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PETRI DISH

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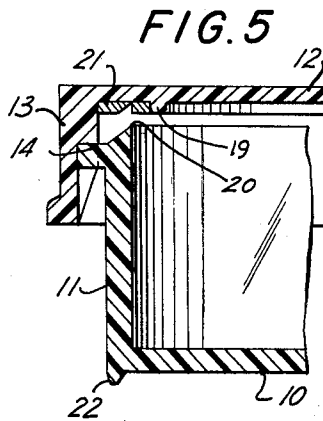
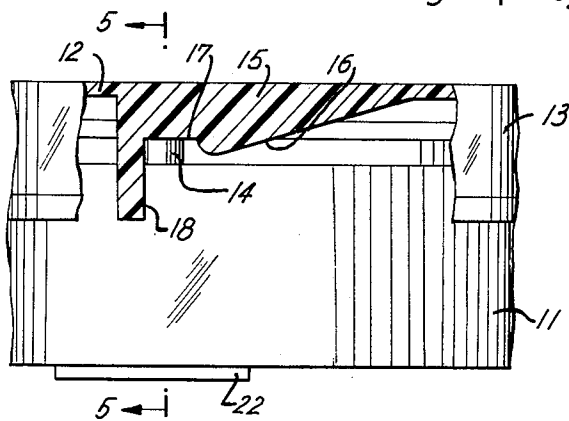
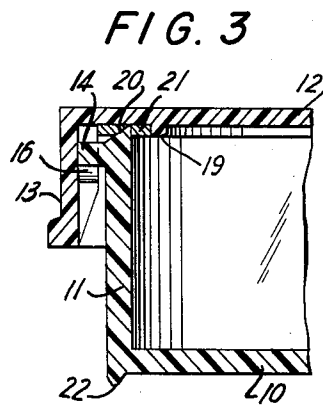
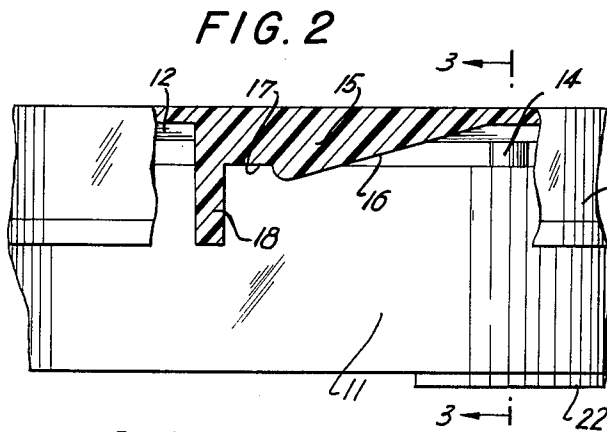
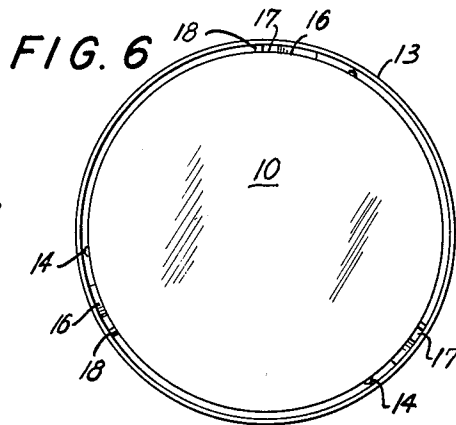
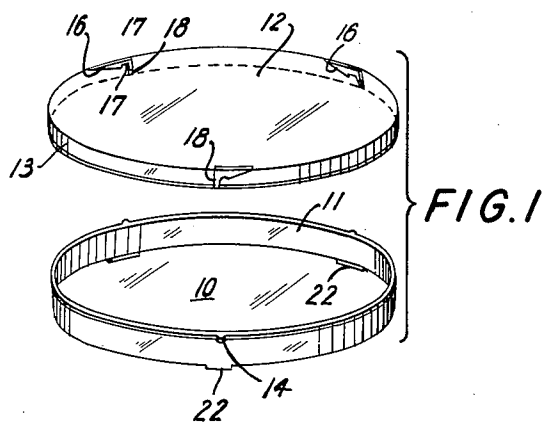


FIG. 4

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**PETRI DISH**

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This invention relates to a structurally and functionally improved Petri dish.

