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Bergmeyer et al.

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[54] ARRANGEMENT FOR STORING
CONTAINERS

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[58] Field of Search..... 312/108, 214, 234,
312/236; 220/17, 145.4

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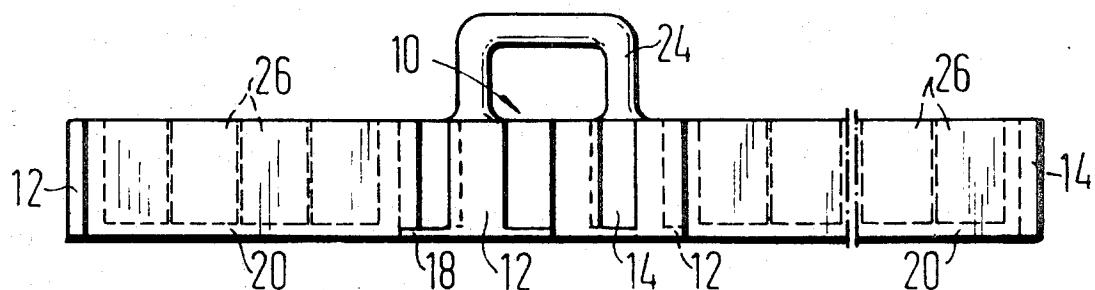
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[57] ABSTRACT

Small containers, in particular containers for receiving pharmaceutical and laboratory chemicals are frequently packed and shipped in container blocks which have receiving bores for receiving the containers. The container blocks are often used in medical and chemical laboratories also for storing the containers.

11 Claims, 12 Drawing Figures



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Fig.1

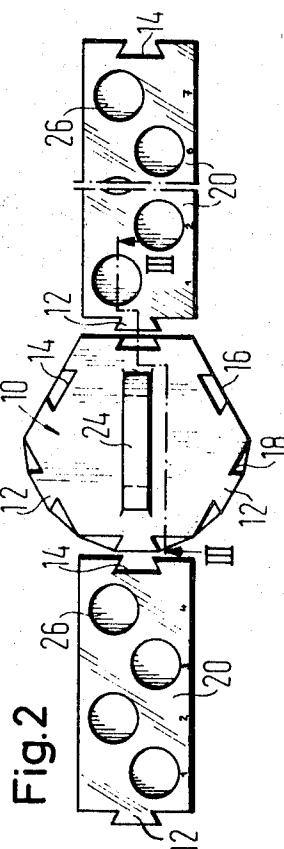
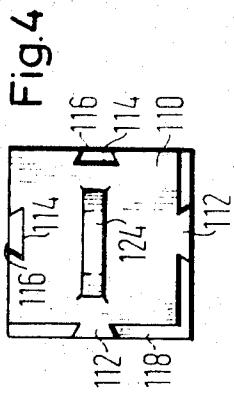
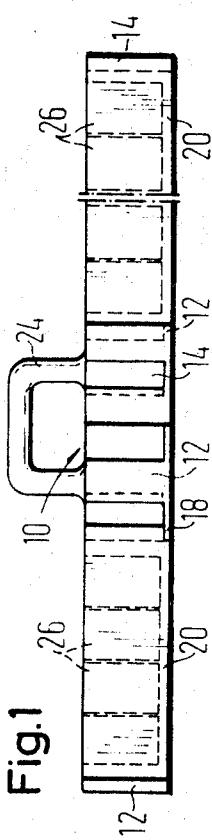


