Aug. 17, 1954 T. M. WALKER 2,686,408

AUTOMATIC FEEDING DEVICE FOR HANDICAPPED PERSONS

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Fig. 1.

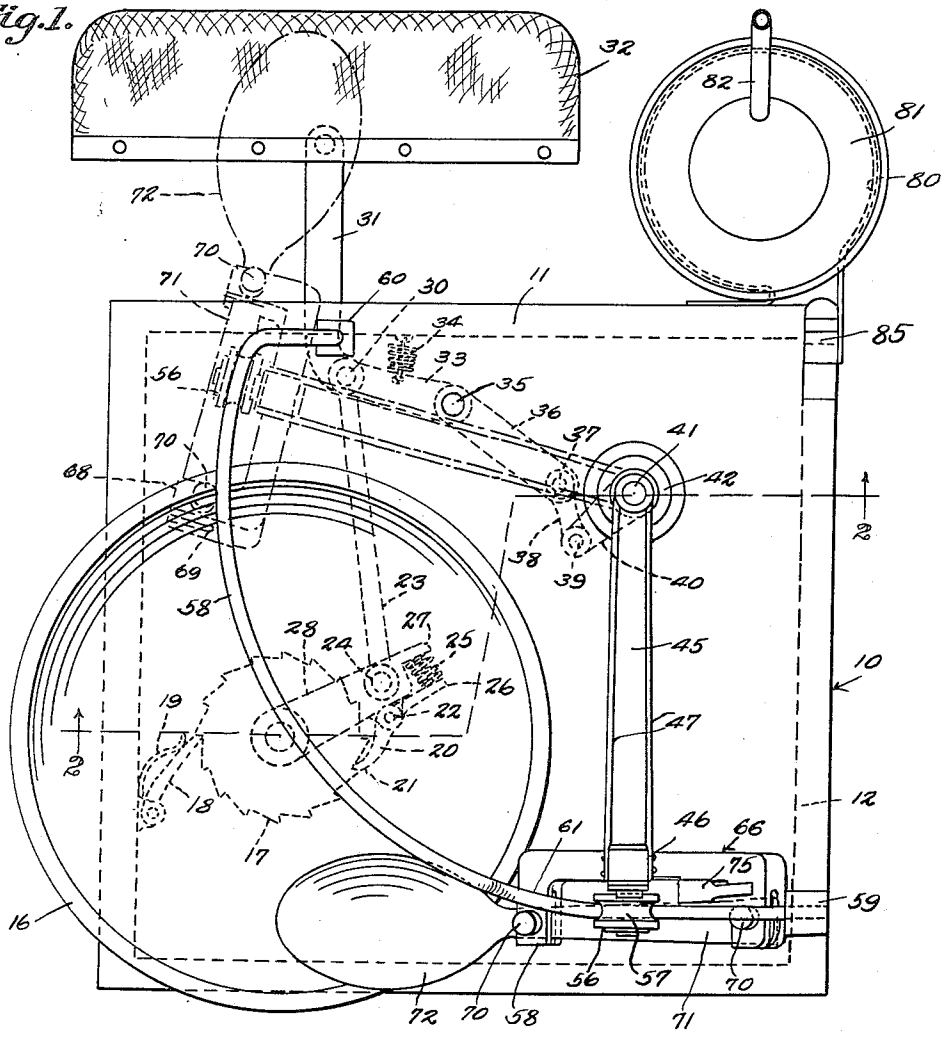
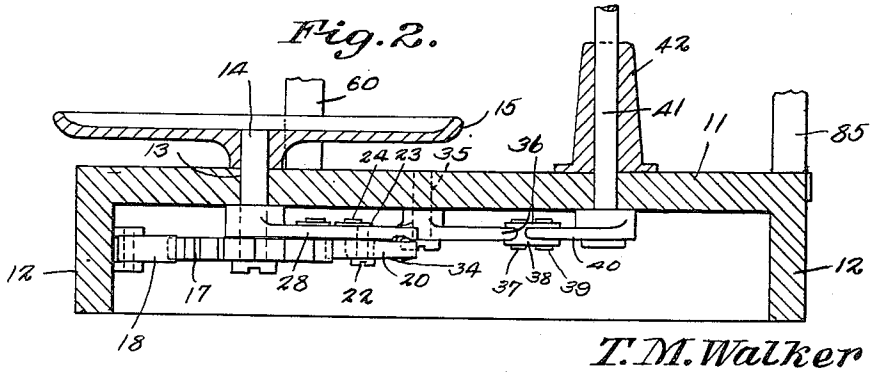


Fig. 2.



