Jan. 11, 1966 A. GRATZER 3,228,536

SELF-FEEDING, MOUTH-CONTROLLED EATING DEVICE

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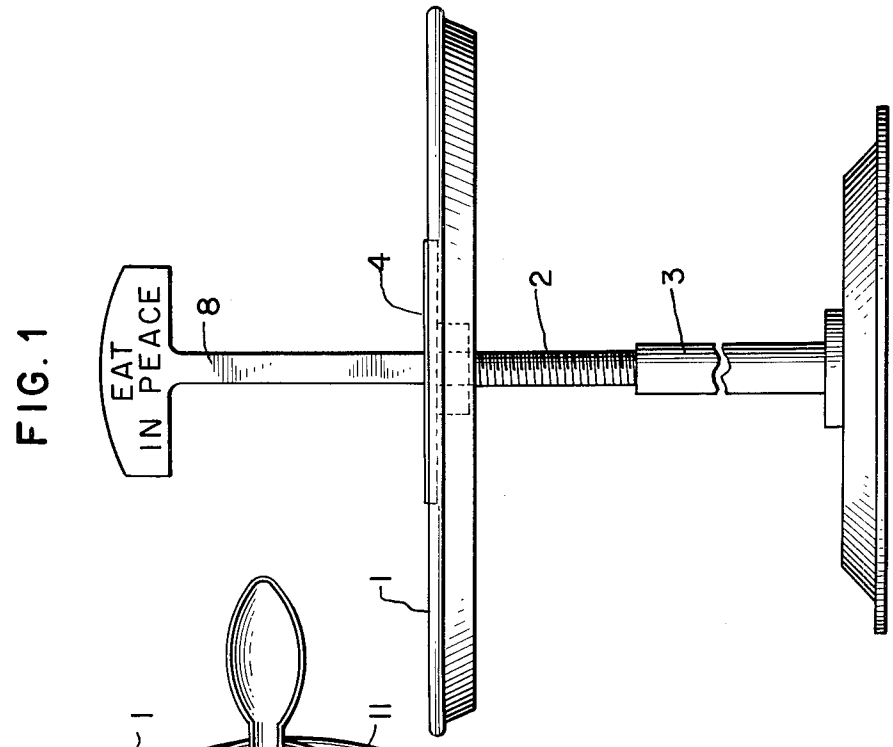


FIG. 1

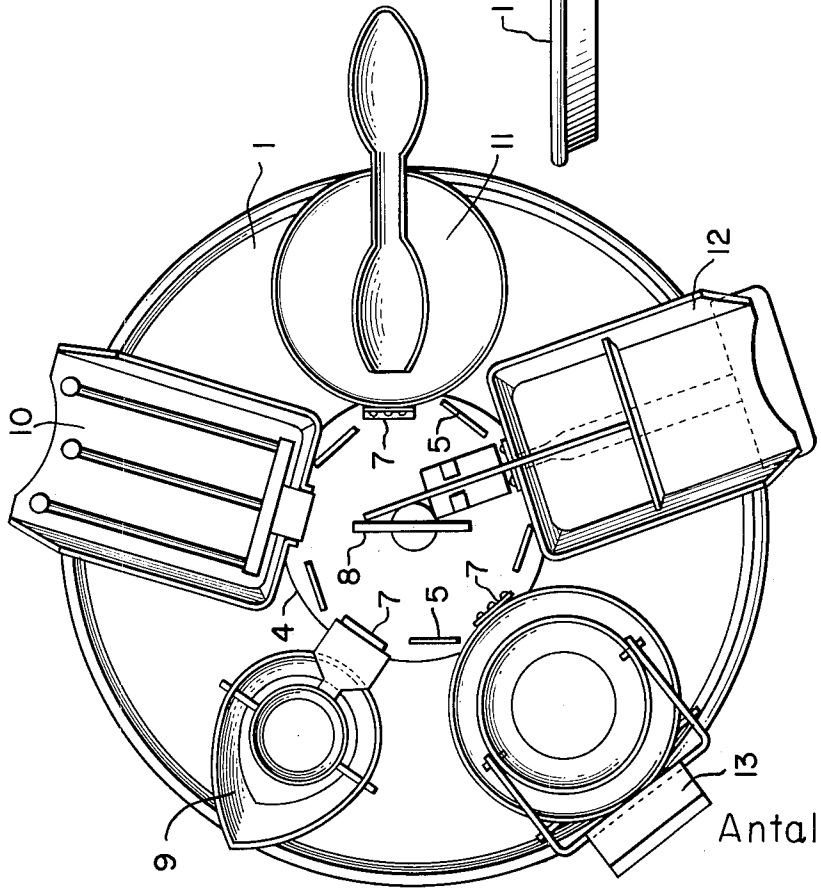


FIG. 2

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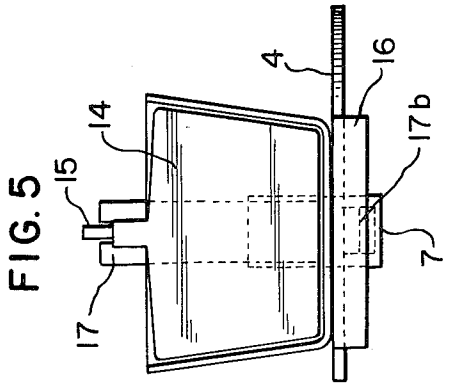


