United States Patent [19]

Carlson et al.

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[45] **Dec. 24, 1974**

[54] **LABORATORY WORKING SINK STATION**

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[73] Assignee: **E. H. Sheldon and Company**, Muskegon, Mich.

[22] Filed: **Dec. 6, 1972**

[21] Appl. No.: **312,611**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 135,608, April 20, 1971, abandoned.

[52] **U.S. Cl.** ..... **312/209**, 108/144, 108/150, 108/157, 312/228, 312/254, D32/2 C

[51] **Int. Cl.** **B01l 9/02**

[58] **Field of Search** ..... 108/66, 144, 150, 157, 108/158; D16/2 C; 312/194, 198, 199, 200, 201, 209, 254, 228; 211/181

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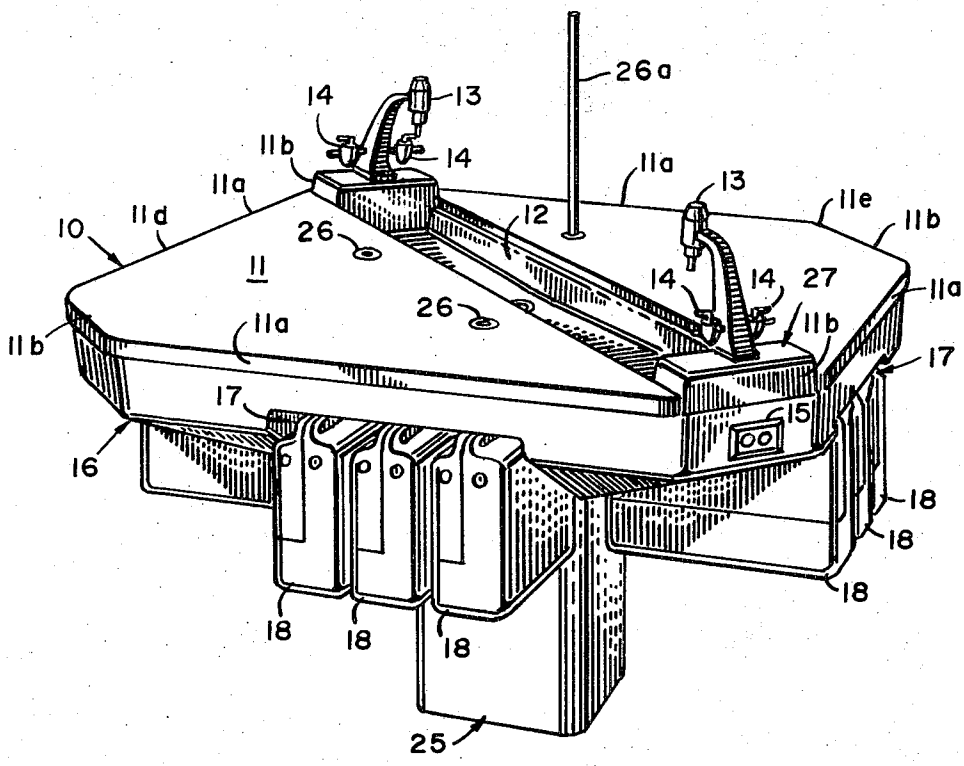
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Assistant Examiner—William E. Lyddane
Attorney, Agent, or Firm—Dawson, Tilton, Fallon & Lungmus

[57] **ABSTRACT**

A laboratory table structure is provided with a deep plastic hull body carried by a fixed, hollow pedestal by means of structure which permits adjustment of the height of the hull. The hull carries an octagonal table top equipped with fixtures and an elongated trough that extends diagonally across the table. The hull body is recessed along its sides to receive storage units.

