Jan. 11, 1966 J. B. McCORMICK 3,228,857

DEVICE FOR SEPARATING PETRI DISHES

Filed Nov. 20, 1962

Fig. 1

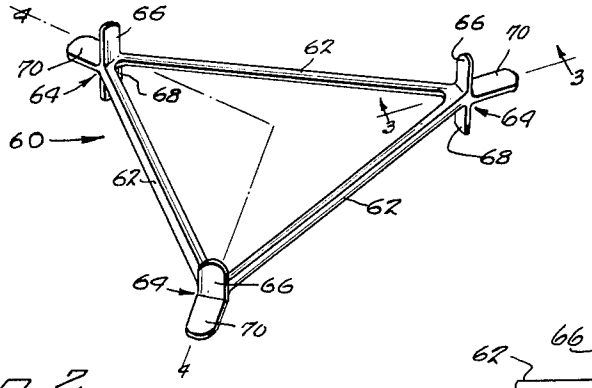


Fig. 3

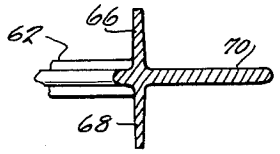


Fig. 2

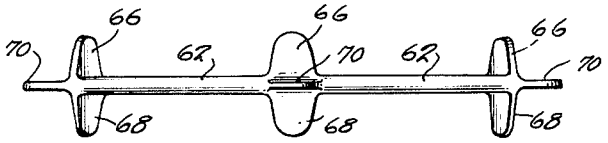


Fig. 4

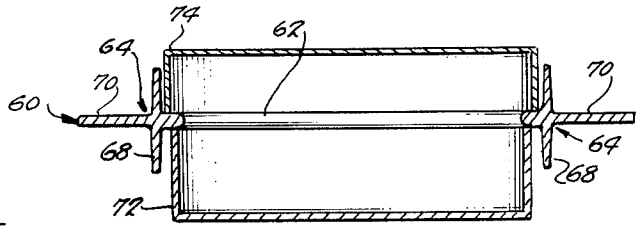
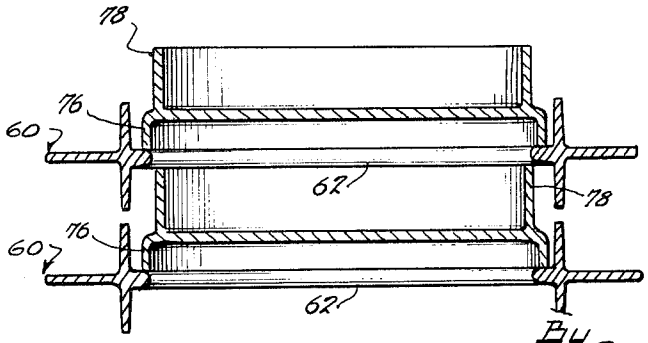


Fig. 5



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DEVICE FOR SEPARATING PETRI DISHES

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4 Claims. (Cl. 195—139)

This invention relates to petri dishes conventionally used for the growth of cultures and the like and, in particular, to an improved device for positioning a petri dish and a cover relative to one another so as to facilitate the cooling of nutrients within the dish while shielding the nutrient from atmospheric contamination.

Petri dishes are relatively shallow containers which are adapted to be filled with a normally solid nutrient material, such as agar-agar, while the nutrient is in a hot liquid state. Normally, the dishes containing the nutrient are then left standing in either a partially or totally uncovered condition to allow the nutrient to cool and solidify before a culture to be studied or grown is added. The practice heretofore has been to place the cover in partially overlying relation to the dish so as to expose the nutrient to the atmosphere and facilitate the cooling and solidification thereof, while at the same time shielding a portion of the nutrient from a direct exposure to the atmosphere and thereby reduce the amount of dust and foreign particles which would normally settle on the surface of the nutrient and contaminate it.

The partial covering of the petri dish with its cover does not completely solve the problem of contamination of the nutrient, since a vertical entry into the interior of the dish by descending dust and germs is still possible. Additionally, the cover is unstable when it is only partially covering the dish, and can be easily displaced to a position in which it no longer covers the nutrient, or covers it so completely as to prevent an efficient dissipation of heat from the nutrient. Either of these results is undesirable, particularly when an attempt is being made to grow a series of cultures under substantially identical conditions.

It is, therefore, the principal object of this invention to provide an improved device for separating a petri dish from an overlying covering means.

A still further object of the invention is to provide an improved device for separating a petri dish from an overlying cover, which device includes means for aligning the dish and cover and for preventing accidental displacement of the cover.