FIG. 5

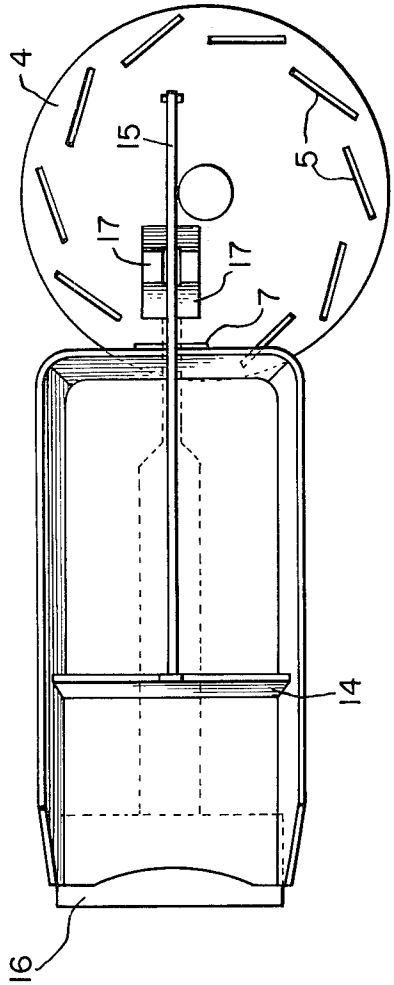


FIG. 3

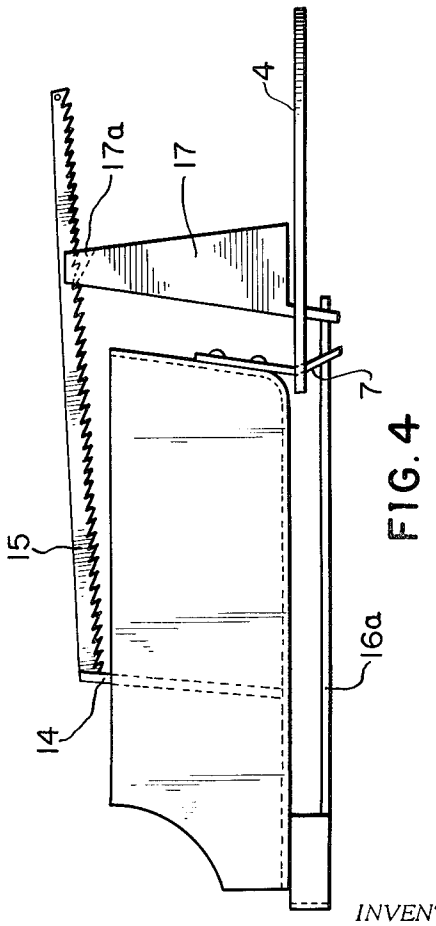


FIG. 4

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SELF-FEEDING, MOUTH-CONTROLLED EATING DEVICE

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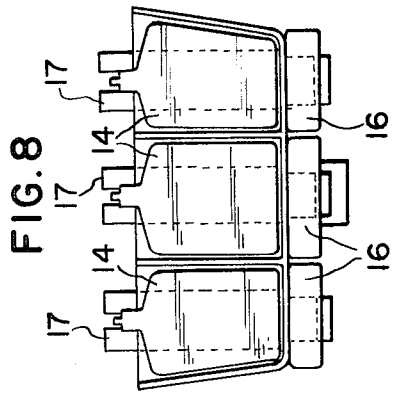