10 Claims, 14 Drawing Figures



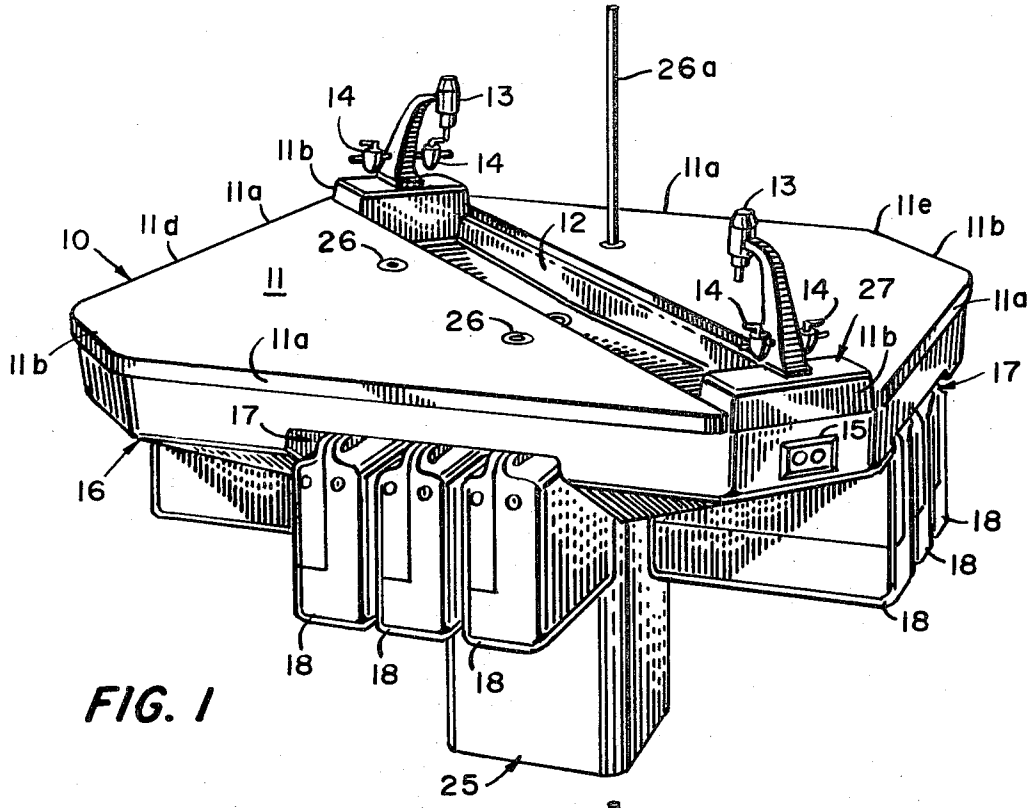

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FIG. 1

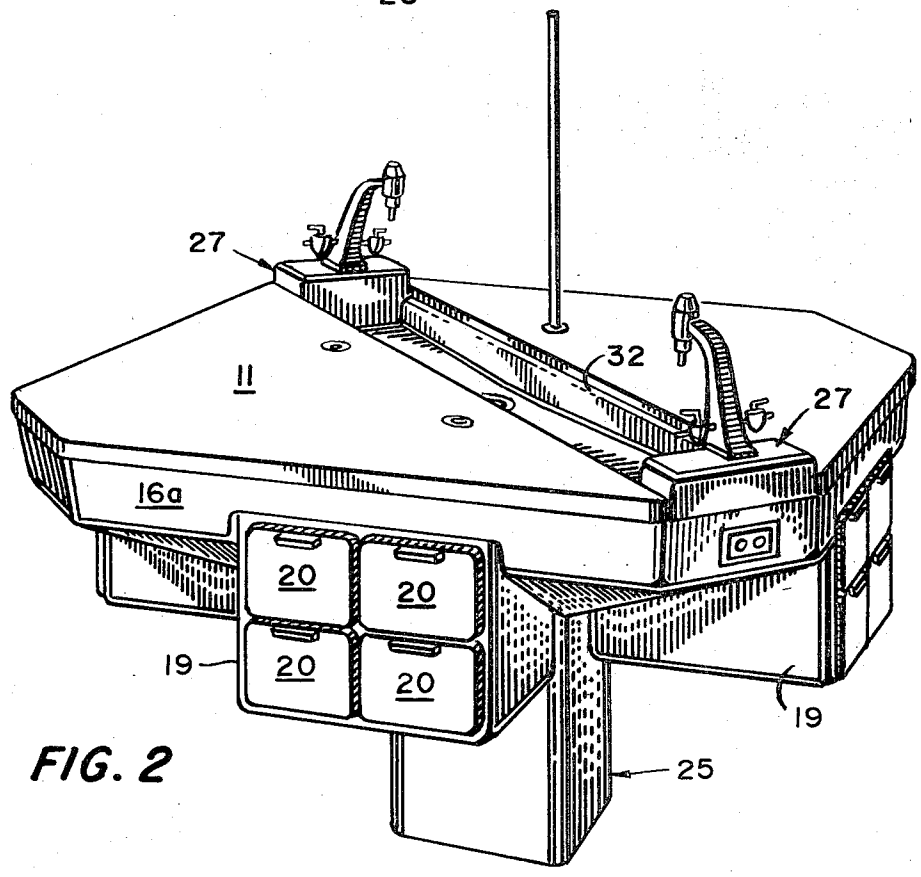

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FIG. 2