An additional object of this invention is to provide a device for separating a petri dish from its cover, which device is economical to produce and easy to use.

It is another object of this invention to provide an improved combination of petri dish, cover and separating device, which combination reduces the likelihood of entry of dust and foreign particles into the interior of the petri dish.

Other objects more or less ancillary to the foregoing will be easily perceived from the following detailed description and drawings, in which:

FIGURE 1 is a perspective view of a device showing various of the features of the invention;

FIGURE 2 is a side elevation of the device of FIG. 1;

FIGURE 3 is an enlarged section along line 3—3 of FIG. 1;

FIGURE 4 is a sectional view showing the device as it appears when separating a petri dish and cover; and

FIGURE 5 is a sectional view similar to that of FIG. 4, but showing the use of two such devices in the separation and support of two stackable petri dishes.

In general, the present invention relates to a device for spacing and aligning a petri dish cover with respect to an underlying petri dish.

Referring now to the drawings in detail, there is shown in FIG. 1 a device 60 for spacing and aligning a cover with respect to a petri dish. The device includes three equal length rod-like side members 62 which are interconnected to form a planar body of generally triangular configuration. The side members are relatively thin, preferably having a thickness of approximately 0.125 inch, and are of a length such that each of the apexes of the triangle formed by the side members extends beyond the side wall of a petri dish when the device is centrally positioned on the dish and its side members are resting on the upper edge of the dish.

Although other shapes are contemplated, the triangular shaped device, as shown by FIG. 1, is considered to be particularly advantageous. The triangular shape imparts rigidity to the device. Additionally, the triangular shaped device forms the largest possible opening between the outer edge of the rods 62 and the inner wall of the dish, through which opening heat may be dissipated.

Flanges 64 are integrally connected to the device 60 at the points of interesection of members 62, each of the flanges lying in a plane generally normal to the plate defined by the side members 62. As best seen in FIG. 2, each of the flanges 64 has an arcuate upper portion 66 disposed above the plane of the side members 62 and an arcuate lower portion 68 disposed below the plane of the side members.

As seen in FIG. 4, the flanges 64 are arranged so as to define a space just large enough to receive a petri dish cover, the flanges 64 being in close proximity to the side wall of the cover when the cover is disposed so as to rest upon the upper surface of the side members.

As shown in FIG. 3, the portions 66 and 68 of flange 64 are of lesser thickness toward their extremities to facilitate the insertion and removal of a petri dish cover from the space defined by the flanges 64.

Since the dish is of a lesser diameter than the cover, there will not be a snug fit between the device and the dish. The flanges act to align the device on the dish and they also prevent an accidental lateral displacement of the cover or device relative to the underlying dish.

Tabs 70 are integrally attached perpendicular to the flanges 64 and are adapted to be grasped by the fingers in order that the device, as well as any covers or dishes supported by the device, can be easily picked up and handled. The tabs 70 can conveniently be made the same thickness as the flanges 64 and of a convenient length such as one-half inch.

The device can be made from any suitable material, such as glass or plastic, but is preferably constructed of plastic. Any plastic of sufficient strength and durability can be employed and the device can be formed by any suitable method, such as molding or casting.

In use, and as shown in FIG. 4, the device 60 is placed on a dish 72 with the depending portions 68 of the flanges 64 aligning the device on the dish. A cover 74 is then placed on the device within the space defined by the upstanding portion of the flanges. Due to the triangular shape of the device, the side members 62 lie across the space defined by the dish, and the cover rests upon the side members 62 and not upon the dish, thereby spacing the cover from the dish a distance equivalent to the thickness of the side member.

The device of the present invention is particularly adapted for use with stackable petri dishes, such as those described and in the co-pending application of James B. McCormick, Serial No. 207,896, filed July 6, 1962 now U.S. Patent No. 3,198,713, issued August 3, 1965. Stackable petri dishes are particularly desirable where counter

space is at a premium since many petri dishes can be conveniently and safely stacked in the space formerly required for one such dish.

The petri dish described in the aforementioned Patent No. 3,198,713 is shaped similar to those petri dishes illustrated by FIG. 5. Each dish has a depending lip or flange 76 of a size and configuration that it fits over the side wall 78 of another of the dishes. Thus, each dish also acts as a cover for another dish when the dishes are stacked in the manner disclosed in such patent. The interfitting of the sidewall of one dish and the lip of another dish gives the stack sufficient rigidity that there is little danger of the stack being knocked down.