FIG. 8

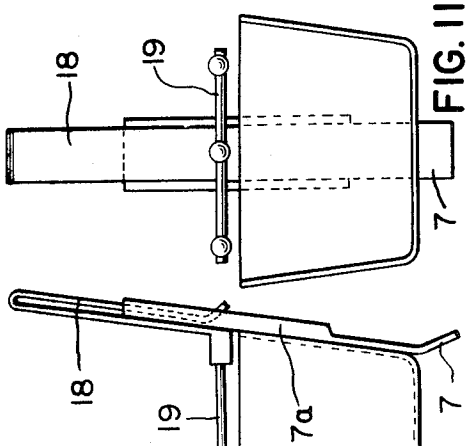


FIG. 11

FIG. 10

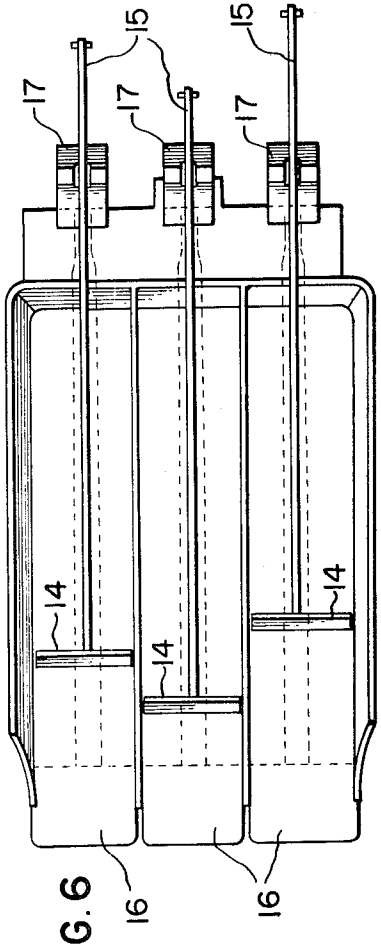


FIG. 6

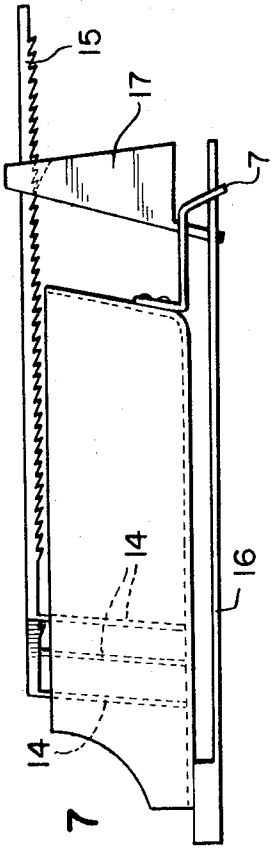


FIG. 7

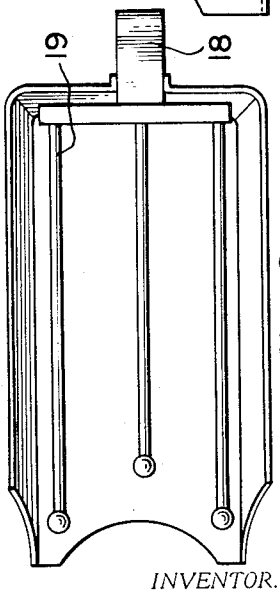


FIG. 9

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SELF-FEEDING, MOUTH-CONTROLLED EATING DEVICE

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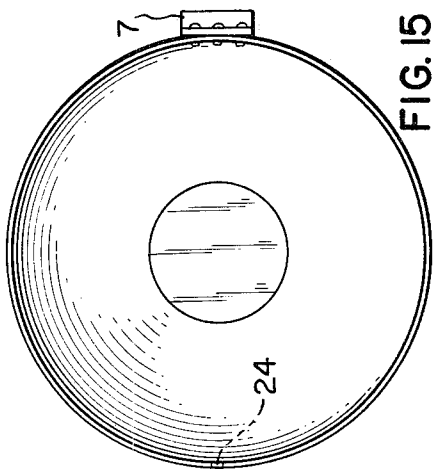