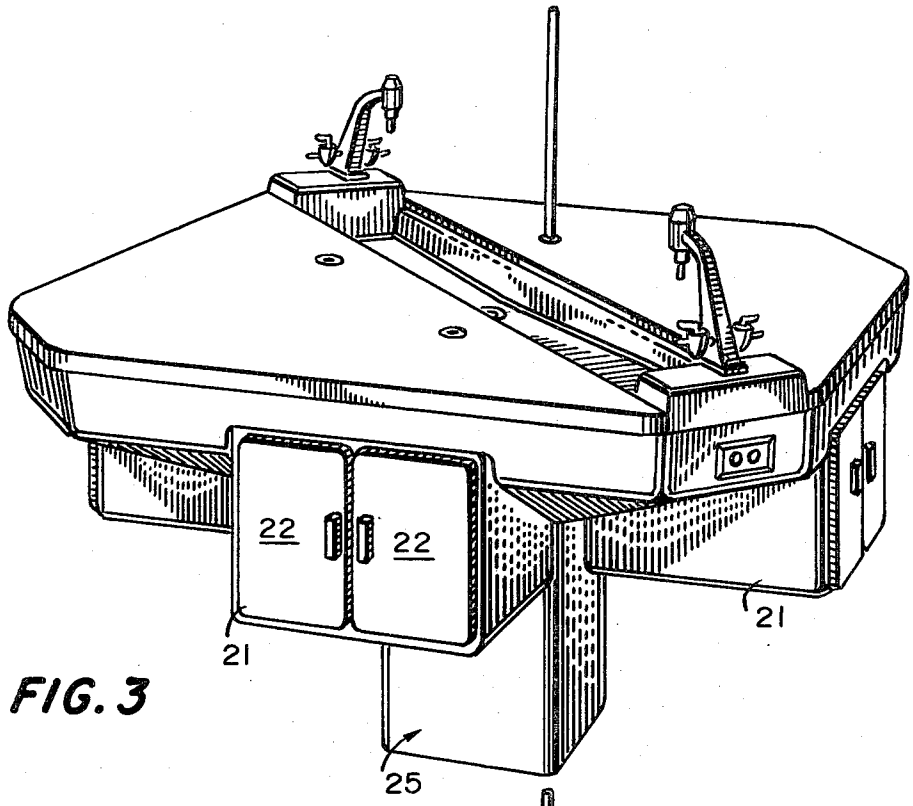


FIG. 3

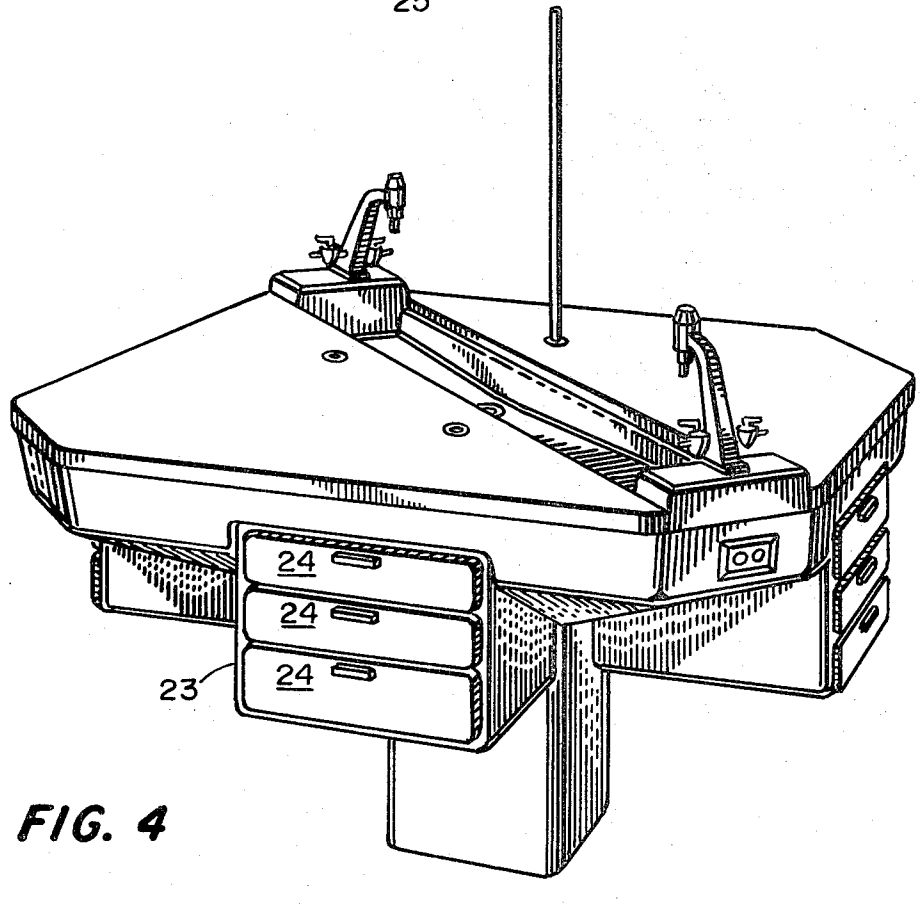


FIG. 4

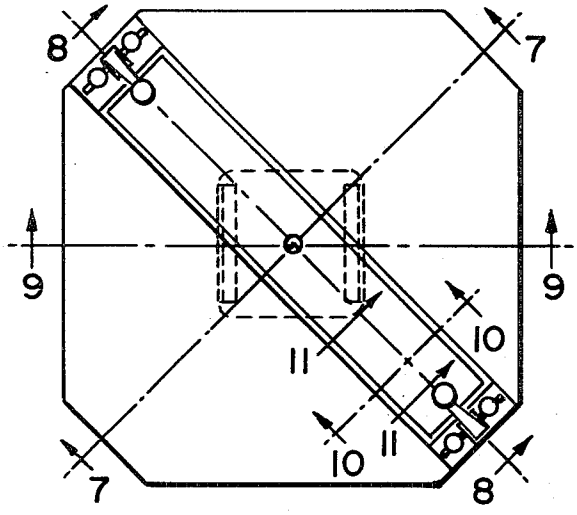


FIG. 5

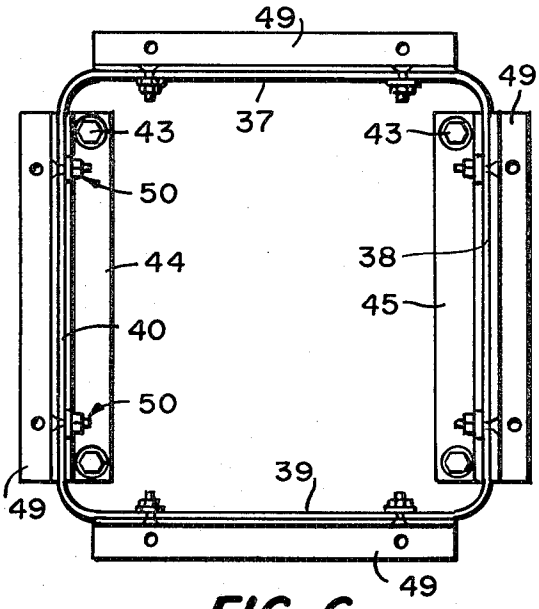


FIG. 6