The device of the present invention can be placed between each of the stackable petri dishes in a manner similar to that shown in FIG. 5. After a number of dishes have been stacked in this manner, a single cover can be placed on the uppermost device 60. This gives a completely sterile stack of petri dishes in which dust and other contaminants are excluded from all the dishes, but in which heat may be dissipated readily through a horizontal passageway leading from the interior of each of the dishes. When the dishes have cooled and the culture has been placed in the dish, the devices 60 are removed and the dishes are stacked in a normal manner.

The device, as described and illustrated in the accompanying drawing, performs the dual functions of providing a convenient and easy to use method of separating petri dishes from their covers, and of aligning the cover with respect to the underlying dish so that the only access or exit to the interior of the dish will be a horizontal opening approximately the width of the side members of the device. By limiting the access to the interior of the dish to a horizontal opening, an uncontaminated dust-free culture is obtained.

The sterility of the dish and cover, and in particular the cover, is also improved by the use of the device since they need not be handled once they are assembled with the device. The provision of the finger tabs on the flanges allows the device to be readily picked up. When a cover and dish are used in combination substantially as shown in FIG. 4, it can be seen that the cover can be removed from the dish by lifting the device by grasping the finger tabs extending from the flanges. The depending portions of the flanges then act as legs and form a stable platform which can be used to support a cover, or, if desired, a petri dish, off the surface of the table or counter, thus keeping the cover or dish from coming into contact with contaminants that might be present on the surface of the table or counter. Additionally, the depending portions of the flanges act to keep the portion of the device which overlie the dish from contacting the table or counter.

It can be seen from the foregoing that an improved device for use with petri dishes has been provided, as well as an improved combination of a petri dish, cover and device which acts to efficiently prevent the contamination of the petri dish by dust or other particles settling out of the air onto the interior of the dish. At the same time, the provision of the device between the cover and dish allows air to pass freely into the interior of the dish between the cover and the dish. A device has been provided which is easily handled and which positively aligns the cover with respect to the dish.

Various of the features of the invention are set forth in the following claims.

What is claimed is:

1. In combination, a petri dish for receiving goods, a cover for said dish adapted to substantially seal said dish from the atmosphere, and a device interposed between said dish and cover to space said cover from said dish and facilitate the cooling of the contents of the dish, said device comprising a planar body portion formed from at least three side members interconnected at their ends, flanges connected to said body at the points of intersection of said members, said flanges extending above and below said body in a direction generally normal thereto, and a tab carried by at least one of said flanges adapted to be grasped by the fingers.

2. In combination, a petri dish for receiving goods, a cover for said dish adapted to substantially seal said dish from the atmosphere, a triangularly shaped device interposed between said dish and said cover so as to facilitate dissipation of heat from goods disposed in said dish, said device comprising a planar body portion formed from three rod-like side members of equal length interconnected at their ends, flanges integrally connected to said body at the points of intersection of said members, said flanges extending above and below said body in a direction generally normal thereto and defining a space just large enough to receive said cover, and a tab carried by at least one of said flanges adapted to be grasped with the fingers, whereby said device aligns said cover relative to said dish.

3. A device for use in separating and aligning a petri dish and cover comprising, a triangular planar body portion having three rod-like side members of equal length rigidly connected to one another at their extremities, flanges integrally connected to said body at the points of intersection of said members, said flanges extending above and below said body in a direction generally normally thereto, said flanges being so spaced from one another that the inner surfaces thereof define a circle of predetermined diameter closely approximate to the diameter of the petri dish cover, the extremities of said flanges having a decreased thickness and an arcuate shape and defining a space just large enough to receive a petri dish and cover, whereby the device, cover and petri dish are held in alignment when in an assembled form, and a tab carried by at least one of said flanges adapted to be grasped with the fingers, said tab lying generally in the plane of said planar body portion and extending from the side of said one flange outside said triangular body portion.

4. A device for use in separating and aligning a petri dish and cover, which device comprises a planar body including at least three rod-like side members of equal length rigidly connected to one another at their extremities, flanges integrally connected to said body at the points of intersection of said members and lying generally normal to the plane of said body, said flanges extending above and below the plane of said body, said flanges being so spaced from one another that the inner surfaces thereof define a circle of predetermined diameter closely approximate to the diameter of a petri dish cover, whereby, when disposed between an underlying petri dish and an overlying cover, the device maintains the petri dish and cover in substantially coaxial alignment and also prevents lateral displacement of the cover from the petri dish while spacing the dish and cover vertically apart, and a tab which is integral with said planar body and which lies generally in the plane thereof, said tab extending from the outside of the perimeter of said planar body a sufficient distance outside the circumference of said circle of predetermined diameter to adapt said tab to be easily grasped with the fingers.

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