FIG. 15

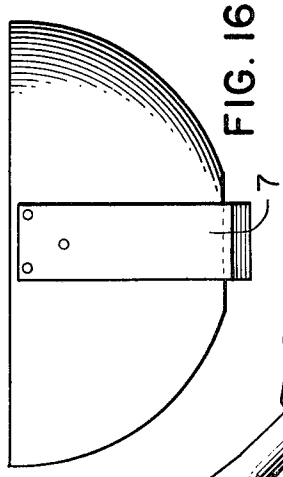


FIG. 16

FIG. 17

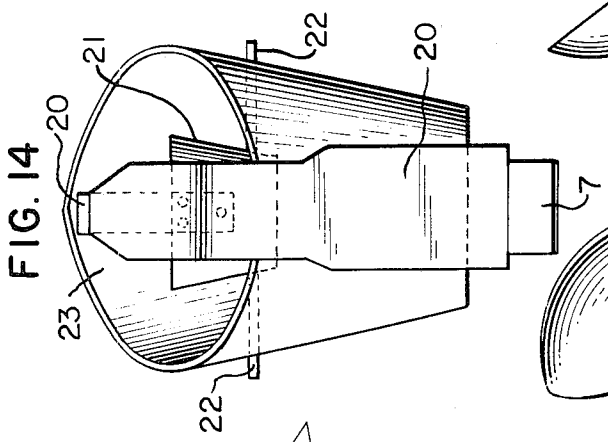


FIG. 14

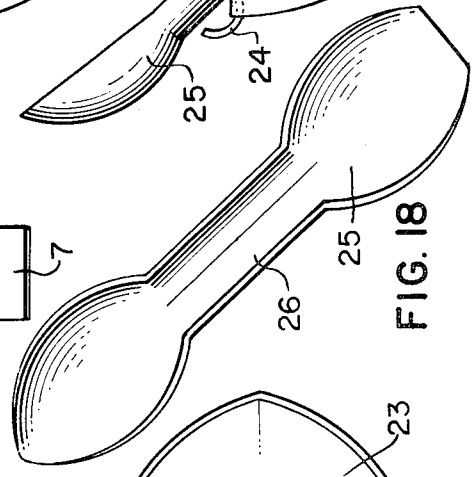


FIG. 18

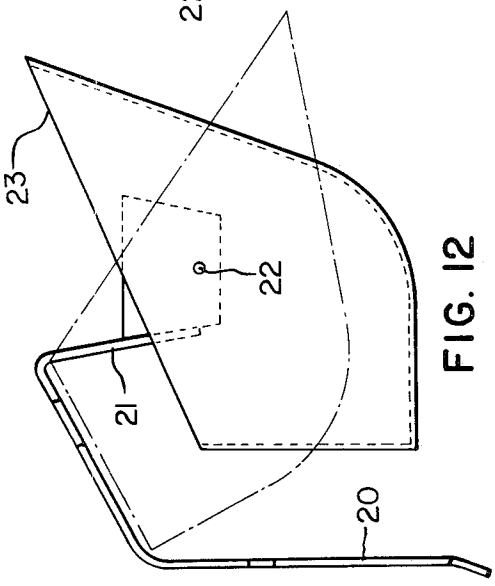


FIG. 12

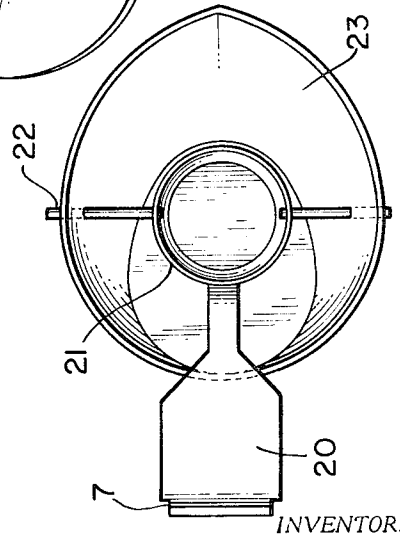


FIG. 13

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SELF-FEEDING, MOUTH-CONTROLLED EATING DEVICE

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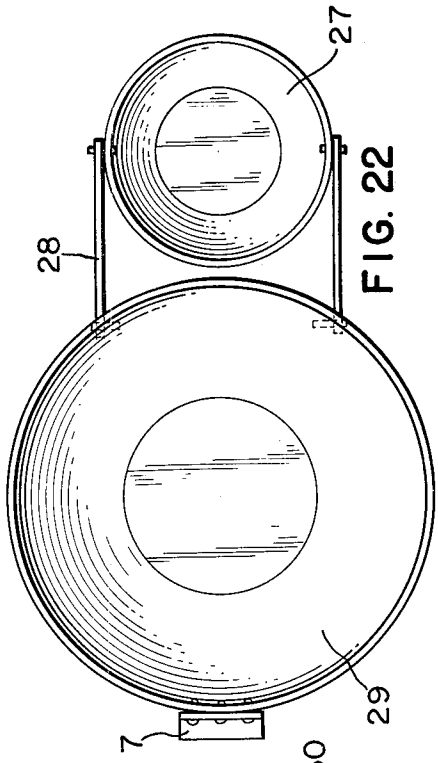