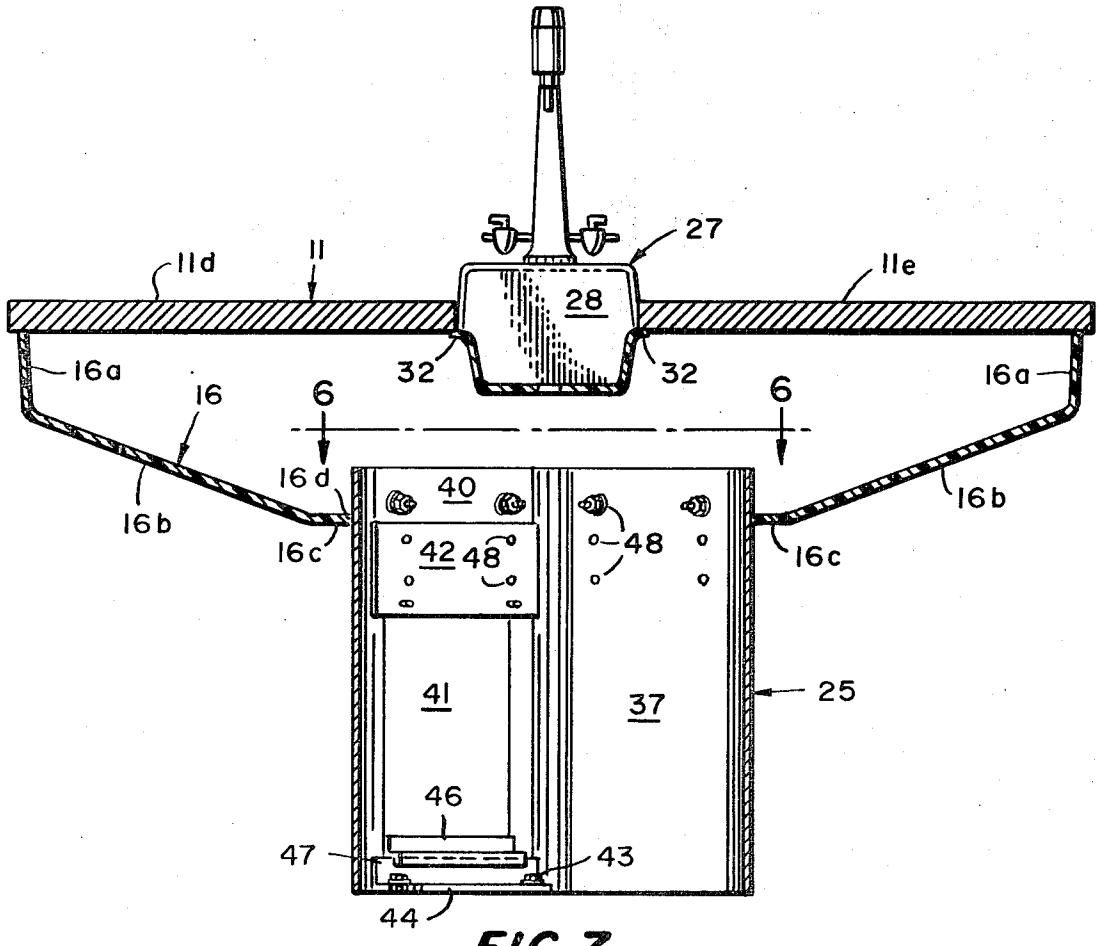


FIG. 7

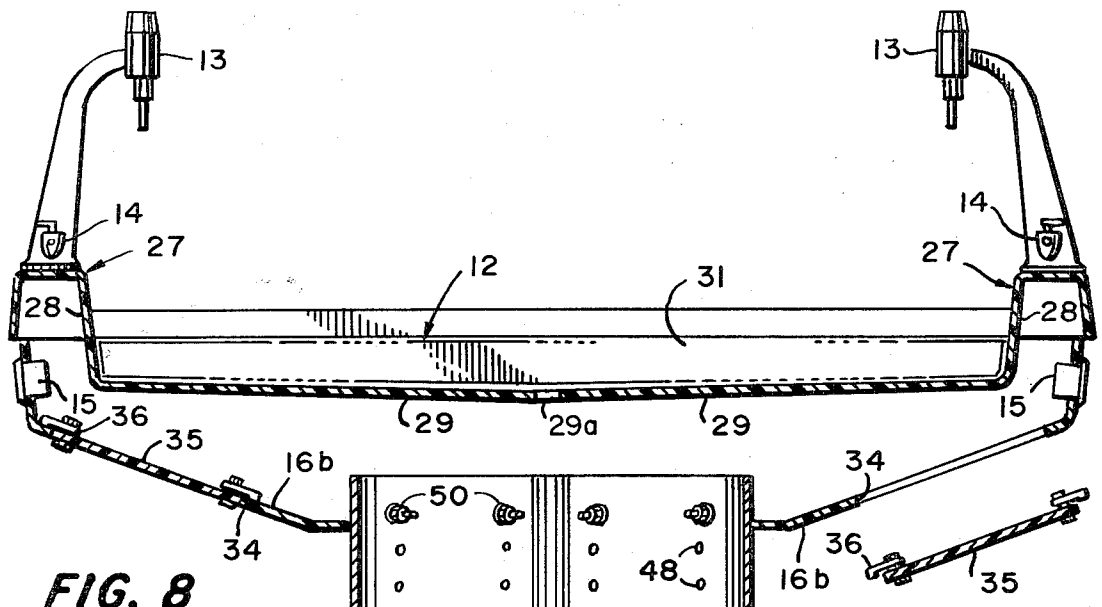

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FIG. 8

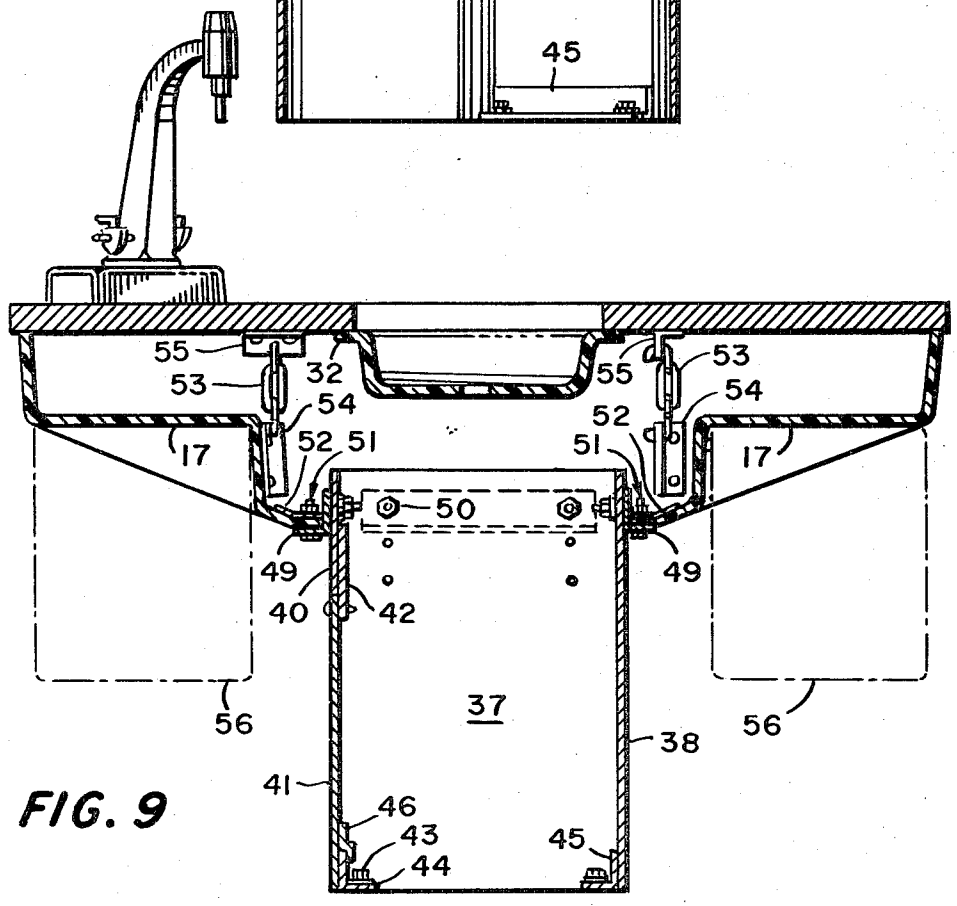
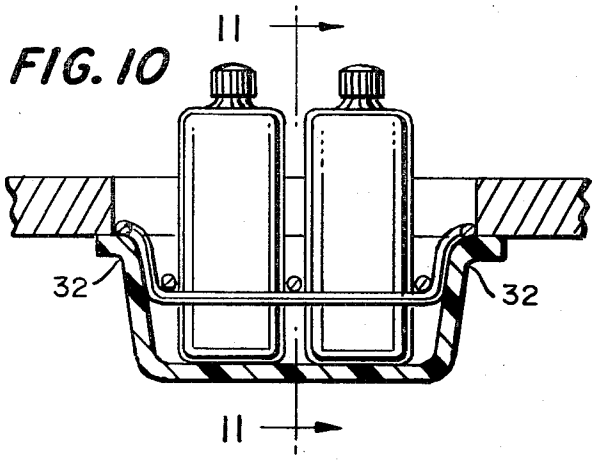