Fig.2

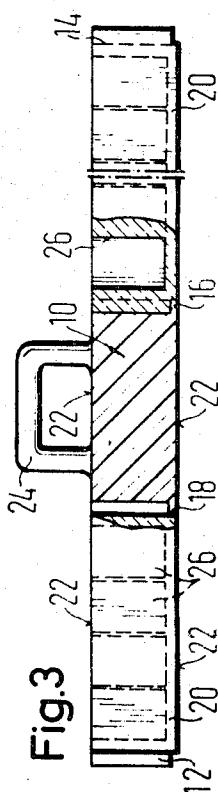


Fig.3

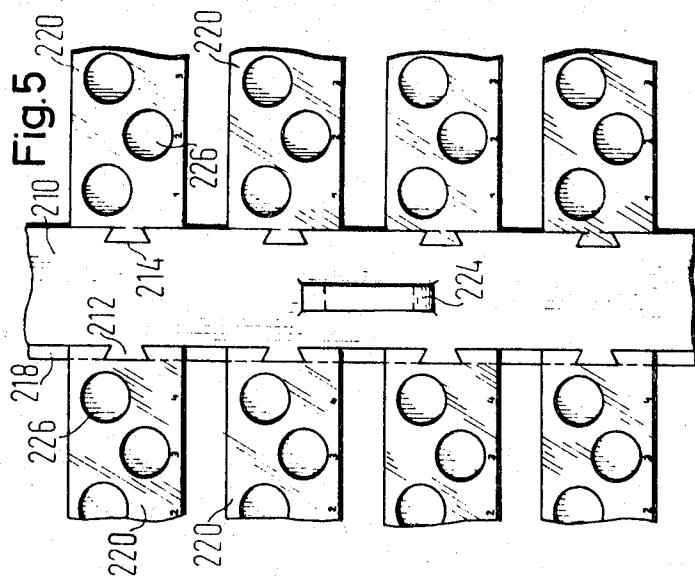


Fig.5

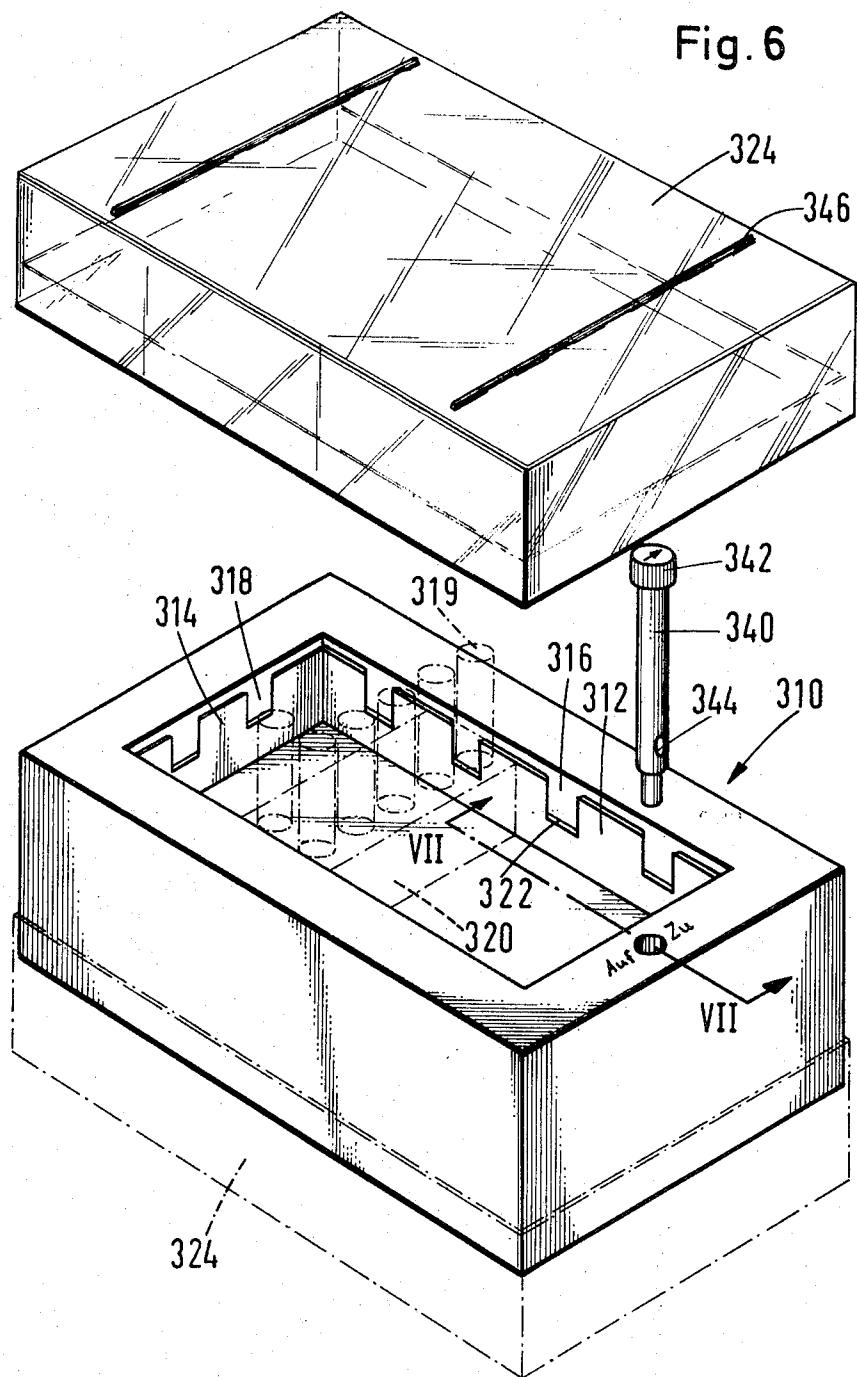
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Fig. 6