FIG. 22

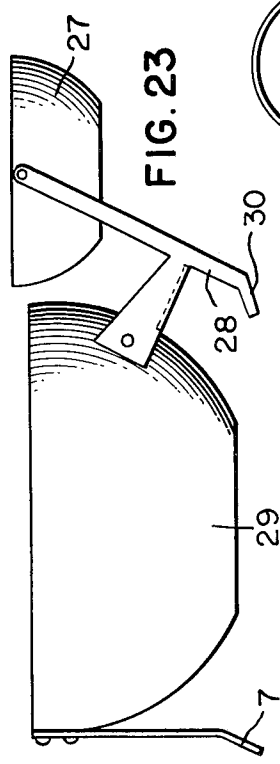


FIG. 23

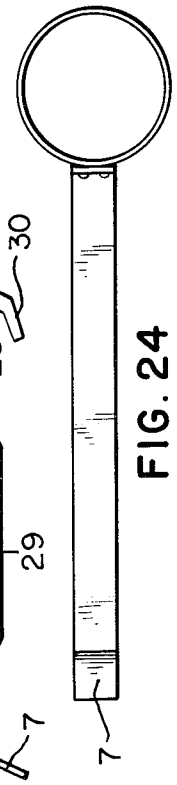


FIG. 24

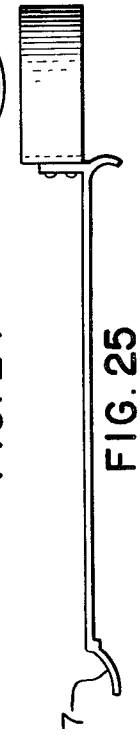


FIG. 25

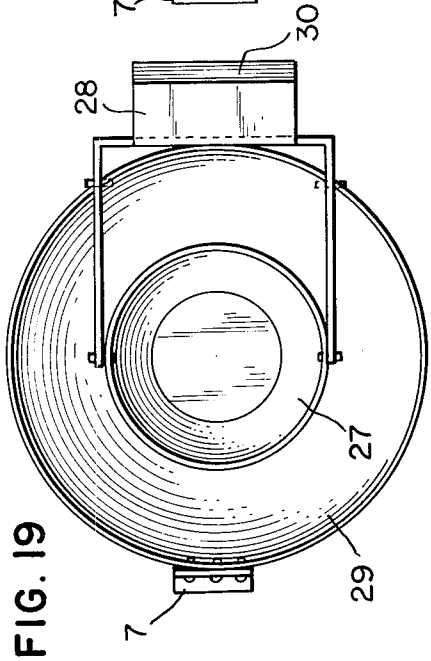


FIG. 19

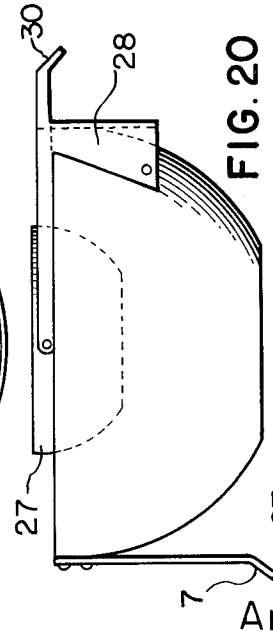


FIG. 20

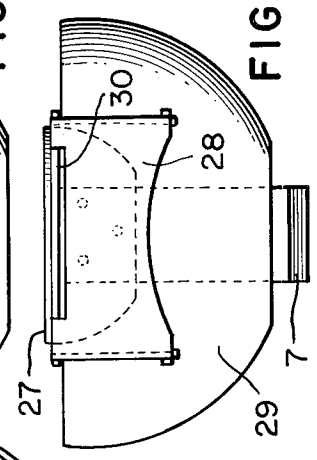


FIG. 21

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United States Patent Office 3,228,536
Patented Jan. 11, 1966

3,228,536

SELF-FEEDING, MOUTH-CONTROLLED EATING DEVICE

Antal Gratzer, 915 W. Diversey Parkway, Chicago, Ill.

Filed Nov. 1, 1963, Ser. No. 320,743
8 Claims. (Cl. 214—1)

This invention relates to a self-feeding mouth-controlled rotatable eating dish combination, which consists of different types of dishes so designed that they allow the consumption of various types of liquid and solid foods solely by graduated mouth control and which can be placed or removed, in the order desired, on a horizontally rotatable tray which can be displaced vertically on its screw axis and which is mounted on a firm base.

Mechanization of life, revolutions, wars, and natural catastrophes, earthquakes, tornadoes and fire disasters have increased the number of the handicapped of whom many are unable to eat because of the lack of arms, paralysis or lack of eyesight. Beyond these there are many who become paralyzed or incapacitatingly tremulous and unable to control their motions due to some illness. The families or relatives, hospitals, nursing homes or other institutions are faced with the daily problem of feeding these individuals. No matter with how much love and consideration they feed them, the situation leads to a strained mood, impatience, never-ending burden and lethargy after a while. The handicapped themselves become depressed and the burden of complete dependency and helplessness weighs heavily upon them.

So far mechanical or electrical mobilization of the paralyzed limbs has been used to enable the handicapped to feed himself. These mechanisms have to be tailor made for the individual, they require special training, often also the help of another person to put them on; they have to be altered constantly in case of a growing child. Even if proficiency in using a device is the ultimate solution, if recovery can be achieved or self sufficiency can be regained by re-education, as in the case of the blind, delay and a frustrating training period of complete dependency in eating has so far not been avoided.

The Gratzer style self-feeding eating dish combination serves many purposes. First, it enables the handicapped to eat by himself without having to be trained and without the aid of another person, according to his own pace; if he at least can move his head, can bite, chew, swallow and drink. He can see the food and beverage and eat with pleasure. He does not spill anything with fumbling, so he can eat without any strain with his family or in company, because he does not need help from anyone, nor does he have to concentrate greatly on his eating technique. Since a whole menu can be placed on the eating dishes, the handicapped can consume a complete dinner without even asking for a glass of water. Second, it cuts down the burden of those who take care of the handicapped because they do not have to feed them. The complete breakfast, lunch or dinner can be served at once in the various dishes and when the handicapped finished eating, the eating dish combination can be removed as a unit. Then the dishes can be removed separately, washed and sterilized if needed. Third, the hospitals and institutions can cut down the time and cost involved in feeding the handicapped. After the food has been served in the eating dish combination, the patient does not have to be attended to until the end of the meal. Although, the design and the firm base insures stability of the rotatable tray and the dishes upon it, the base can be clamped on the supporting surface with any ordinary clamp, if the handicapped exhibits unwanted motion. Fourth, it makes the life of the handicapped more bearable, his mood and general attitude improves and at the same time the nursing staff is relieved of one of the hardest responsibilities.

