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⑤④ **A vegetable cutting device.**

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Description

Background of the Invention

1. Field of the Invention

The present invention relates to a device for cutting or slicing vegetables such as carrots, radishes, cabbages, and the like, the device being operated manually.

2. Description of the Prior Art

A conventional cutting device normally comprises a cup-shaped housing, a cutter disk provided at an opening portion of the housing and rotatable about the axis of the housing, a cover mounted on the opening portion, and a manually operated handle connected to the cutter disk and supported by the cover. A vegetable to be cut is applied to an upper face of the cutter disk, and is cut in such a manner that the cut pieces remain in the housing. The cover, the cutter disk, and the housing can be disassembled, to enable the cut pieces of vegetable to be removed and for washing the housing and the cutter disk.

Specifically DE—C—846,151 discloses a device for cutting vegetables and the like and comprises a cup-shaped lower housing having an upper peripheral portion and an upper housing having a lower peripheral portion which is engageable with the upper peripheral portion of the lower housing. The upper housing includes an inlet for feeding vegetables and the like into the device and means for interconnecting the said upper and lower peripheral portions. A cutter disk having at least one cutter blade is rotatably mounted about an axis within the lower housing and includes an upper face confronting the inlet and a lower face which defines a storage chamber within the lower housing and beneath the cutting disk for storing cut vegetables. The cutter disk further includes a bore which is coaxial with the said axis of the lower housing and a drive shaft which is rotatably supported by the upper housing and serves to drive the cutter through a non-rotatable and detachable driving connection disposed within the bore. During operation and unless a locking unit is released, the cutter remains securely attached to the upper housing.

It will be appreciated from the foregoing that the cutting device must be able to be easily assembled for cutting a vegetable, and easily disassembled for removing the cut pieces of vegetable from the housing, as well as for washing and cleaning the housing and other parts of the device.

Summary of the Invention

An object of this invention is to provide a vegetable cutting device that is easily assembled and disassembled.

According to the present invention, there is provided a vegetable cutting device attachable to a firm surface for cutting vegetables or like comestibles comprising a cup shaped lower housing having an upper peripheral portion, an upper housing having a lower peripheral portion

which is engageable with the upper peripheral portion of the lower housing, an inlet formed in the upper housing, interconnecting means for detachably interconnecting the upper and lower peripheral portions and a cutter disk having at least one cutter blade mounted for rotation within the lower housing and about the axis of the upper peripheral portion, the cutter disk having an upper face which faces the inlet and a lower face which delimits a storage chamber in the interior of the lower housing, a drive means having a manually operated drive shaft which is rotatably supported by the upper housing, characterised in that:

the upper housing is an inverted cup-shape, in that the cutter disk is detachably and rotatably supported by the lower housing and has a spindle formed with a bore which is coaxial with the axis of the lower housing and with the drive shaft, in that the bore of the spindle is non-rotatably and detachably connectable to a lower engaging portion of the drive shaft which extends into the lower housing when the housings are interconnected so that the cutter disk is centred on its axis of rotation at two axially displaced locations in the region of the lower engaging portion of the drive shaft and of a support pin located within the lower housing, and in that a fixing apparatus is attached to a lower portion of the lower housing for fixing the lower housing 2 to the said firm surface.

The present invention will now be described, by way of example with reference to the accompanying drawings, in which:

Fig. 1 is a side view of an embodiment of the present invention;

Fig. 2 is a plan view of Fig. 1;

Fig. 3 is a sectional view of Fig. 1;

Fig. 4 is a sectional view of an embodiment of the present invention in a partially disassembled state;

Fig. 5 is a plan view of a cutter disk;

Fig. 6 is a sectional view along line VI—VI of Fig. 5;

Fig. 7 is a plan view of a pushdown member;

Fig. 8 is a side view of Fig. 7;

Fig. 9 is a sectional view showing the fixing apparatus in a non-operative state;

Fig. 10 is a sectional view showing the fixing apparatus in an operative state wherein it fixes the lower housing onto a base plate;

Fig. 11 is a side view showing the upper housing separated from the lower housing;

Fig. 12 is a front view of a connecting apparatus;

Fig. 13 is a front view of an L-shaped slot;

Fig. 14 is a sectional view showing the connecting apparatus interconnecting the upper housing and the lower housing;

Fig. 15 is a sectional view showing a pawl of the connecting apparatus dislodged from the L-shaped slot; and

Fig. 16 is a perspective view of the connecting apparatus when disassembled.

Description of the Preferred Embodiments

Figures 1 to 16 show a cutting device according to an embodiment of the present invention. Referring to Figs. 1 and 2, a cutting device is generally indicated by reference numeral 1. A cup-shaped lower housing 2 for storing cut pieces of vegetable is mounted on a fixing apparatus 3 which fixes the lower housing 2 onto a base plate by a sucker member 4 manually operated by a lever 5. An inverted cup-shape upper housing 6 is placed on the lower housing 2 and covers an opening thereof. The upper housing 6 is detachably interconnected to the lower housing 2 by a pair of connecting apparatuses 7. A cutter disk 8 fitted with cutter blades 9 is arranged in the lower housing 2. The cutter disk 8 is rotatable about the central axis of the lower housing, and is rotated by a handle 10 attached outside of the upper housing 6. An inlet 11 is formed in the upper housing 6 for supplying the vegetable to be cut to the cutter disk 8.