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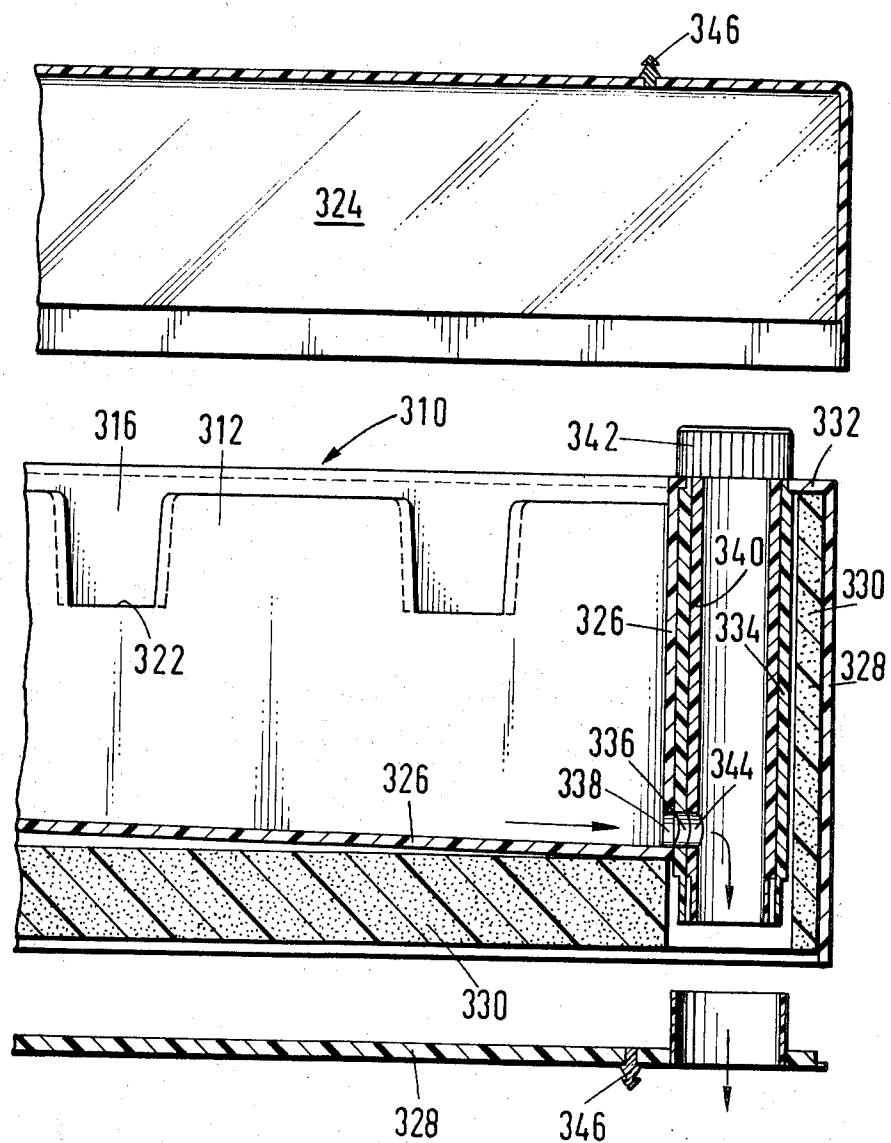
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Fig. 7