The self-feeding rotatable eating dish combination was designed with simplicity and ease of manufacture as well as upkeep in mind. It is made out of light metal or synthetic material, e.g., plastic, which is rustfree and easily washable and relatively unbreakable. As with any mechanical motion, there exists the possibility of motorizing some of the motions necessary for eating with this device. The need for this, however is rarer and would have to be designed for and adapted to the individual case.

The name of the self-feeding eating dish combination is Eat in Peace, conveying the motto of the Gratzer system, to eat in peace and undisturbed, to be self-sufficient and independent in eating even if one is severely handicapped.

The Eat in Peace and its various parts and components are illustrated in the following figures, which serve to convey the basic concepts of the invention, the embodiment of which can be varied and is not limited to the present illustration.

FIGURE 1 shows the rotatable tray with its dish-holding plate on the central screw axis which has a handle on the top and rests on a fixed base on the bottom.

FIGURE 2 shows the tray with the dishes from above.

FIGURES 3, 4, 5 show the dish with the food pusher from above, from the side, and from the front respectively.

FIGURES 6, 7, 8 show a dish with three compartments and three food pushers, one for each.

FIGURES 9, 10, 11 show an example of a sandwich or one piece solid food dish with an adjustable resilient three-pronged fork clamp, from above, from the side and from front.

FIGURES 12, 13, 14 show an example of a drinking cup, which can be tilted under a bottle holder, from above, from the side and from the front.

FIGURES 15, 16, 17, 18 show an example of a twin-spooned eating cup from the back and from the side, and the twin-spoon from the top.

FIGURES 19, 20, 21 show an example of twincup arrangement from above, from the side and from front.

FIGURES 22, 23 show the twincup arrangement in the tilted position from the front and from the side.

FIGURES 24, 25 show an example of a napkin holder, used also as a tray rotator, from above and from the side.

Referring to FIGURE 1, one can see the round tray **1** which can also be square. In the center of the tray and parallel to it is a round or square splate **4**, which serves to hold the dishes. This holding plate **4** and the tray **1** are held firmly together on a strong vertical screw **2**, which goes through their center. The screw is mounted on a plate **3** which can be placed on the table or supporting surface. The tray **1** with the holding plate **4** can be raised or lowered on the screw so that it gets to be level with the mouth of the handicapped. The holding plate **4** for the dishes has vertical slits **5** in certain positions so that the different dishes for food and beverages **9, 10, 11, 12, 13** can be secured on it by their holding hooks **7** by pushing them through the holding plate. See FIGURE 2. The tray **1**, the holding plate **4**, and the screw **2** constitute a fixed part, so that they raise together or lower together on rotation in order that the dishes containing the food get to be on a level with the mouth. The screw which constitutes the common axis **2** has a handle **8** on top with which the tray with the dishes and food can be transported and placed on the table.

The dishes as seen in FIGURES 2, 9, 10, 11, 12, 13

can be placed on the tray with one motion by sliding the lower edge of their holding hook **7** into one of the slots **5** of the holding plate according to the desired eating sequence. The dishes are held in a fixed position on the tray by their holding hooks. They cannot slide forward, backward or sideways, they rotate together with the tray and are level with the mouth.

The figures starting with FIGURE 3 show examples of several types of dishes for foods and beverages which can be arranged at will on the tray and are adapted to be used by mouth control.

For instance for solid food the dish with the food pusher is illustrated in FIGURES 3, 4, 5. One can put cut meat, diced potatoes, peas, beans, etc. in it. This is an oblong rectangular dish which has no side in front of the mouth, and no top. In front there is an oval-shaped cut in the free edge of the bottom side so that one can approximate the food better with one's mouth. In front and below the oval cut is a horizontal pusher **16** which when pushed with the mouth slides under the dish until the edge of the dish is reached with one's mouth. This pusher **16** narrows into a longer rod which continues under the dish and goes through the holding hook **7** which holds the dish. Thereby the rod is guided well when it is sliding backward or forward. The back end of the rod is smaller and thinner and goes into the hole in the lower thin edge **17***b* of the lever **17**. The lever **17** stands in its own separate slot in the holding plate **4** with its large end below and its small thinned out plate-shaped end above. On the top of the lever parallel to the long axis of the dish there is a slot **17***a* with a backward slanted cut which serves as the pushing tooth of the lever by engaging with the toothed rod **15** and pushing it and its attached pushplate forward in the dish. The pushplate, which is as wide as the inside of the dish, then pushes the food ahead of it towards and into the open mouth. When one takes the mouth away from the pusher **16** then the lever pushes it back to its original position by its weight. It does not pull the toothed rod **15** and its food pushplate **14** back, because the teeth are in the opposite direction and they slide over the tooth slot of the lever **17***a*. Therefore the eater controls the amount of the food which is pushed into his mouth according to the size of bite he wants to take. If there is still food remaining at the edge of the dish, it will not fall down, because the pushplate will go back to its original position and catches it. The forward and backward tilting of the lever can also be regulated by a spring.