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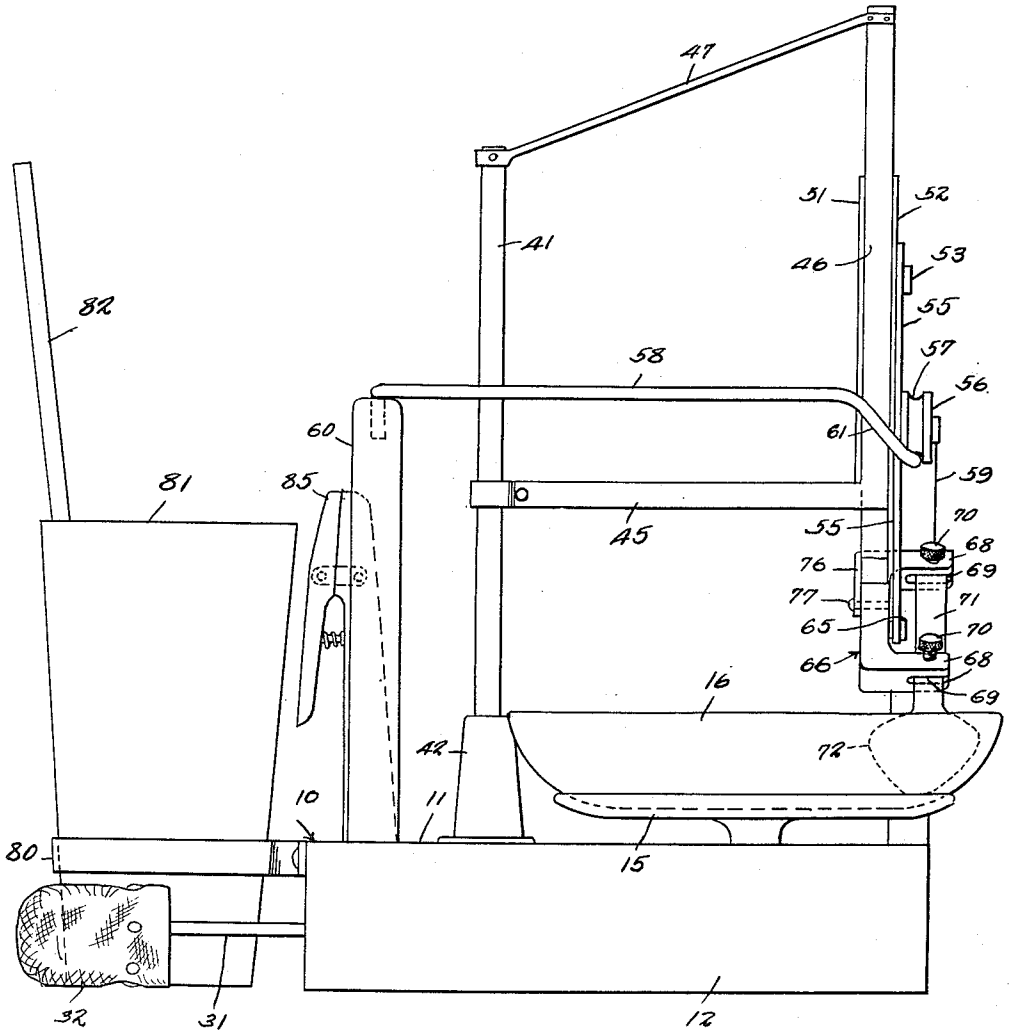
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Fig. 3.



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Fig. 6.