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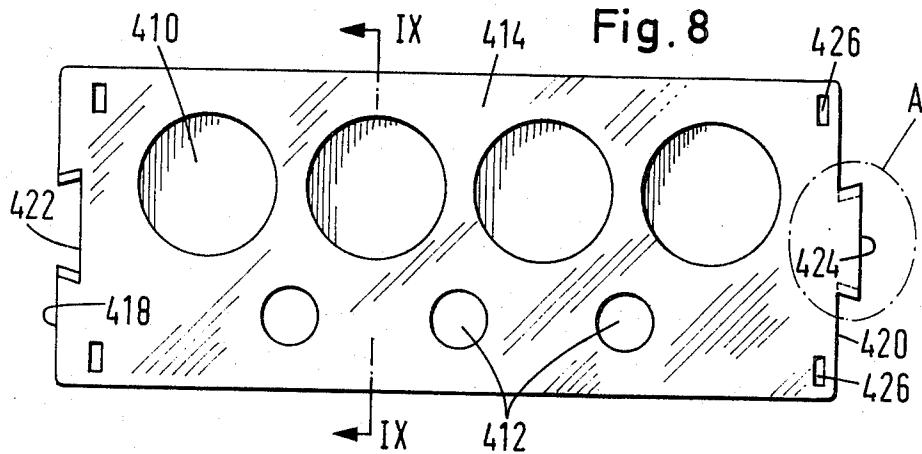


Fig. 9

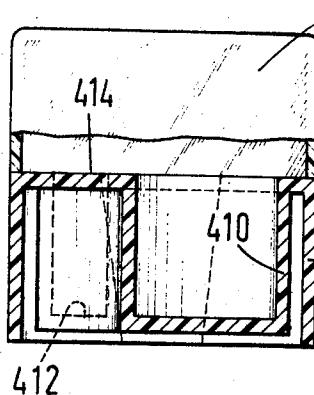


Fig. 10



Fig. 11

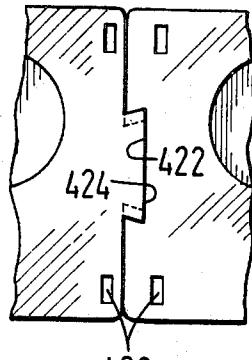
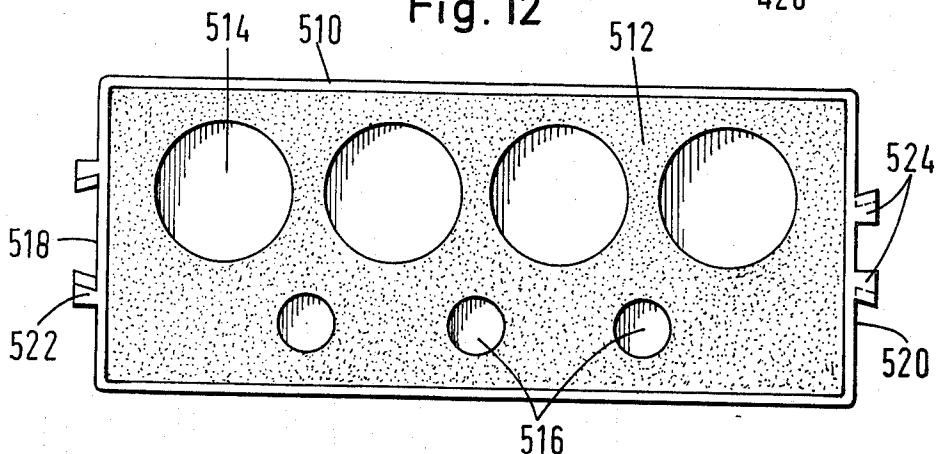


Fig. 12



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ARRANGEMENT FOR STORING CONTAINERS

BACKGROUND OF THE INVENTION

This invention relates to an arrangement for storing containers of the kind commonly employed for pharmaceutical and laboratory chemicals and is more specifically concerned with an improvement in such an arrangement.