Fig. 3 shows a sectional view of the cutting device 1, and Fig. 4 shows the same in a disassembled state. The lower housing 2 has an upper peripheral portion 20 which defines the opening, and has a tubular guide 21 which surrounds the axis of the housing. A lower peripheral portion 22 of the upper housing 6 is engagable with the inside of the upper peripheral portion 20, and the lower peripheral portion 22 is fixed to the upper peripheral portion 20 by the connecting apparatus 7.

The cutter disk 8 is detachably arranged at the opening of the lower housing 2, and a lower face thereof defines a storage chamber 23 in an interior of the lower housing 2. The cutter disk 8 is rotatably supported by a pin 24 mounted on a projection 25 formed on an upper plate of a casing 26 of the fixing apparatus 3. That is, the cutter disk 8 has a downward extending spindle 27 in which a bore 28 and a hole 29 are formed, while the projection 25 extends toward the hole 29 and the pin 24 rotatably engages with the hole 29. Thus, the pin 24 extends along the axis of the lower housing 2, and is inserted into the hole 29, which has a diameter smaller than that of the bore 28. The cutter disk 8 is detachable from the pin 24. A washer 30 is inserted between the spindle 27 and the projection 25, to reduce friction therebetween. The tubular guide 21 surrounds the spindle 27 and the projection 25.

The cutter disk 8 is driven by the handle 10 to rotate about the axis of the lower housing 2. For this purpose, a first drive shaft 31 is rotatably supported by a box 32 formed in the upper housing 6. The drive shaft 31 has a lower engaging portion 33 which is non-rotatably and detachably fitted into the bore 28 of the cutter disk 8. That is, the lower engaging portion 33 has a polygonal cross-section (e.g., a square cross-section), and the bore 28 has a corresponding cross-section (see Fig. 5). Therefore, when the drive shaft 31 is rotated by the handle 10, at least one flat surface of the lower engaging portion 33 engages with a flat surface of the bore 28, so that

the shaft 31 rotates the cutter disk 8. Note, the lower engaging portion 33 has a tapered end portion 34 which converges downward so that the lower engaging portion 33 is easily inserted into the bore 28.

The handle 10 is rotatably attached to a side wall of the upper housing 6. A second drive shaft 35 connected to the handle 10 is provided with a second bevel gear 36 which is housed in the box 32 and engages with a first bevel gear 37 fixed onto the first drive shaft 31. Thus, a drive means is constructed from the first and second drive shafts 31, 35, the first and second bevel gears 37, 36, and the handle 10.

A pair of slots 40 are formed in the cutter disk 8, these slots extend in a substantially radial direction, as shown in Fig. 5. Each cutter blade 9 is arranged in the slots 40, respectively, and is fixed to a lower face of the disk 8 by a retainer plate 41 and a screw 42, as shown in Fig. 6. A cutting edge 49 of the cutter blade 9 projects from the upper surface of the cutter disk 8 in such a manner that the edge 49 will cut or slice a vegetable. The retainer plate 41 is supported by a rim 43 formed on the lower face of the disk 8. The cutter disk 8 has annular ribs 44, 45 which protrude from the lower face thereof. These ribs 44, 45 are concentric with and provide rigidity to the disk 8.

The upper housing 6 has a downward extending tubular wall 46 terminating in the vicinity of an upper face of the disk 8. The tubular wall 46 defines the inlet 11, which the upper face of the disk 8 faces. The inlet 11 is formed at a half part of the upper housing 6, but is not formed at the box. Thus, the inlet 11 is opened along the rotational direction of the disk 8.

A pushdown member 47 may be provided for pressing a vegetable inserted in the inlet 11 onto the upper face of the cutter disk 8. The pushdown member 47 is formed into a shape that conforms to the shape of the inlet 11, and has a head portion 48 for manual handling, as shown in Figs. 7 and 8.

The fixing apparatus 3 comprises the casing 26, the sucker member 4, and the manual lever 5, as previously mentioned, and is attached to a bottom face of the lower housing 2 by inserting claws 60 formed on a bottom surface of the lower housing 2 into holes (not shown) opened in the casing 26.

The sucker member 4 is made of an elastic material such as a rubber, and is formed into an inverted disk-shape. The sucker member 4 has a concave central portion 50 and a ring-shaped peripheral flat portion 51, a lower surface of which will make a sealed contact with a base plate. An upper surface of the flat portion 51 is supported by the casing 26 so that the lower surface of the flat portion 51 makes a sealed contact with the base plate. The sucker member 4 is formed with an upward extending first annular rib 52 in contact with the casing 26, and an upward extending second annular rib 53 radially and outwardly spaced from the first annular rib 52.

The casing 26 has a downward extending enclosure 54 at a peripheral portion, and a downward extending annular wall 55 inside of the enclosure 54. A lower end portion of the annular wall 55 is in contact with the upper face of the flat portion 51 of the sucker member 4, and an outer surface of the annular wall 55 is engaged with the inside of the first annular rib 52.

The manual lever 5 penetrates the annular wall 55, and a knob 56 of the lever 5 projects from the enclosure, whereby the lever 5 is rotatably supported by the casing 26. The manual lever 5 has a crank portion 57 connected to a joint member 58 fixed to the central portion of the sucker member 4. As shown in Figs. 9 and 10, the joint member 58 has a disk plate 61 fixed to the central portion of the sucker member 4 and a projection 62 extending upward on the disk plate 61, and a hole 63 is formed in the projection 62. The crank portion 57 of the lever 5 is inserted in the hole 63 of the joint member 58. The lever 5 actuates the central portion up and down as follows.