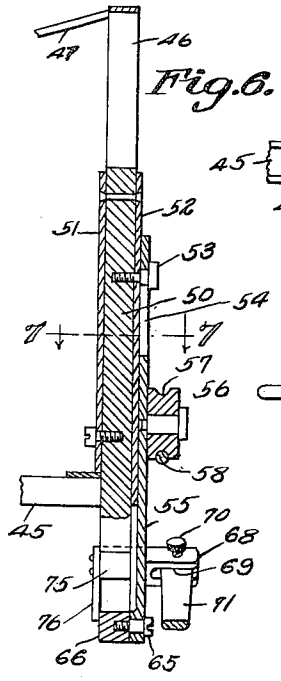


Fig. 7.

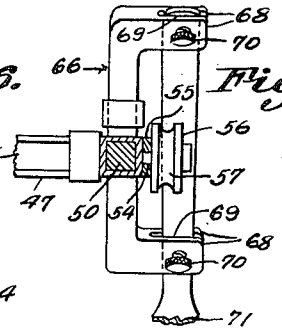
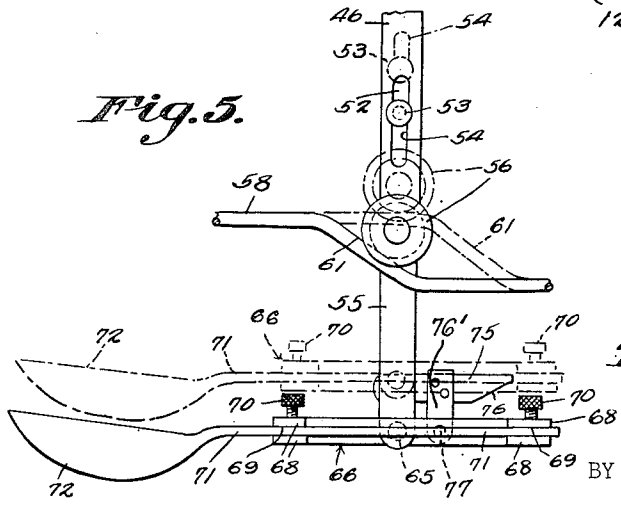


Fig. 4.

Fig. 5.



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Patented Aug. 17, 1954

2,686,408

UNITED STATES PATENT OFFICE

2,686,408

AUTOMATIC FEEDING DEVICE FOR HANDICAPPED PERSONS

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Application August 6, 1953, Serial No. 372,770

5 Claims. (Cl. 65—12)

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This invention relates to an automatic feeding device for handicapped persons, and more particularly to such a device whereby a person deprived of the use of his arms may feed himself from a bowl or plate or the like, the mechanism being actuated primarily by pressure of the body against one of the component parts thereof.

An additional object of the invention is to provide a device of this character which may be conveniently placed closely adjacent the body of the user, and provided with a pressure bar, the arrangement being such that a spoon or other implement may be positioned in a bowl or the like, levelled, and raised to the level of the mouth by means of body pressure alone.

A further object of the invention is the provision of such a device provided with auxiliary implements, such as a glass holder, and a napkin holder closely adjacent the mouth of the user, whereby he may reach the same with a minimum of difficulty and effort.

A further object of the invention is the provision of an attachment with such a device whereby the dish or bowl containing the food to be eaten is partially rotated with each movement of the spoon, whereby all of its contents may be readily removed.

Still other objects reside in the combinations of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter, and shown in the accompanying drawings wherein there is disclosed the preferred embodiment of this inventive concept.

Still other objects will in part be obvious, and in part be pointed out as the description of the invention proceeds.

In the drawings:

Figure 1 is a top plan view of one form of device disclosing the instant invention, certain concealed portions of the mechanism being indicated in dotted lines, and an alternative position of adjustment being also indicated in dotted lines.

Fig. 2 is a sectional view taken substantially along the line 2—2 of Fig. 1 as viewed in the direction indicated by the arrow.

Fig. 3 is a side elevational view of the device disclosed in Fig. 1.

Fig. 4 is an end elevational view of the device, partially in section.

Fig. 5 is a fragmentary view showing portions of the mechanism of Fig. 4 in a different position of adjustment, a still further position of adjustment being indicated in dotted lines.