It is known to store container blocks receiving a plurality of containers on tables or in boxes.

It is a common drawback of this kind of arrangement that the different container blocks are not arranged in a well defined and easily observable order.

The object of the invention is the provision of an arrangement for storing containers in which the different container blocks take a well defined position with respect to each other. Each container block can be observed without removing other container blocks and each container block can be easily removed from the entirety of container blocks.

SUMMARY OF THE INVENTION

The container blocks are provided with connecting profiles and can be connected to a supporting element having a plurality of complementary mating profiles.

In their more specific aspects, the connecting profiles and the complementary mating profiles are dovetail profiles. In a specific embodiment of this invention, the supporting element is a tank which can be used for containing a temperature bath so that the container blocks can be fixed within the temperature bath by engagement of the profiles of the tank on the one hand and the blocks on the other hand.

Other features, additional objects, and many of the attendant advantages of this invention will readily become apparent from the following detailed description of preferred embodiments when considered in connection with the appended drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 shows a container block connected to a supporting element according to a first embodiment;

FIG. 2 shows a plan view of the arrangement according to FIG. 1;

FIG. 3 shows a section along line III—III of FIG. 2;

FIG. 4 shows a plan view of another embodiment of a supporting element;

FIG. 5 shows a plan view of a third embodiment of a supporting element comprising a plurality of container blocks;

FIG. 6 shows a perspective view of the temperature bath receiving tank according to the invention comprising a cover or a support, respectively;

FIG. 7 shows a section along line VII—VII of FIG. 1;

FIG. 8 shows a plan view of a preferred embodiment of the container block;

FIG. 9 shows a section along line IX—IX of FIG. 8;

FIG. 10 shows a partial section at A of FIG. 8;

FIG. 11 shows the coupling between two container blocks with each other;

FIG. 12 shows a plan view of another embodiment of a container block according to the invention.

DETAILED DESCRIPTION OF THE DRAWING

In FIG. 1 to 3 a central supporting element is designated at 10. Distributed over its circumference this

supporting element 10 shows dovetail bars 12 and dovetail grooves 14. The dovetail grooves 14 are closed by bottom end walls 16; bottom bridges 18 are arranged on the bottom adjacent the dovetail bars 12. 5 Container blocks 20 are provided for connection with the central supporting element 10. They are provided with corresponding dovetail bars 12 and grooves 14. In the coupled position the container blocks 20 rest with their bottom faces on the bottom wall 15 and bottom 10 bridges 18. Recesses in the container block 20 which correspond to the bottom walls 16 and bottom bridges 18 make it possible to maintain the container block 20 and the supporting element at the same level with the end faces 22. The supporting element comprises a handle 24.

The supporting element according to FIG. 4 differs from those of FIG. 1 to 3 by the different outer contour.

The same reference numerals used in FIG. 1 to 3 are 20 used for the same parts in FIGS. 4 to 12, except that the integer "1" precedes these reference numerals in FIG. 4, the integer "2" precedes these reference numerals in FIG. 5, the integer "3" in FIG. 6, the integer "4" in FIGS. 8 through 11, and the integer "5" in FIG. 12.

25 In the embodiments described hereinbefore, the container blocks 20 or 220, respectively show cylindrical bores 26 or 226, respectively into which small containers (not shown) can be inserted.

In FIG. 6 and 7 a tank is generally designated at 310. 30 In the side faces 312 and 314 of the tank dovetail grooves 316, 318 are provided. Container blocks having complementarily shaped profiles can be suspended in said dovetail grooves; such a container block which is filled with a number of cylindrical containers is shown 35 in FIG. 6 and provided with the reference numeral 320. The profile mounted on the container block 320 strikes a mating stop face 322 which is provided on the lower end of the respective profile groove 316. The tank is filled with ice which surrounds the container block 320 or container blocks and cools the containers 319 and the content thereof through the container blocks. A tank-shaped cover is associated with the tank 310 which selectively can be put on the upper edge of the tank 310 or as support below the tank 310.