Fig. 9 shows a state in which the central portion of the sucker member 4 is lowered, that is, the fixing apparatus 3 is not operative. In this state, the crank portion 57 is located in a lower position so that the joint member 58, i.e., the central portion of the sucker member 4 is lowered. Consequently, a space 64, defined by the sucker member 4 and the base plate, has a relatively small volume. To the contrary, if the lever 5 is rotated about 180°, the crank portion 57 is moved upward so that the central portion of the sucker member 4 is raised, as shown in Fig. 10. Accordingly, the volume of the space 64 is enlarged so that a vacuum is formed in the space 64, and the flat portion 51 of the sucker member 4 makes a sealed contact with the base plate, whereby the fixing apparatus 3 sticks to the base plate. In this operation, since the first annular rib 52 engages with the outer surface of the wall 55, the flat portion 51 does not move inwards, and, since the flat portion 51 has a relatively wide breadth and is formed with the second annular rib 53, the rigidity of the flat portion 51 is increased and the flat portion 51 is placed in firm contact with the base plate, and will not separate from the base plate. The fixing apparatus 3 is released from the base plate by rotating the lever 5 to a position shown in Fig. 9.

As mentioned above, the cutting device comprises the upper housing 6, the cutter disk 8, the lower housing 2, and the fixing apparatus 3, and these components can be disassembled as shown in Fig. 4. The upper housing 6 is removed from the lower housing 2 and the cutter disk 8 by releasing the connecting apparatuses 7 (see Fig. 1, described in detail hereinafter) and drawing the engaging portion 33 from the bore 28 of the cutter disk 8. The cutter disk 8 is removed by lifting it off of the pin 24. The lower housing 2 is detached from the fixing apparatus 3 by drawing the claws 60 from the holes formed in the casing 26. In this disassembling operation, the fixing apparatus 3 may remain in sealed contact with the base plate.

Since the cutter disk 8 can be detached from the

lower housing 2, and the lower housing 2 can be removed from the fixing apparatus 3, any cut pieces of vegetable stored in the lower housing 2 are easily removed, and it is easy to wash the lower housing 2 after use.

The cutting device can be quickly re-assembled by mounting the lower housing 2 on the fixing apparatus 3, arranging the cutter disk 8 in the lower housing 2, and engaging the upper housing with the lower housing 2.

The cutter disk 8 is easily changed for another kind of cutter disk according to the purpose for which the device will be used. The spindle 27 is rotatably supported by the projection 25 and the pin 24, and the bore 28 is engaged with the lower engaging portion 33 of the drive shaft 31. That is, the cutter disk 8 is supported at two points, ensuring a stable rotation of the cutter disk 8 when cutting a vegetable.

Note, the lower housing 2, the upper housing 6, the disk 8, the casing 26, the pin 24, the bevel gears 36, 37, the lower engaging portion 33 of the shaft, the handle 10, and the pushdown member 47 are all made of plastic.

Figure 11 to 16 show the construction and operation of the connecting apparatus 7. Referring to Fig. 11, after mounting the lower housing 2 on the fixing apparatus 3, and arranging the cutter disk (not shown) in the lower housing 2, the lower peripheral portion 70 of the upper housing 6 is fitted into the upper peripheral portion 71 of the lower housing 2. First the projection 72 formed on the lower peripheral portion 70 engage with L-shaped slots 73 formed on the upper peripheral portion 71, by moving the upper housing 6 downward along the axis thereof. The L-shaped slot 73 has a substantially vertical portion 74 and a substantially horizontal portion 75, and the projection 72 enters the vertical portion first. The upper housing 6 is then slightly rotated about the axis thereof, in relation to the lower housing 2, so that the connecting apparatuses 7 lock both the housings 2 and 6, as described later.

A pair of connecting apparatuses 7 are mounted on the upper housing 6 at opposite sides (see Fig. 2), respectively, and prevent the projections 72 from being dislodged from the L-shaped slots 73. The connecting apparatus 7 has a pawl 80 engageable with the vertical portion 74 of the L-shaped slot 73. The pawl 80 is located in the upper housing 6, and projects therefrom through an opening 81 formed in the lower peripheral portion 70, so that the pawl 80 engages with the vertical portion 74 of the L-shaped slot 73, as shown in Figs. 12 and 13.

The connecting apparatus 7 comprises an inner member 82 arranged on an inner wall of the upper housing 6, an outer member, i.e., a manual lever 83 arranged on an outer wall of the upper housing 6, and a plate-shaped spring 84 inserted between the upper housing 6 and the manual lever 83, as shown in Figs. 14 and 15. While the upper housing 6 is formed with a first hole 85 and a second hole 86 vertically aligned with and spaced downward from the first hole 85, the manual lever 83 has a first connecting rod member 87 and a second connect-

ing rod member 88 extending through the first hole 85 and the second hole 86, respectively. The first connecting rod member 87 engages with an opening 89 formed in the inner member 82, and the second connecting rod member 88 is fixed to a surface of the inner member 82 by a screw 90, whereby the manual lever 83 and the inner member 82 are interconnected to each other. The inner member 82 and manual lever 83 are pivotally supported on the upper housing 6 with respect to the first connecting rod member 87, and are biased outwardly by the plate spring 84.