Fig. 6 is a sectional view taken substantially along the line 6—6 of Fig. 4 as viewed in the direction indicated by the arrows, and

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Fig. 7 is a sectional view taken substantially along the line 7—7 of Fig. 6 as viewed in the direction indicated by the arrows.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Having reference now to the drawing in detail, there is generally indicated at 10 a table or the like provided with a top surface 11 and having a depending marginal flange 12 extending thereabout. The table 10 may be supported by legs if desired, or alternatively may be placed on any flat surface in juxtaposition to the person of the user thereof.

The table top 11 is provided adjacent one end thereof with a bore or aperture 13, through which extends a spindle 14, to which is secured a suitable bowl supporting tray 15, forming a cradle for a bowl 16 or the like.

The lower end of the spindle 14 has secured thereto a ratchet 17, which is engaged by a pawl 18 spring biased into position as by means of a spring 19.

Ratchet 17 is adapted to be moved by means of a dog 20, including a jaw 21 pivotally mounted as on a pivot 22 to one end of an arm 23.

As best shown in Fig. 1 in dotted lines a compression spring 25 positioned between an ear 26 of dog 20 and an opposed ear 27, serves to bias the dog in the direction of ratchet 17. The ear 27 is carried by the arm 28 which is mounted for rotation on the spindle 14. Connected to the arm 28 by a pivot pin 24 is a link 23.

From the foregoing it will now be seen that as the arm 23 is moved laterally dog 20 will serve to rotate ratchet 17, thus rotating the tray 15 through a fraction of a turn, and simultaneously rotating the bowl. The manner of movement of the arm 23 will be more fully described hereinafter.

As best shown in Figs. 1 and 2 arm 23 is pivotally connected as by a pivot 30 to a bar 31 extending through a suitable aperture in flange 12 and terminating in a padded cushion member 32, which projects outwardly of the device, and is adapted to be moved by pressure of the body of the user thereagainst. Obviously inward movement of cushion 32 will occasion forward movement of rod 23, the consequent rotation of the dish 16. Bar 31 is provided with an arcuate extension 33, between which and the adjacent flange 12 is connected a spring 34 which normally biases the bar 31 to extended position when pressure is not exerted thereagainst. A pivot pin 35 connects the bar 33 to the table top 11. An arcuate extension 36 is in turn connected as by

a pivot 37 to a further link 38, which by means of a pivot 39 is connected to an arm 40 fixedly connected below the table top to the lower end of an upwardly extending shaft 41 which extends through table top 11 and upwardly through a mounting bushing 42 a substantial distance above the top 11 of table 10. It will thus be seen that the spindle 41 is rotated through pressure against cushion 32 simultaneously with the rotation of the bowl 13.

The spindle 41 has fixedly secured thereto an extended arm 45, which carries at its outer extremity a pair of spaced uprights 51, 52, the latter forming a track, for a purpose to be more fully described hereinafter. A suitable supporting member 46 fixedly secured to the top of spindle 41 may extend to the top of uprights 51, 52 to strengthen the assembly.

Positioned between the uprights 51, 52 for slidable movement therebetween is a carrier member 53, which has secured to its front and rear faces respectively plates 51 and 52, of greater width than the space between the portions 47, and serving to hold the carrier member therebetween.

Plate 52 is provided with a headed stud 53 fixedly secured thereto, the stud 53 extending outwardly through an elongated slot 54 in a plate-like depending member 55.

Member 55 carries on its outer face a roller 56, provided with a peripheral groove 57 (see Fig. 3), which roller is adapted to ride on an arcuate track 58, which extends between the upper extremities of two supporting posts 59 and 60 respectively positioned adjacent diagonally opposite corners of table 10. The track 58 is provided at a point near the post 59 with an upwardly inclined cam portion 61, the purpose of which will be more fully described hereinafter.

Referring now particularly to Figs. 4 and 5 there is shown pivotally secured as by a pivot 65, to the lower end of member 55 a spoon holding clamp generally indicated at 66, and formed, as best shown in Fig. 7, of a substantially C-shaped member including arms 68 each provided with a transverse slot 69 intersected by a bore for a set screw member 70. The arrangement is such that the handle 71 of a spoon 72 or other implement may be inserted in the slots 69 and clamped therein by means of set screws 70.