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FIG. 9

FIG. 10



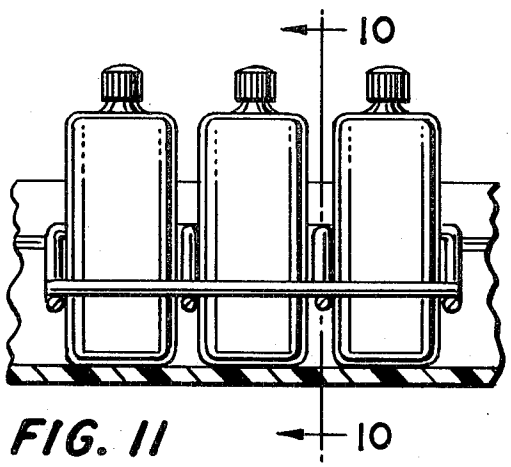
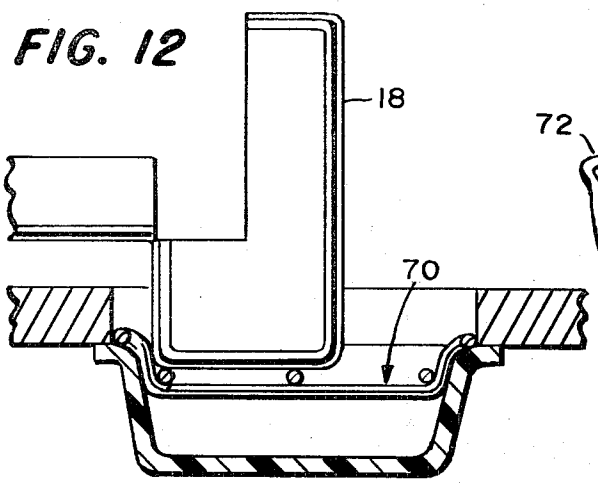