The pawl 80 is formed on the inner member 82 as shown in Fig. 16, and is located beneath the second connecting rod member 88. The pawl 80 has an inclined surface 91 directed downward, so that the pawl 80 can slide on an inner surface of the lower housing 2 when the upper housing 6 is fitted in the lower housing 2.

The plate spring 84 is bent into an arc-like shape in a free state, as shown in Fig. 16. The plate spring 84 has, at opposed ends thereof, a first cutaway portion 92 and a second cutaway portion 93, which are engageable with the first connecting rod member 87 and the second connecting rod member 88, respectively. The spring 84 is mounted between the manual lever 83 and the upper housing 6 so that a convex surface of the spring 84 is in contact with the manual lever 83.

To assemble the connecting apparatus 7, first the plate spring 84 is attached to the manual lever 83, and then the lever 83 with the spring 84 attached is mounted on the upper housing 6; the first and second rod members 87, 88 being inserted in the first and second holes 85, 86, respectively. Next, the opening 89 is engaged with the rod member 87, and an inner periphery of the opening 89 is fitted in a notch 94 of the rod member 87, then the inner member 82 is fixed to the second rod member 88 by the screw 90.

In a non-operative state, the connecting apparatus 7 is biased outward so that a lower end of the manual lever 83 is situated away from the lower peripheral portion of the upper housing 6, and the pawl 80 is projected through the opening 81. The manual lever 83 is longer than the inner member 82, so the pawl 80 is hidden by the lower end of the lever 83 (see Fig. 12).

When the upper housing 6 is engaged with the lower housing 2, first, the projection 72 is fitted to the vertical portion 74 of the L-shaped slot 73, then the upper housing 6 is rotated until the pawl 80 engages with the horizontal portion 74 of the L-shaped slot 73 and the projection 72 enters the horizontal portion 75 of the slot 73. In this state, the pawl 72 prevents the upper housing 6 from rotating relative to the lower housing 2, so that the projection 72 remains engaged with the L-shaped slot 73 to prevent the upper housing 6 from being removed from the lower housing 2.

On the other hand, when the upper housing 6 is disengaged from the lower housing 2, the manual lever 83 is manually pushed toward the upper housing 6, against the spring 84, as shown in Fig. 15. As a result, the pawl 80 is released from the L-

shaped slot 73, as shown in Fig. 15, and the upper housing 6 is rotated so that the projection 72 engages with the vertical portion 74 of the L-shaped slot 73. The upper housing 6 is then moved upward while the projection 72 is guided by the vertical portion 74, and the housing 6 is detached from the lower housing 2. Note, a depression 95 may be formed at a lower portion of the manual lever 83 to facilitate manual pushing.

Claims

1. A cutting device attachable to a firm surface for cutting vegetables or like comestibles comprising a cup shaped lower housing (2) having an upper peripheral portion (20), an upper housing (6) having a lower peripheral portion (22) which is engageable with the upper peripheral portion (20) of the lower housing (2), an inlet (11) formed in the upper housing (6), interconnecting means (7) for detachably interconnecting the upper and lower peripheral portions (20) and (22) and a cutter disk (8) having at least one cutter blade (9) mounted for rotation within the lower housing (2) and about the axis of the upper peripheral portion (20), the cutter disk (8) having an upper face which faces the inlet (11) and a lower face which delimits a storage chamber in the interior of the lower housing (2), a drive means (31, 35, 36, 37) having a manually operated drive shaft (31) which is rotatably supported by the upper housing (6), characterised in that:

the upper housing (6) is an inverted cup-shape, in that the cutter disk (8) is detachably and rotatably supported by the lower housing (2) and has a spindle (27) formed with a bore (28) which is coaxial with the axis of the lower housing (2) and with the drive shaft (31), in that the bore (28) of the spindle (27) is non-rotatably and detachably connectable to a lower engaging portion (33) of the drive shaft (31) which extends into the lower housing (2) when the housings are interconnected so that the cutter disk (8) is centred on its axis of rotation at two axially displaced locations in the region of the lower engaging portion (33) of the drive shaft (31) and of a support pin (24) located within the lower housing (2), and in that a fixing apparatus (4) is attached to a lower portion of the lower housing (2) for fixing the lower housing (2) to the said firm surface.

2. A device according to Claim 1, characterised in that the lower engaging portion (33) of the drive shaft (31) has at least one flat surface, and in that the bore (28) has at least one flat surface which is engageable with the flat surface of the lower engaging portion of the drive shaft (31).

3. A cutting device according to Claim 2, characterised in that the lower engaging portion (33) of the drive shaft (31) has a polygonal cross-section, and the bore (28) has a polygonal cross-section corresponding thereto.

4. A device according to Claim 1, characterised in that the lower engaging portion (33) has a tapered end portion (34) which converges downwardly.

5. A device according to Claim 1, characterised in

that the support pin (24) is coaxial with the axis of said lower housing and with the cutter disk (8) and is rotatable in a bore (29) in the spindle (27), and by fixing apparatus having a projection (25) which extends toward the bore (29), with the pin (24) mounted on the projection (25).

6. A device according to Claim 5, characterised in that the lower housing (2) has a tubular guide (21) which surrounds the downwardly extending spindle (27) of the cutter disk (8).

7. A device according to Claim 1, wherein said cutter disk (8) comprises at least one substantially radially extending slot (40), a cutting blade (9) disposed in the slot (40) in such a manner that a cutting edge of the blade (9) projects from an upper surface of said disk (8).