The lower end of elevator member 50 is provided with an extending transverse arm 75 having at the lower portion of its rear an inclined surface 76 adapted for abutment with the end of the extension 66 in such manner as to hold spoon 72 at the proper inclination when desired as shown in the position indicated in Fig. 4. A bracket member 76' is dependingly fixed to extension 75 and is pivotally connected as by means of the pivot 77 to spoon carrier 66 at a point outwardly of the bowl of the spoon relative to pivot 65.

From the foregoing the operation of the device should now be readily understandable. With the parts in position shown in full lines in Fig. 1 the bowl of spoon 72 is seated in the bowl or dish 16. Inward pressure on the cushion member 32 will now through the linkage previously described cause rotation of the shaft 41, which will cause roller 56 to ride along arcuate track 58. As the roller 56 rides up the inclined cam surface 61 the first movement effected will be the tilting of the spoon carrier 66 to level position as best shown in full lines in Fig. 5. This will occur when the roller is approximately half way up the inclined surface 61.

As the roller continues to ride to the top of the inclined portion 61 of track 58 and enters the level part thereof it will be swung in an arc to the dotted line position as shown in Fig. 1, at which point it will be level and substantially adjacent the mouth of the user of the device.

If desired additional accessories such as a holder 80 for a glass 81 provided with a drinking straw 82 may be positioned closely adjacent cushion 32 in such manner as to be readily accessible to the user.

A conventional spring clip 85 of any desired type may be secured to the device at a location convenient to the mouth of the user for the purpose of holding a napkin, against which the lips may be passed without the necessity of the use of the hands or arms.

From the foregoing it will now be seen that there is herein provided an improved feeding device for those who have lost the use of hands or arms, which will serve to feed the patient by means of body pressure alone, thus relieving him and any attendant of the necessity of having other feed him.

It will also be seen that there is herein provided an improved device of this character, which accomplishes all the objects of this invention, including many advantages of great practical utility.

As many embodiments may be made of this inventive concept, and as many modifications may be made in the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative, and not in a limiting sense.

I claim:

1. In a device of the character described in combination, a table, a bowl holder, a spoon holder, means for rotating said spoon holder from a position adjacent said bowl holder in a quarter circle to a position adjacent the mouth of the operator, means for simultaneously elevating said spoon, means connected with the last mentioned means for simultaneously moving said bowl holder through an angle of a few degrees about the center of said bowl holder, and body operated means for actuating said means for rotating said spoon holder, said last mentioned means comprising a pad movable by chest pressure, a linkage connecting said pad to said means for rotating said spoon holder, and spring means biasing said pad outwardly to return said spoon holder upon relief of said pressure.

2. In a device of the character described in combination, a table, a bowl holder, a spoon holder, means for rotating said spoon holder from a position adjacent said bowl holder in a quarter circle to a position adjacent the mouth of the operator, means for simultaneously elevating said spoon, means connected with the last mentioned means for simultaneously moving said bowl holder through an angle of a few degrees about the center of said bowl holder, means for simultaneously moving said spoon holder from an inclined to a level position, and body operated means for actuating said means for rotating said spoon holder, said last mentioned means comprising a pad movable by chest pressure, a linkage connecting said pad to said means for rotating said spoon holder, spring means biasing said pad outwardly to return said spoon holder upon relief of said pressure.

3. The structure of claim 2 wherein the means for rotating and elevating said spoon include a spindle rotatable by said linkage, an arm rotat-

able thereby, a carriage mounted for vertical movement at the end of said arm, said spoon holder being carried by said carriage, a roller mounted on said carriage, and an arcuate track having an inclined portion upon which said roller is adapted to move upon rotation of said spindle.

4. The structure of claim 3 wherein the means for moving said bowl holder includes a spindle carrying said bowl holder, a supplemental linkage connected to said first linkage, and a ratchet and pawl connection between the last mentioned spindle and said supplemental linkage.

5. The structure of claim 4 wherein said carriage includes two portions relatively movable in a vertical direction and the means for leveling the spoon holder comprises a transverse extension on one portion of said carriage, a bracket depending

therefrom, a pivotal connection between said bracket and said spoon holder offset from the first mentioned pivotal connection of said spoon holder, said spoon holder being carried by the second portion of said carriage, whereby upon initial movement of said roller up the inclined portion of said track movement of said carriage portions relative to each other will level said spoon holder.

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