Variety can be obtained if one can eat two side dishes with the meat simultaneously without having to rotate the tray further thereby gaining additional comfort and ease. One can do this with the following simple composite food pushing dish as can be seen in FIGURES 6, 7, 8. Using the dish with the food pusher as a unit, the variation consists only of the widening of the dish and putting in three or more compartments lengthwise each having its separately operated food pusher device, **14, 15, 16, 17**. The food that gets into the mouth is determined by which lever under which compartment is being pushed, e.g. potatoes, meat, vegetables, according to taste.

For serving uncut solid foods such as bread, cakes or sandwiches, one uses the dish with the sandwich holder, as is to be seen in FIGURES 10, 9, 11. This dish resembles the dish with the food pusher in its size and form, has therefore the open side towards the mouth; except on this dish there is the sandwich holder **18, 19**. The holding hook **7***a* of the sandwich holding dish protrudes above the backside of the dish and serves as guide and support for the resilient fork plate. For this the guide is very flat and U-shaped in cross section with the open end pointing backwards. The free end of the hairpin-shaped resilient plate **18** is slid into the guide. The other end of the resilient plate comes down vertically into the dish and on it are attached horizontally three or possibly more rods **19** which are parallel to the long axis of the dish and have rounded tips. These rods which are put together in a fork shape and the resilient plate **18** constitute the three-pronged fork clamp which can be pushed up or down in the guide **7***a*. If the fork clamp is being pushed down into the dish on to the slice of cake or sandwich, the latter cannot slide out of the dish. In order to eat the sandwich, etc., one turns the tray **1** with one's lips or chin far enough so that the sandwich holding dish gets in front of one's mouth. One takes the end of the sandwich which protrudes over the edge into one's mouth, pulls it out further and bites off a piece, leaving enough so the left end can be reached and pulled out for the next bite. The fork clamp with the round tips holds the sandwich firmly up to the last bite.

In order to serve beverages one uses a tilting cup, FIGURES 13, 14, 12 with the following description. Into the slot **5** of the holding plate **4** is placed a holding hook **20** which is tilted or slanted down towards the mouth and protrudes above the level of the other dishes. The top part of the holding hook bends downward forming an inverted U and on its end there is a conical funnel **21**. A separate axle **22** protrudes right and left from the lower outer end of the funnel. On these axles the tilting cup **23** is being hung by its upper sides. One puts a bottle containing water, milk or other beverage with its mouth open downward into the funnel **21**. Now the liquid flows into the tilting cup below, until the liquid level reaches the fluid in the bottle. The air pressure keeps the rest of the liquid in the bottle. If one tilts the cup **23** downward with one's mouth, one can drink as much as one wants. The liquid automatically keeps flowing from the bottle as long as the liquid level is lower in the cup than in the bottle. One can put ice into the tilting cup in order to get an ice cooled beverage. Of course the cup can be used without a bottle as well. In that case the beverage coffee, milk, juice, etc. is poured into the cup directly and can be drunk again by tilting the cup into the mouth, thus consuming even the last drop.

FIGURES 15, 16, 17, 18 illustrate the soup cup in the side, top and back view, as well as the twinspoon in the dish and also separately **25**. The soup cup can be a half elliptical or oblong in its cross section. On the back of the soup cup there is the downwardly slanted holding hook **7**. On the front side of the soup cup there is the twinspoon which is fastened into a hole in its side. The twinspoon **25** is composed of a V, U, or half-circular shaped handle **26** on cross section which has on either end a spoonhead and a holding hook in the center **24**. The back spoonhead of the twinspoon is in the soup cup, therefore in the soup. The front spoonhead stands out and can be reached by the mouth. If one takes the front spoonhead into one's mouth and pushes it downward, the back end with its spoonhead and with the soup is raised above the front spoonhead and the soup with its contents flows into the front spoonhead and into one's mouth. The spoon can be moved in any direction with one's mouth, therefore not only the soup but also its contents can be taken out of the soup cup and eaten. If one lets go of the spoon it always tilts back into the cup because of the gravity distribution. The back spoonhead in the cup is smaller than the front spoonhead for the mouth and the trough like handle is large enough so that the soup is never spilled. It is obvious that this dish is not limited to soup consumption and that any substance which can flow, glide or slide down into the twinspoon can be eaten.