8. A device according to Claim 1, wherein said drive means (31, 35, 36, 37) comprises a first bevel gear (37) fixed onto said drive shaft (31), a second bevel gear (36) rotatably arranged in said upper housing (6) and engaging with said first bevel gear (37), and a manual handle (10) drivingly connected to said second bevel gear (36).

9. A device according to Claim 1, wherein said upper housing (6) has a downward extending tubular wall (46) terminating in the vicinity of the upper face of said disk and defining said inlet therein.

10. A device according to Claim 1, further comprising a pushdown member (47) which is manually pushed into said inlet (11) for pressing the vegetable onto the upper face of said cutter disk (8).

11. A device according to Claim 1, wherein said fixing apparatus comprises a casing (26), an inverted dish-shaped sucker member (4) made of an elastic material and having a concave central portion (50) and a ring-shaped peripheral flat portion (51), and a manual lever (5) connected to said central portion (50) for actuating said central portion up and down, said peripheral portion (51) having a lower surface which is able to maintain a sealed contact with the said firm base, and having an upper face supported by said casing (26).

12. A device according to Claim 11, wherein said casing (26) has a downward extending annular wall (55) having a lower end portion which is in contact with said upper face of said peripheral portion, said sucker member (4) having a first annular rib (52) which engages with an outer surface of said annular wall (52), and having an upward extending second annular rib (53) which is radially outward spaced from said first annular rib (52).

13. A device according to Claim 11, wherein said lever (5) is rotatably supported by said casing, and has a crank portion (57) connected to said central portion (50) of said sucker member (4).

14. A device according to Claim 1, wherein said connecting means (7) comprises an L-shaped slot (73) formed on said upper peripheral portion of said lower housing (2), a projection (72) engageable with said L-shaped slot (73) and formed on said lower peripheral portion of said

upper housing, and a connecting apparatus (80) mounted on said upper housing for releasably preventing said projection from being dislodged from said L-shaped slot (73).

15. A device according to Claim 14, wherein said L-shaped slot (73) has a substantially vertical portion (74) and a substantially horizontal portion (75) which said projection (72) is able to enter, said connecting apparatus having a pawl (80) which is engageable with said vertical portion (74) for preventing said projection (72) from being dislodged from said horizontal portion (75).

16. A device according to Claim 14, wherein said connecting apparatus comprises an inner member (82) arranged on an inner wall of said upper housing (6), and an outer member (83) arranged on an outer wall of said upper housing (6), said inner member (82) and said outer member (83) being interconnected to each other and pivotally supported on said upper housing (6), said pawl (80) being formed on said inner member (82).

17. A device according to Claim 16, wherein said upper housing (6) has a first hole (85) and a second hole (86) vertically aligned with and spaced downward from said first hole (85), said connecting apparatus having a first connecting rod member (87) and a second connecting rod member (88) which extend through said first hole (85) and said second hole (86), respectively, said first connecting rod member (87) and said second connecting rod member (88) interconnect said inner member (82) and said outer member (83), said pawl (80) being formed beneath said second connecting rod member (87).

18. A device according to Claim 17, wherein said pawl (80) has an inclined surface (91) which is directed downward.

19. A device according to Claim 14, wherein said connecting apparatus has a plate-shaped spring (84) inserted between said upper housing (6) and said lower housing (2) for biasing said inner member (82) and said outer member (83) outwardly to engage said pawl (80) with said vertical portion (74) of said L-shaped slot (73), said spring (84) having at opposed ends thereof a first cutaway portion (92) and a second cutaway portion (93) which are engageable with said first connecting rod member (87) and said second connecting rod member (88), respectively.

Patentansprüche

1. Vorrichtung zum Schneiden von Gemüse und ähnlichen Lebensmitteln, welche an einer festen Fläche befestigbar ist und umfaßt: ein schalenförmiges unteres Gehäuse (2) mit einem oberen Umfangsabschnitt (20); ein oberes Gehäuse (6) mit einem unteren Umfangsabschnitt (22), der in Eingriff mit dem oberen Umfangsabschnitt (20) des unteren Gehäuses (2) gebracht werden kann, wobei im oberen Gehäuse (6) ein Einlaß (11) ausgeformt ist; eine Verbindungseinrichtung (7), mit welcher der obere Umfangsabschnitt (20) und der untere Umfangsabschnitt (22) lösbar mitein-

ander verbunden werden können; eine Schneidscheibe (8), welche mindestens eine Schneidklinge (9) aufweist und innerhalb des unteren Gehäuses (2) um die Achse des oberen Umfangsabschnittes (20) verdrehbar montiert ist und eine obere Fläche aufweist, welche dem Einlaß (11) gegenübersteht, sowie eine untere Fläche, welche eine Speicherkammer im Inneren des unteren Gehäuses (2) begrenzt; eine Antriebseinrichtung (31, 35, 36, 37) mit einer von Hand betätigten Antriebswelle (31), welche vom oberen Gehäuse (6) verdrehbar gehalten ist, dadurch gekennzeichnet, daß