The advantages of a sealed Petri dish during incubation to prevent evaporation and content contamination are well appreciated by those skilled in the art. In many instances, incubation is required to be performed in gaseous atmospheres, as for example, CO<sub>2</sub>, CO<sub>2</sub> and air mixtures, or in an atmosphere devoid of oxygen as in anaerobic incubation. Under the circumstances, the selected gas or atmosphere is required to circulate freely in and out of the unit. However, it has never been proposed to provide a single unitary Petri dish readily adapted both structurally and functionally, for use and application to either sealed and open incubation techniques.

It is therefore a primary object of the invention to furnish a unit of this nature capable of being readily used as a sealed unit or as an open unit during incubation.

Another object is that of designing a dish in which any danger of surface marring is reduced and which will permit of exterior circulation of air so that proper incubation temperature will prevail within the dish interior.

An additional object is that of furnishing a unit which may be readily manipulated to disposed its parts in positions compatible with the procedural technique which is being practiced.

With these other objects in mind, reference is had to the attached sheet of drawings illustrating one practical embodiment of the invention and in which:

FIG. 1 is an exploded perspective view of the assembly;

FIG. 2 is an enlarged fragmentary and partly sectional view taken through a portion of that assembly;

FIG. 3 is a transverse sectional view taken along the line 3-3 in the direction of the arrows as indicated in FIG. 2;

FIG. 4 is a view similar to FIG. 2, but showing the parts shifted to occupy different positions;

FIG. 5 is a transverse sectional view taken along the line 5-5 in the direction of the arrows as indicated in FIG. 4; and

FIG. 6 is a bottom plan view of the assembled dish and cover.

The present dish assembly includes a top unit and a bottom unit mounted thereon. The latter embraces a base 10 from the edge of which a rim 11 extends upwardly. The top unit includes a cover 12 from which a skirt 13 depends. These parts are preferably formed of a suitable plastic and are transparent. The diameter of skirt 13 should be such that not alone may it be disposed over rim 11, but also so that it will be spaced from the outer face of the latter.

Projections extend from both the bottom and top of the dish assembly. The projections associated with the bottom, or dish proper, are conveniently in the form of nibs 14, extending outwardly adjacent the upper edge of rim 11. These projections will cooperate with projections or elements supported by the cover. Any convenient number of projections are employed. It is preferred, however, that merely three pairs be provided and that, as shown, they be spaced from each other by 120°.

The projections of the top unit are disposed adjacent the zone of juncture of cover 12 and skirt 13. They include wedge-shaped bodies 15 presenting surfaces 16 facing in the direction of the bottom unit and extending in a direction inclined to the horizontal. These surfaces

terminate in notches 17, the ends of which are defined by walls 18. The width of the notches 17 is such that a nib 14 may be accommodated therein.

Extending downwardly from the inner face of cover 12 is a circular bead 19 which has a diameter less than the internal diameter of rim 11. Accordingly, a groove is defined between bead 19 and skirt 13, which will accommodate the upper edge zone of the rim. That edge zone, as at 20, is preferably inclined in an upward and inward direction. The groove receives a permanently tacky adhesive material layer 21 which is at all times thereafter carried by the cover. Conveniently, this will be material of the type disclosed in the United States application to John A. Henderson on Hermetically Sealed Petri Dish, filed on July 23, 1959, and identified under Serial No. 829,082, now Patent No. 3,055,808, granted September 25, 1962. Other suitable materials can be selected and effectively employed, namely, rubber, rubber compounds and plastics. Edge zone 20 will penetrate the outer surface of this layer when the cover is fully seated upon the bottom, or dish proper.