FIGURES 19, 20, 21, 22, 23 shows a double cup arrangement for serving ice cream for instance. The larger lower cup **29** has a holding hook **7** so that it can be hooked firmly onto the holding plate. Attached to its front there is a double V-shaped tilting arm **28**. Between the two

limbs of the V a smaller half globe or square-shaped cup is hanging on two horizontal axes. Into this cup **27** one can put ice cream, candy, etc. One pushes the protruding end of the lever arm **30**, which is connected with the double tilting arm **28**, now the smaller cup **27** is raised out of the larger cup and is tilted into position in front of one's mouth. Since the small cup is always in a horizontal position and does not tip due to its own weight one can lick the ice cream out of it. When one pushes the smaller cup it again tilts back into position above the large cup in which one has placed ice cubes to prevent melting.

Finally FIGURES 24, 25 show the napkin holder. This is needed for two reasons. First that the eater can keep his mouth clean and second that he can rotate the tray easier with the holders and thereby reach the dish he wants to eat out of or drink out of. The sample illustration shows one possible shape of the napkin holder on its holding hook. This of course can be varied.

As can be seen from the description, the daily use of the self-feeding eating dish combination for the handicapped is easy and simple. Whoever prepares or serves the food, breakfast, lunch, supper or snack arranges and places it on the tray accordingly. One can use two of the same type of dish according to the menu. One places the foods and beverages into the dishes and can place the whole eating dish combination in front of the handicapped transporting it with the handle on the screw. Then one adjusts it so that the tray is level with the eater's mouth. The eater does not have to learn how to eat with the device because it is so easy and simple and self evident, that he can eat with it on the first attempt with his family or company. All he has to do is chew, bite, drink, and turn, because the food and drinks are directly in front of his mouth. It also has the advantage that whoever takes care of the handicapped can prepare the tray ahead of time and does not have to be on time for the feeding. Water, cake, fruit can be kept on the tray for the handicapped. The care of the eating dish combination, its assembly, washing, etc., is simple. The benefits obtained for both the handicapped and those who take care of him are such that the Eat in Peace is of value even for temporary disabled.

Keeping in mind that the foregoing description and illustration of the self-feeding mouth-controlled eating dish combination for the handicapped is only one example of its possible embodiment, the following innovations and underlying principles are claimed:

1. In a self-feeding, mouth-controlled, rotatable, variable eating dish combination for use by human beings who cannot use their hands properly; the improvement comprising a horizontally disposed tray with concentrically disposed holding means attached thereto having means to hold a plurality of dishes in position, means mounting said tray and holding means for rotational and vertical movement to mouth level of the user, a solid food server mounted on said holding means, said server comprising a dish with a food pusher mounted to move therein, said dish having an outwardly facing open side, actuator means extending from the open side of the dish to its opposite side, lever means located on the holding means adjacent to said opposite side of the dish and operatively connected with said actuator means, said lever means having tooth means, a toothed bar attached to and extending from said pusher and engaging said tooth means on said lever means, said actuator means, lever means and toothed bar being so arranged that each movement of the actuator means causes the lever means to step the toothed bar and the attached pusher a predetermined distance toward the open side of the dish.

2. The invention according to claim **1** and said lever means having an upper end with a slanted toothed opening receiving said toothed bar, and means for biasing the toothed bar to engaged position with the lever means in said opening.

3. The invention according to claim **1**, and a dish mounted on said holding means for serving larger sized solid food such as sandwiches and the like, said last-mentioned dish containing a resiliently mounted fork and being hairpin shaped, a U-shaped guide on the holding means mounting said last-mentioned dish, said guide means accommodating vertical adjustment of the second plate.

4. The invention according to claim **1** and a dish for serving liquid, semisolid or wet foods comprising a cup-like structure, and a twin spoon having an elongated connector with a spoon at each end, means pivoting the twin spoon at its connector to said cuplike structure at its outer side, said connector being formed to guide the food from one spoon to the other.

5. The invention according to claim **1** and a drinking cup having means for mounting at one end on the holding means and having a funnel on the other end with means for receiving a bottle or the like therein, and means suspending the cup on a horizontal axis for tilting toward the mouth of the user.

6. The invention according to claim **1** and comprising a double cup arrangement including a larger lower cup for holding ice cubes and the like and a smaller food cup for holding ice cream or the like, means hanging the smaller cup above the lower cup, and arm means connected to the smaller cup and extending to a position which may be reached by head portions of the user to tilt the same whereby the contents are available for eating by the user.

7. The invention according to claim **1** and said tray having napkin holders about its periphery, said napkin holders being positioned for grasping engagement by the mouth of the user to rotate the tray.

8. The invention according to claim **1** and napkin holders releasably attached to the tray for positioning various optional distance about the tray in position for grasping engagement by the user with his mouth.

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