das obere Gehäuse (6) die Form einer umgekehrten Schale aufweist und daß die Schneidscheibe (8) abnehmbar und verdrehbar vom unteren Gehäuse (2) gehalten ist und eine Spindel (27) aufweist, in der eine Bohrung (28) ausgebildet ist, die koaxial zur Achse des unteren Gehäuses (2) und zur Antriebswelle (31) verläuft, und daß die Bohrung (28) der Spindel (27) nicht verdrehbar und abnehmbar mit einem unteren Eingriffsabschnitt (33) der Antriebswelle (31) verbunden ist, die sich in das untere Gehäuse (2) hinein erstreckt, wenn die Gehäuse miteinander verbunden sind, derart, daß die Schneidscheibe (8) auf ihrer Drehachse an zwei in axialem Abstand voneinander befindlichen Stellen in der Gegend des unteren Eingriffsabschnittes (33) der Antriebswelle (31) und eines Tragestiftes (24) zentriert ist, der sich innerhalb des unteren Gehäuses (2) befindet, und daß eine Befestigungseinrichtung (4) am unteren Abschnitt des unteren Gehäuses (2) befestigt ist, welche das untere Gehäuse (2) an der festen Fläche fixiert.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der untere Eingriffsabschnitt (33) der Antriebswelle (31) mindestens eine flache Fläche aufweist und daß die Bohrung (28) mindestens eine flache Fläche aufweist, welche in Eingriff mit der flachen Fläche des unteren Eingriffsabschnittes der Antriebswelle (31) gebracht werden kann.

3. Vorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der untere Eingriffsabschnitt (33) der Antriebswelle (31) einen polygonalen Querschnitt aufweist und daß die Bohrung (28) einen hiermit korrespondierenden polygonalen Querschnitt aufweist.

4. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der untere Eingriffsabschnitt (33) einen sich verjüngenden Endabschnitt (34) aufweist, der nach unten konvergiert.

5. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der Tragestift (24) koaxial mit der Achse des unteren Gehäuses und mit der Schneidscheibe (8) und in einer Bohrung (29) in der Spindel (27) verdrehbar ist und daß die Befestigungseinrichtung einen Vorsprung (25) aufweist, welcher sich auf die Bohrung (29) zu erstreckt, wobei der Tragestift (24) auf dem Vorsprung (25) montiert ist.

6. Vorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß das untere Gehäuse (2) eine rohrförmige Führung (21) aufweist, welche die

sich nach unten erstreckende Spindel (27) der Schneidscheibe (8) umgibt.

7. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Schneidscheibe (8) mindestens einen im wesentlichen radial verlaufenden Schlitz (40) umfaßt, wobei eine Schneidklinge (9) in dem Schlitz (40) derart angeordnet ist, daß eine Schneidkante der Schneidklinge (9) aus einer oberen Fläche der Schneidscheibe (8) herausragt.

8. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Antriebseinrichtung (31, 35, 36, 37) ein erstes Kegelrad (37), welches auf der Antriebswelle (31) befestigt ist, ein zweites Kegelrad (36), welches in dem oberen Gehäuse (6) verdrehbar angeordnet ist und in Eingriff mit dem ersten Kegelrad (37) steht, sowie einen Handgriff (10) umfaßt, der in Antriebsverbindung mit dem zweiten Kegelrad (36) steht.

9. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das obere Gehäuse (6) eine sich nach unten erstreckende rohrförmige Wand (46) aufweist, die in der Nähe der oberen Fläche der Schneidscheibe endet und den Einlaß in dem oberen Gehäuse bildet.

10. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß außerdem ein Niederdrückteil (47) vorgesehen ist, welches zum Einpressen des Gemüses auf die obere Fläche der Schneidscheibe (8) von Hand in den Einlaß (11) gedrückt wird.

11. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Befestigungseinrichtung umfaßt: ein Gehäuse (26); ein umgekehrt schalenförmiges Saugteil (4), welches aus einem elastischen Material hergestellt ist und einen konkaven Mittelabschnitt (50) und einen ringförmigen, flachen Umfangsabschnitt (51) aufweist; einen Handhebel (5), der mit dem Mittelabschnitt (50) verbunden ist und diesen nach oben und unten betätigt, wobei der Umfangsabschnitt (51) eine untere Fläche aufweist, welche in dichter Berührung mit der festen Fläche zu verbleiben vermag und eine obere Fläche aufweist, die von dem Gehäuse (26) gehalten wird.

12. Vorrichtung nach Anspruch 11, dadurch gekennzeichnet, daß das Gehäuse (26) eine nach unten verlaufende Ringwand (55) aufweist, die einen unteren Endabschnitt besitzt, die in Berührung mit der oberen Fläche des Umfangsabschnittes ist, wobei das Saugteil (4) eine erste ringförmige Rippe (52) aufweist, die sich in Anlage an einer äußeren Fläche der Ringwand (52) befindet, und eine nach oben verlaufende zweite ringförmige Rippe (53) aufweist, die radial außerhalb der ersten ringförmigen Rippe (52) liegt.

13. Vorrichtung nach Anspruch 11, dadurch gekennzeichnet, daß der Hebel (5) von dem Gehäuse verdrehbar gehalten ist und einen Kurbelabschnitt (57) aufweist, der mit dem Mittelabschnitt (50) des Saugteiles (4) verbunden ist.

14. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Verbindungseinrichtung (7) umfaßt: einen L-förmigen Schlitz (73), der am oberen Umfangsabschnitt des unteren Gehäuses

(2) ausgebildet ist; einen Vorsprung (72), der in Eingriff mit dem L-förmigen Schlitz (73) gebracht werden kann und am unteren Umfangsabschnitt des oberen Gehäuses ausgebildet ist; einen Verbindungsapparat (80), der am oberen Gehäuse montiert ist und in lösbarer Weise verhindert, daß der Vorsprung aus dem L-förmigen Schlitz (73) freikommt.