Foot portions 22 are preferably furnished as part of the bottom unit, and extend below the base 19 of the latter in line with the rim 11. These feet are again preferably three in number. They serve to maintain the lower face of the base out of contact with supporting surfaces, so that danger of scratching the base is avoided. Also, when a number of the Petri dishes are stacked one upon the other, they serve to space them to a degree adequate that air may flow through the space. Accordingly, if the dishes are being subjected to an incubation temperature, their interiors may readily become warmed.

If the Petri dish is being used to prevent evaporation, then its interior will be maintained in sealed condition.

The parts will be in the positions shown in FIGS. 2 and 3. The nibs 14 will have their outer ends in proximity with the inner face of skirt 13 but slightly spaced therefrom, and thus maintain the top or cover unit in proper position with respect to the bottom unit. The edge surface 20 will penetrate layer 21 to a depth such that an effective sealing relationship will be established to prevent flow from or into the interior of the dish. In certain instances, actual engagement between edge zone 20 and the base of the cover groove may exist. However, with layer 21 involving an adequate depth it will be apparent that a satisfactory seal will be created if edge zone 20 is slightly spaced from the groove base.

Assuming that the assembly is to be used under anaerobic conditions or in a CO<sub>2</sub> atmosphere or partial CO<sub>2</sub> atmosphere, then the technician will apply the top or cover unit to the base as in FIGS. 2 and 3 and rotate it with respect thereto. Under these circumstances, projections 14 will engage faces 16 and ride over the same until they enter notches 17 which will thus serve as detent structures. Too great a relative turning of the parts will be prevented because nibs 14 will engage walls 18 to arrest continued movement. With projections 14 in the positions shown in FIGS. 4 and 5, it is apparent that the cover will have been elevated with respect to the base. This movement will have interrupted the sealing relationship as existing between the upper surface of rim 11 and the underface of cover 12.

As will be understood, with the cover elevated as in FIGS. 4 and 5, adequate space will exist between the surface of this top unit and upper edge to the bottom unit (preferably around 1 mm.). Therefore, under anaerobic conditions or other special gaseous atmosphere, no part of the assembly will be distorted incident to differentials in pressure.

Thus, among others, the several objects of the invention as specifically aforementioned are achieved. Obviously, numerous changes in construction and rearrangement of the

3

parts may be resorted to without departing from the spirit of the invention as defined in the claims.

We claim:

1. A Petri dish capable of being readily used as a sealed unit and as an open unit during incubation, said dish including a base and rim extending upwardly therefrom, said base and rim defining a shallow cylinder, said rim having an upper circumferentially extending, cover-sealing peripheral edge; a cup-shaped cover having the same shape but of a greater diameter to fit loosely thereon, said cover including a top having an outer circumferentially extending periphery having inner surfaces, a depending side wall defining a corner with said top extending laterally and integrally from the outer periphery of said top; and further elevation means being disposed between said rim and said side wall and being provided by surfaces thereof for permitting said cover to be elevated with respect to the rim edge and relocated in a spaced relationship with respect thereto, said elevation means including a plurality of spaced nibs and a corresponding number of nib receiving bodies having surfaces inclined to the horizontal such that upon relative rotation of said dish and cover said nibs are adapted to ride in contact with said inclined surfaces to elevate said cover with respect to the rim edge and relative rotation of said dish and cover in the reverse direction will lower said cover on to said dish with the rim edge adapted to seal with surfaces of the top of said cover.

2. The invention in accordance with claim 1 wherein a pressure-sensitive, permanently tacky adhesive releasably attaches said cover to said dish and hermetically seals the juncture between said dish and cover, said adhesive material extending circumferentially along said upper periph-

4

eral edge of said dish and circumferentially along said inner surfaces of said outer periphery of said top at said corner, said adhesive being removable with said cover from said dish.

3. The invention in accordance with claim 1 wherein a plurality of feet extend from said base in line with said rim, said feet serving to space a number of the Petri dishes stacked one upon the other.

4. The invention in accordance with claim 1 wherein stop means form part of said nib receiving bodies and cooperate with the associated nibs to function as stops to arrest further relative rotation of said dish and cover when the cover has assumed the elevated position with respect to the rim edge.

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