40 As best shown in FIG. 7, the tank 310 is formed of an inner shell 326 and an outer shell 328 between which shells plates of foam material 330 are arranged as heat insulation. In one wall 332 of the tank a drain passage 334 is provided which passes through the wall 45 in vertical direction from the top to the bottom. This outlet tube has a bore 336 which coincides with a bore 338 in the inner shell 326. A tubular plug 340 is inserted into the drain passage 334 which by means of a control button on its upper end can selectively be made to cover or to uncover the bore 336 and the outlet 338 so that liquid may flow out of the tank. Nonskid bars 346 are secured in the bottom and the cover.

45 FIG. 8 shows a preferred embodiment of a container block. This container block is formed by a plurality of large pots 410 and a plurality of small pots 412. The pots 410, 412 are upwardly open and interconnected by a support plate 414 which is fastened to the edges of the pots 410, 412 which in turn are open on the top. A circumferential wall 416 extends from the edge of the supporting plate 414 downwardly, the lower edge of said wall forming the base of the container block. Dovetailed connecting profiles 422, 424 are provided

in the end walls 418, 420 of the circumferential wall 416. The shape of the connecting profile 424 is shown in detail in FIG. 10; the shape of the connecting profile 422 corresponds to that of profile 424. Both profiles are tapered toward the bottom, viz. vertically to the drawing plane.

Openings 426 are provided in the support plate 414 which may be engaged by tongues (not shown) of a cover 428.

The large pots 410 are determined to receive containers, the small pots 412 to receive pipettes.

In FIG. 11 it is shown that two container blocks of the type shown in FIG. 8 to 10 may be coupled with each other.

FIG. 12 finally shows another embodiment of a container block. This block is formed by an upwardly open square box 510. A body of foam material 512 which completely fills the box is inserted into the square box 510. The body of foam material 512 shows bores 514, 516 for receiving containers. Pairs of profile ribs are arranged on the end walls 518, 520 of the box 510. Each pair of profile ribs forms a profile or a profile groove, respectively. In this case the ribs may be tapered vertically to the drawing plane toward the bottom so as to provide axial limitation.

We claim:

1. Assembly for storing containers suitable for holding pharmaceutical and laboratory chemicals comprising a supporting element and a plurality of container blocks wherein the supporting element is self-standing and comprises handle means and attachment slots and is disposed within container means and wherein the container blocks are individually mounted on the supporting element and have at least one substantially vertically disposed container receiving bore each wherein each container block is adapted to be mated to said

supporting element by a tongue and groove connection which holds each container block in spaced relationship to said supporting element.

2. Assembly as claimed in claim 1, said container block being a prismatic block having end faces normal to the longitudinal axis of the prism, and said container receiving bore having its open end in one of said end faces.

3. Assembly as claimed in claim 2, wherein said tongue and groove connection is arranged on one of the side faces of the prism.

4. Assembly as claimed in claim 3, wherein said container block is of substantially square configuration.

5. Assembly as claimed in claim 3 wherein said connection is arranged with its axis parallel to the axis of the prismatic container block.

6. Assembly as claimed in claim 1 wherein the tongue portion of said connection comprises a projecting profile on said supporting element.

7. Assembly as claimed in claim 1 wherein the groove portion of said connection is a profile groove in said supporting element.

8. Assembly as claimed in claim 1 wherein at least one of said container block is adapted, by tongue and groove means, to hold an additional container block.

9. Assembly as claimed in claim 1 wherein said container means in which said supporting element is disposed is a constant temperature bath.

10. Assembly as claimed in claim 1 wherein the individual container blocks project radially or in cross-shaped configuration from said supporting element.

11. Assembly as claimed in claim 1 wherein the individual container blocks project laterally from said supporting element to lie along a common transverse axis.

* * * * *