15. Vorrichtung nach Anspruch 14, dadurch gekennzeichnet, daß der L-förmige Schlitz (73) einen im wesentlichen senkrechten Abschnitt (74) und einen im wesentlichen horizontalen Abschnitt (75) aufweist, in welchen der Vorsprung (72) eintreten kann, wobei der Verbindungsapparat eine Klinke (80) aufweist, die in Eingriff mit dem vertikalen Abschnitt (74) gebracht werden kann, wodurch verhindert wird, daß der Vorsprung (72) aus dem horizontalen Abschnitt (75) freikommt.

16. Vorrichtung nach Anspruch 14, dadurch gekennzeichnet, daß der Verbindungsapparat umfaßt: ein inneres Teil (82), welches an einer Innenwand des oberen Gehäuses (6) angeordnet ist; ein äußeres Teil (83), welches an einer Außenwand des oberen Gehäuses (6) angeordnet ist, wobei das innere Teil (82) und das äußere Teil (83) miteinander verbunden und gelenkig am oberen Gehäuse (6) gehalten sind und die Klinke (80) am inneren Teil (82) ausgebildet ist.

17. Vorrichtung nach Anspruch 16, dadurch gekennzeichnet, daß das obere Gehäuse (6) ein erstes Loch (85) und ein zweites Loch (86), welches senkrecht auf das erste Loch (85) ausgerichtet, gegenüber diesem jedoch nach unten versetzt ist, aufweist, und daß der Verbindungsapparat eine erste Verbindungsstange (87) und eine zweite Verbindungsstange (88) aufweist, welche sich durch das erste Loch (85) bzw. das zweite Loch (86) hindurch erstrecken, wobei die erste Verbindungsstange (87) und die zweite Verbindungsstange (88) das innere Teil (82) mit dem äußeren Teil (83) verbinden und die Klinke (80) unterhalb der zweiten Verbindungsstange (87) ausgebildet ist.

18. Vorrichtung nach Anspruch 17, dadurch gekennzeichnet, daß die Klinke (80) eine geneigte Fläche (91) aufweist, die nach unten gerichtet ist.

19. Vorrichtung nach Anspruch 14, dadurch gekennzeichnet, daß der Verbindungsapparat eine plattenförmige Feder (84) aufweist, die zwischen dem oberen Gehäuse (6) und dem unteren Gehäuse (2) eingesetzt ist und das innere Teil (82) sowie das äußere Teil (83) nach außen drückt, wodurch die Klinke (80) in Eingriff mit dem senkrechten Abschnitt (74) des L-förmigen Schlitzes (73) gebracht wird, wobei die Feder (84) an gegenüberliegenden Enden einen ersten Ausschnitt (92) und einen zweiten Ausschnitt (93) aufweist, die in Anlage an die erste Verbindungsstange (87) bzw. die zweite Verbindungsstange (88) gebracht werden können.

Revendications

1. Un dispositif de coupe susceptible d'être fixé à une surface rigide pour couper des légumes ou

des comestibles similaires, comportant un carter inférieur (2) en forme de godet muni d'une partie périphérique supérieure (20), un carter supérieur (6) avec une partie périphérique (22) qui est susceptible de venir en contact avec la partie périphérique supérieure (20) du carter inférieur (2), une entrée (11) formée dans le carter supérieur (6), des moyens de liaison (7) pour relier de façon amovible les parties périphériques supérieure et inférieure (20) et (22) et un disque de coupe (8) comportant au moins une lame de coupe (9) monté à rotation dans le carter inférieur (2) et autour de l'axe de la partie périphérique supérieure (20), le disque de coupe (8) présentant une face supérieure qui est disposée en face de l'entrée (11) et une face inférieure qui délimite une chambre de stockage à l'intérieur du carter inférieur (2), un moyen d'entraînement (31, 35, 36, 37) muni d'un arbre d'entraînement à actionnement manuel (31) et supporté à rotation par le carter supérieur (6), caractérisé en ce que le carter supérieur (6) présente la forme d'un godet inversé, en ce que le disque de coupe (8) est supporté à rotation de façon amovible par le carter inférieur (2) et présente une broche (27) formée avec un alésage (28) qui est coaxial à l'axe du carter inférieur (2) et à l'arbre d'entraînement (31), en ce que l'alésage (28) de la broche (27) est susceptible d'être relié de façon non rotative et séparable à une partie inférieure de contact (33) de l'arbre d'entraînement (31) qui s'étend dans le carter inférieur (2) lorsque les carters sont reliés, de telle façon que le disque de coupe (8) soit centré sur son axe de rotation en deux endroits axialement séparés dans la zone de la partie de contact inférieure (33) de l'arbre d'entraînement (31) et d'une tige de support (24) située à l'intérieur du carter inférieur (2) et en ce qu'un système de fixation (4) est fixé à une partie inférieure du carter inférieur (2) pour fixer ce carter inférieur (2) sur ladite surface rigide.

2. Un dispositif selon la revendication 1, caractérisé en ce que la partie inférieure de contact (33) de l'arbre d'entraînement (31) comporte au moins une surface plane et en ce que l'alésage (28) présente au moins une surface plane qui est susceptible de venir en contact avec la surface plane de la partie inférieure de contact de l'arbre d'entraînement (31).