FIG. 11

FIG. 12



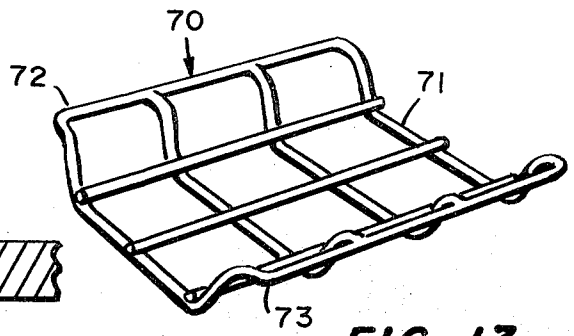


FIG. 13

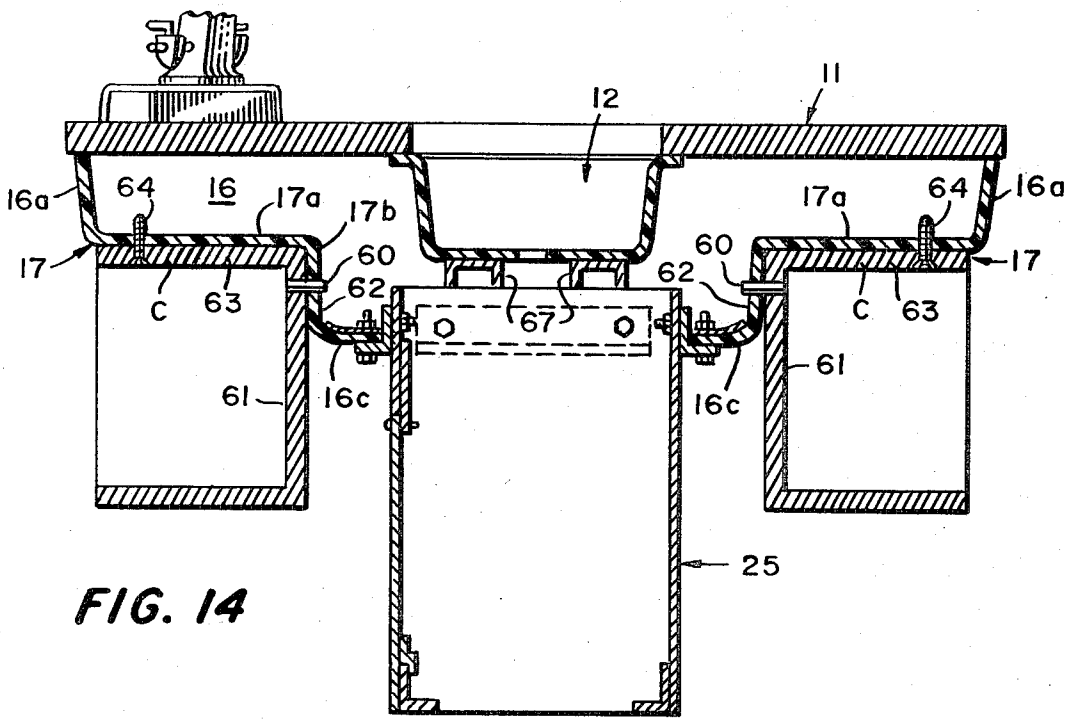


FIG. 14

LABORATORY WORKING SINK STATION

RELATED APPLICATION

This is a continuation-in-part application of our co-pending, co-owned application Ser. No. 135,608, filed Apr. 20, 1971, for "Laboratory Table and Storage Case Combination," now abandoned.

BACKGROUND AND SUMMARY

The present invention relates to tables; and more particularly, it relates to a table of the type which is used in a chemical laboratory, as in a school.

Laboratory table structures which are to be used by many students in daily classroom work have a number of requirements which have presented problems, including that of height adjustment for different classes of different age groups, providing stability, leg room for students, storage units, sink and fixtures, etc.

The present invention provides a table structure which adapts itself to the above requirements. The structure includes a top mounted on a deep hull-like plastic shell having recesses for leg room as well as for temporary storage of student carrying units. The table top is equipped with a sink and fixtures. The hull adjustably supports the table top upon a fixed, hollow central pedestal for routing electrical and plumbing connections and conduits from the floor.

The plastic shell is a one-piece understructure having four long sides, adjacent ones of which are joined by shorter sides to have an octagonal plan shape. The shell is formed with upright side walls supporting the top. These side walls then taper inwardly toward the pedestal. The four larger ones of these tapered side walls have recesses formed in them to receive a variety of storage devices which are interchangeable.

A rectangular trough extends diagonally across the table between opposite ones of said shorter sides. At the ends of the trough, there are turrets for mounting water and gas fixtures. The plumbing conduits, etc., for the fixtures are routed up through the pedestal and enclosed within the hollow shell. The shell is supported upon the pedestal by means of structure which facilitates height adjustment of the table top.

The inclined side walls of the shell are provided with access panels for gaining access to the turret areas for servicing; and the pedestal is also provided with a removable access panel for servicing. A wire screen for holding reagent bottles or for supporting a student tote box, if used, removably fits on the top of and is supported by the center trough, if desired.

Other features and advantages of the present invention will be apparent to persons skilled in the art from the following detailed description accompanied by the attached drawing wherein identical reference numerals will refer to like parts in their various views.

THE DRAWING

FIG. **1** is a perspective view of a laboratory table structure embodying our invention;

FIG. **2** is a view similar to FIG. **1** but showing a drawer cabinet with several square drawers fastened in the recess of the one-piece plastic shell or understructure;

FIG. **3** is a view similar to FIG. **1** but showing door cabinets located in the recesses provided in the plastic shell;

FIG. **4** is a view similar to FIG. **1** but showing the laboratory table structure provided with another form of drawer cabinets in the recesses of the shell structure;

FIG. **5** is a reduced plan view of the laboratory table showing the location of several section views;

FIG. **6** is a top plan view of the table pedestal;

FIG. **7** is a sectional view of the laboratory table, taken at **7—7** of FIG. **5**, cutting through the trough;

FIG. **8** is a similar sectional view of the laboratory table, taken at **8—8** of FIG. **5**, cutting through the turrets and down the center of the trough;

FIG. **9** is a sectional view of the laboratory table, taken at **9—9** of FIG. **5**, through the long sides of the table and square with the pedestal;

FIG. **10** is a fragmentary sectional view taken through the sight line **10—10** of FIGS. **11** and **5** (with a bottle rack added);

FIG. **11** is a fragmentary sectional view taken longitudinally of the center trough, as indicated by the sight line **11—11** of FIGS. **10** and **5** (with a bottle rack added);

FIG. **12** is a sectional view similar to FIG. **10** but showing a student tote box supported by the wire container;

FIG. **13** is an upper perspective view of the removable wire container; and

FIG. **14** is a cross sectional view similar to FIG. **9** showing a modification of the center sink.

DETAILED DESCRIPTION

The table top structure comprises in general a fixed hollow pedestal formed on three sides from a single piece of sheet metal on which is anchored a concave plastic shell open at its bottom to receive the pedestal. The shell has upwardly-extending side walls carrying at their top a flat table top having light sides and provided with a rectangular diagonal trough communicating with the hollow interior of the shell. The pedestal is equipped with brackets providing a flange on which rests the lower edge of the plastic shell, and the brackets are adjustably mounted on the pedestal to adjust the height of the table.

The plastic shell is preferably formed of glass fibers united by a thermosetting resin, the structure being cast in a mold to provide a one-piece body according to known processes with recesses for receiving a variety of cabinets, drawers, cases, all of which may be interchangeably mounted in the recesses. If desired, the storage units may be omitted, and the area thus provided may be utilized as leg room for students sitting at the longer sides of the table.

The sink is conveniently located across a diagonal of the table, with water and gas fixtures located on opposite sides thereof so that a number of students may be using the laboratory table at the same time. The elongated trough further provides additional area for storing things likely to spill over or liquids which might be dangerous if spilled; and the trough is accessible from all of the longer sides of the table.

In the specific structure illustrated in the drawing, a laboratory table working station generally designated **10**, has a heat-and acid-resistant table top **11**. The top **11** has eight sides including four relatively long sides **11*a*** forming a first square joined by four relatively short sides **11*b*** forming a second square rotated 45° relative to the square formed by the longer sides. A full length, rectangular trough **12** extends diagonally across

the top 11 between opposite ones of the shorter sides 11*b*. A water faucet 13 and double gas faucets 14 as well as an electrical outlet 15 are located at each end of the trough.

