.

New claim 11 concerns any joint and bending part, such as along the line between structures 151 and 153 mentioned in both figures 1 and 9a, of the accompanying tray so that no obvious line along the joint or bending part as there will be a smooth curve or slope joining any two sections or joint of the tray. Hence, cleaning is made easier as there is no angle formed along the joint or bending part for dust and dirt to settle or hide.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC: A47G 23/06 (2006.01); A47B 13/14 (2006.01)
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)
A47B, A47G
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)
WPI, EPPODOC, Fulltext

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>JP 49085305 (I not given) 24 July 1974 (24.07.1974) figures</td>
<td>1-5, 8-13, 15</td>
</tr>
<tr>
<td>X</td>
<td>DE 8315350 U1 (ELWERT PRODUKT DESIGN) 20 October 1983 (20.10.1983) figures 1, 2</td>
<td>15</td>
</tr>
<tr>
<td>A</td>
<td>claim 1; figure 1</td>
<td>1-14</td>
</tr>
<tr>
<td>A</td>
<td>DE 202005007732 U1 (WAWAS, MUNA) 22 September 2005 (22.09.2005) claims 1-3; figures</td>
<td>1-15</td>
</tr>
<tr>
<td>A</td>
<td>DE 2038395 A1 (SCHEFFLER, WALDEMAR WOLF) 17 February 1972 (17.02.1972) claims 1, 2, 4; figures</td>
<td>1-15</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
"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
22 November 2012 (22.11.2012)

Date of mailing of the international search report
04 December 2012 (04.12.2012)

Name and mailing address of the ISA/AT
Austrian Patent Office
Dresdner Strafie 87, A-1200 Vienna
Facsimile No. +43 / 1 / 534 24-535

Authorized officer
MOSSER R.
Telephone No. +43 / 1 / 534 24-437

Form PCT/ISA/210 (second sheet) (July 2009)
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE U1 8315330</td>
<td>DE U1 8315330</td>
<td>1983-10-20</td>
</tr>
<tr>
<td>DE U1 202005007732</td>
<td>DE U1 202005007732</td>
<td>2005-08-18</td>
</tr>
<tr>
<td>DE A1 2038395</td>
<td>DE A1 2038395</td>
<td>1972-02-17</td>
</tr>
</tbody>
</table>