The top 11 is mounted securely onto a one-piece plastic hull or understructure 16 having an octagonal plan shape similar to that of the top 11. The hull 16 is provided with recesses 17 on each of its four long sides for storage modules. The hull 16 is formed in a manner already disclosed.

The storage modules may be individual locking plastic units 18 for each student (FIG. 1), or cabinets 19 (FIG. 2) with four nearly square drawers 20, one for each student. Cabinets 21 with two or more locking door compartments 22 as seen in FIG. 3 or cabinets 23 with three large locking drawers 24 in superposed relation as seen in FIG. 4 are other alternatives.

The whole structure is mounted onto a one-piece square center pedestal 25 which is hollow for routing electricity, water, gas, etc. by means of floor outlets (not seen) which are concealed by the pedestal.

The top 11 is provided with sockets 26 which are mounted directly into the working surface and which serve as a mounting receptacle for upright apparatus supports 26*a*. The sockets 26 are preferably located adjacent the trough 12.

As best seen in FIG. 7, the plastic hull, when viewed in vertical cross section, has the general shape of a bowl, including a vertical peripheral side wall 16*a*, the top of which supports the top 11. At the bottom of the vertical peripheral side wall 16*a*, the hull 16 is then formed downwardly and inwardly as at 16*b*, and thence horizontally as at 16*c* where it forms a square center aperture 16*d* which receives the base pedestal 25. The vertical peripheral side wall 16*a* conforms to the octagonal shape of the top 11. Hence, there is a vertical side wall 16*a* and a sloped wall 16*b* for each of the eight sides. The storage module receiving recesses 17 are formed in the larger ones of the sloped side walls 16*b*, corresponding to the longer side walls 11*a* of the top. As best seen in FIGS. 1–4, the recesses 17 extend partially into the associated longer peripheral side walls 16*a*.

As best seen in FIGS. 1, 7 and 8, the one-piece plastic hull 16 is formed at opposite ends of the diagonal trough 12 into first and second raised platforms 27 on which the turrets for water and gas are mounted. Each of the platforms 27 includes an inner wall 28 which forms an end wall for the trough 12. The bottoms of the opposing end walls 28 are joined with the downwardly sloping trough bottoms 29, at the center of which there is formed a central drain 29*a* (the plumbing for which is omitted for clarity). The side walls of the trough are designated 31, and each includes an upper, outwardly flaring shoulder 32 on which the table top 11 rests. The top 11 actually consists of two separate side sections 11*d* and 11*e*, spaced apart as seen in FIG. 7 to provide access to the elongated central trough 12.

Referring again to FIG. 8, first and second access apertures 34 are formed in the inclined walls 16*b* in the hull 16 beneath the platforms 27 for gaining access to the water plumbing, gas conduits and electrical wiring. The access apertures 34 are covered by panels 35 which fit snugly in their associated apertures and are held in place by rotatable retainer members 36 which are located within the hull when the panels 35 are assembled to it, but may be turned to an unlocked position for removing the panel by means of studs extending through the hull and having heads on the outside of the hull.

The table is preferably constructed by first attaching the pedestal 25 to the floor, connecting and routing the necessary plumbing and electrical work (not shown) attaching the one-piece plastic hull understructure 16 to the pedestal 25, and attaching the center trough 12 with the end platforms 27 to the table top sections 11*d* and 11*e*.

For the construction of the pedestal 25, reference is made to FIGS. 6 through 9. The pedestal 25 has three closed sides 37, 38, and 39, and a fourth side 40 with an opening for receiving a removable vertical access panel 41 (FIG. 7). The pedestal structure is preferrably made of a single large piece of sheet metal, except for the access panel 41 and a stop plate 42 which extends across the top of the back side of the access panel 41 and guides it into place.

The pedestal 25 is attached to the floor by means of screws 43 through two angle plates 44 and 45 (FIG. 6) located respectively below the access panel opening and on the opposite side 38. The angle plates 44 and 45 are preferrably attached to their associated upright side walls by welding and they are located inside of the pedestal so as to be hidden from view. The access panel 41 rests against the outside surface of the upper edge of angle plate 44 and is held in place by an offset plate 46 which grasps the upper edge 47 of the angle plate 44, as best seen in FIG. 7.

For the height adjustment of the plastic hull 16, each side of the pedestal 25 has several sets of holes 48, each set being spaced vertically from the other sets in each of the sides 37–40 of the pedestal, as seen in FIG. 7. Angle brackets 49 (FIG. 6) are attached to the exterior side walls of the pedestal 25 to provide four horizontal support flanges for the hull. The angle brackets 49 are each secured with a set of attachment hardware generally designated 50 and including two flat head bolts, flat washers, and nuts. The bolts are flat headed to avoid any obstructions when lowering the plastic hull understructure 16 onto the horizontal flanges of angle brackets 49, see FIGS. 6 and 9.

Adjustment of the height of the hull 16, as mentioned is effected by securing the angle brackets 49 in the set of holes 48 located at the desired height. As the top 11 and hull 16 are set at the lower heights, the open upper end of the pedestal 25 is received within the bowl-shaped hull 16.

After the proper adjustment and attachment of all four supporting angle brackets 49, the plastic hull 16 is lowered into place, and it is secured to the angle plates with four sets of attachment hardware 50 which include bolts and nuts. As seen best in FIG. 9, the upper surface of the bottom wall 16*c* of plastic hull 16 is protected by four strips of formed metal 52 to prevent the nuts of attachment hardware 51 from pulling through the plastic shell or otherwise damaging it. The protective strips 52 also provide reinforcement for the hull adjacent the square central aperture. From FIG. 9, it can be seen that the table top 11 is secured to the plastic hull 16 with several turn-buckles 53 which couple angle irons 54 located on the interior vertical walls 17*b* of recesses 17 in the hull 16 with similar angle irons 55 secured to the underside of the top 11.

Any of the previously described tote units or cabinets may be hung in the recesses **17**, FIG. **9**, as indicated by the chain line **56**.

Turning now to FIG. **14**, the structure for attaching the cabinets **19** (FIG. **2**), **21** (FIG. **3**), and **23** (FIG. **4**), is shown. The cabinet for each application may be similar, and hence the cabinet designated C may be any of those just described modified, of course, to hold the type of drawer arrangement desired.

As already indicated, each of the recesses **17** is formed principally in the sloped underwall of the hull **16**. Each recess is further provided with a horizontal upper wall **17***a* formed integrally with the associated upright peripheral side wall **16***a* of the hull, and a generally vertical back wall **17***b* which, in turn, is integrally formed with an associated bottom wall portion **16***c* of the hull.

Pins **60** protrude from the rear side **61** of the cabinets C, and they extend into corresponding holes **62** formed in the vertical rear wall **17***b* in the recesses **17**. The tops **63** of the cabinets C are fastened by means of screws **64** in the horizontal top wall **17***a* of the recesses.

FIG. **14** is a slight modification of a previously described table in that the trough **12** is somewhat deeper. The greater depth of the trough **12** minimizes the splashing of solutions which are discarded from laboratory trays or other containers onto the upper work surface of the top **11**. This type of deeper sink may occupy just the center portion of the working surface, and it may be rectilinear or curved in horizontal cross section. This dumping sink is supported in part by two cross channel members **67** resting on the upper edge of the pedestal **25**. In this embodiment, the height of the table is determined by the height of the pedestal **25**, since no adjustment is provided.

Turning now to FIGS. **10–13**, a wire support rack generally designated by reference numeral **70** and seen best in FIG. **13** includes a base grid work **71** and upwardly formed wings **72** and **73** which rest on the shoulders **32** of the trough **12**. The rack is thus easily removed or slid along the length of the trough. Alternatively, the rack **70** may be used to support one of the tote boxes stored in the embodiment of FIG. **1**, as best seen in FIG. **12**.

It will be appreciated that by resting on the shoulders **32** of the trough, the wire rack **70** is prevented from sidewise movement in the trough as the upright portions of the wings **72**, **73** conform to and engage the side walls of the trough.

Details on the construction of one type of tote box **18** and the manner in which it may be removably supported within the recesses **17** is disclosed in our copending, co-owned application Ser. No. 135,608, entitled "Laboratory Table and Storage Case Combination," filed Apr. 20, 1971; and such disclosure is incorporated herein by reference.

While we have shown the plastic shell **16** recessed to receive cabinets, shelves, locking tote boxes, and other storage units, it will be understood that a large variety of storage devices may be employed in such recesses, or, as stated above, such recesses may be utilized as leg room for students sitting in chairs in front of the table. The fixtures for water and gas are located at distant ends of an elongated trough within reach of the various students working about the table, and the plastic hull or shell cooperates in providing a hollow interior for receiving the trough which is connected with conduits passing through the hollow pedestal. The hollow shell further receives the central hollow pedestal in adjusting the height of the table.

Having thus described a preferred embodiment of our invention, persons skilled in the art will be able to modify certain of the structure shown and substitute equivalent elements for those disclosed while continuing to practice the principle of the invention; and it is, therefore, intended to cover all such modifications and substitutions as they are embraced within the spirit and scope of the appended claims.

We claim:

1. A laboratory table structure comprising: a fixed hollow pedestal for routing plumbing and electrical supply lines and having upright side walls; an access panel in one of said side walls of said pedestal; means for securing said pedestal to a floor; an upwardly concave plastic hull providing an enlarged central aperture at its bottom to receive said pedestal and having upwardly-extending peripheral side walls; a plurality of said side walls of said hull defining recesses for supporting storage means; a table top having a polygonal plan shape with four relatively long sides extending along the edges of a square and four relatively short sides extending between adjacent ones of said long sides, said table top providing a trough opening elongated diagonally of said square; a trough beneath said trough opening accessible from the top of said table; link means for securing said table top to said hull; and vertically adjustable flange means on the exterior of said pedestal for supporting and securing said hull to said pedestal at one of a plurality of vertically spaced locations on said pedestal to adjust the height of said hull, top, trough and storage means as a unit, the remaining portion of said pedestal extending within said hull.

2. The structure of claim **1** in which said pedestal provides a plurality of vertically spaced sets of holes, and wherein said adjustable flange means comprises a plurality of brackets mounted on said pedestal at selected ones of said sets of holes and providing horizontal flanges for supporting said hull.

3. The structure of claim **1** in which said pedestal is substantially square in cross section and the central aperture of said hull conforms to the shape of said pedestal to receive the same.

4. The structure of claim **1** wherein said storage means each includes a cabinet secured within an associated recess of said hull; and a plurality of drawers slidably mounted in each cabinet.

5. The structure of claim **1** wherein said trough is rectangular in horizontal cross section and extends diagonally of said square between opposite ones of said relatively short sides of said top, said hull further comprising a raised platform at each end of said trough and extending above said top; said structure further comprising a water fixture mounted to each of said raised platforms.

6. The structure of claim **5** wherein said hull includes downwardly and inwardly extending inclined walls integral with the bottoms of said peripheral side walls thereof, and an inwardly extending horizontal bottom wall defining said aperture for receiving said pedestal, and wherein said recesses each include a generally horizontal top wall and a generally vertical back wall in an associated one of said inclined walls of said hull.

7. The structure of claim **6** further comprising removably access panel means in said hull beneath said raised

platforms for permitting access into said hull for connecting said water fixtures to supply lines.

8. The structure of claim **1** wherein said hull is a one-piece plastic shell and said trough is integral with said hull, and wherein said top comprises a heat-and-acid resistant material.

9. The structure of claim **1** further comprising a removably wire rack including side wings for resting on said trough, said racking providing a central gridwork for holding reagent bottles.

10. The structure of claim **1** wherein said trough is relatively deep and extends within said hull, and wherein said structure further comprises channel support members interposed between the bottom of said trough and the top of said pedestal for supporting said trough.

* * * * *