3. Un dispositif de coupe selon la revendication 2, caractérisé en ce que la partie inférieure de contact (33) de l'arbre d'entraînement (31) présente une section transversale polygonale et en ce que l'alésage (28) présente une section transversale polygonale correspondante.

4. Un dispositif selon la revendication 1, caractérisé en ce que la partie inférieure de contact (33) présente une partie d'extrémité (34) qui se resserre et qui converge vers le bas.

5. Un dispositif selon la revendication 1, caractérisé en ce que la tige de support (24) est coaxiale à l'axe dudit carter inférieur et au disque de coupe et est susceptible de tourner dans un alésage (29) de la broche (27) et par un système de fixation présentant un prolongement (25) qui

s'étend en direction de l'alésage (29), la tige (24) étant montée sur le prolongement (25).

6. Un dispositif selon la revendication 5, caractérisé en ce que le carter inférieur (2) comporte un guide tubulaire (21) qui entoure la broche (27) du disque de coupe (8) et s'étend vers le bas.

7. Un dispositif selon la revendication 1, dans lequel ledit disque de coupe (8) comporte au moins une fente (40) s'étendant de façon sensiblement radiale, une lame de coupe (9) disposée dans la fente (40) de telle manière qu'un bord de coupe de la lame (9) fasse saillie à partir d'une surface supérieure dudit disque (8).

8. Un dispositif selon la revendication 1, dans lequel ledit moyen d'entraînement (31, 35, 36, 37) comporte une première roue d'engrenage conique (37) fixée sur ledit arbre d'entraînement (31), une seconde roue d'engrenage conique (36) agencée à rotation dans ledit carter supérieur (6) et venant en contact avec ladite première roue d'engrenage conique (37) et une poignée manuelle (10) reliée mécaniquement à ladite seconde roue d'engrenage conique (36).

9. Un dispositif selon la revendication 1, dans lequel ledit carter supérieur (6) comporte une paroi tubulaire s'étendant vers le bas (46) et se terminant à proximité de la face supérieure dudit disque et y définissant ladite entrée.

10. Un dispositif selon la revendication 1, comportant en outre un organe de poussée vers le bas (47) qui est poussé manuellement dans ladite entrée (11) pour presser le légume sur la face de support dudit disque de coupe (8).

11. Un dispositif selon la revendication 1, dans lequel ledit système de fixation comporte un carter (26), un organe d'aspiration en forme de plat inversé (14) réalisé en un matériau élastique et présentant une partie centrale concave (50) et une partie plane périphérique en forme d'anneau (51) et un levier manuel (5) relié à ladite partie centrale (50) pour actionner ladite partie centrale vers le haut et vers le bas, ladite partie périphérique (51) comportant une surface inférieure qui est susceptible d'assurer un contact étanche avec ladite base rigide et comportant une face supérieure supportée par ledit carter (26).

12. Un dispositif selon la revendication 11, dans lequel ledit carter (26) comporte une paroi annulaire (44) s'étendant vers le bas et munie d'une partie d'extrémité inférieure qui est en contact avec ladite face supérieure de ladite partie périphérique, ledit organe d'aspiration (4) comportant une première nervure annulaire (52) qui vient en contact avec une surface extérieure de ladite paroi annulaire (55) et comportant une seconde nervure annulaire s'étendant vers le haut (53) qui est disposée radialement vers l'extérieur à distance de ladite première nervure annulaire (52).

13. Un dispositif selon la revendication 11, dans lequel ledit levier (5) est supporté à rotation par ledit carter et comporte une partie de manivelle (57) reliée à ladite partie centrale (50) dudit organe d'aspiration (4).

14. Un dispositif selon la revendication 11, dans lequel ledit moyen de liaison (7) comporte une rainure en forme de L (73) formée sur ladite partie périphérique supérieure dudit carter inférieur (2), un prolongement (72) susceptible de venir en contact avec ladite rainure en forme de L (73) et formé sur ladite partie périphérique inférieure dudit carter supérieur, et un système de liaison (80) monté sur ledit carter supérieur pour empêcher de façon amovible ledit prolongement d'être délogé de ladite rainure en forme de L (73).

15. Un dispositif selon la revendication 14, dans lequel ladite rainure en forme de L (73) comporte une partie sensiblement verticale (74) et une partie sensiblement horizontale (75) dans laquelle ledit prolongement (72) est susceptible d'entrer, ledit système de liaison comportant un arrêt (80) qui est susceptible de venir en contact avec ladite partie verticale (74) pour empêcher ledit prolongement (72) d'être délogé de ladite partie horizontale (75).

16. Un dispositif selon la revendication 14, dans lequel ledit système de liaison comporte un organe intérieur (82) disposé sur une paroi intérieure dudit carter supérieur (6) et un organe extérieur (83) disposé sur une paroi extérieure dudit carter supérieur (6), ledit organe intérieur (82) et ledit organe extérieur (83) étant reliés l'un à l'autre et supportés de façon pivotante sur ledit carter supérieur (6), ledit arrêt (80) étant formé sur ledit organe intérieur (82).

17. Un dispositif selon la revendication 16, dans lequel ledit carter supérieur (6) comporte un premier trou (85) et un second trou (86) verticalement alignés sur et placés à distance dudit premier trou (85), ledit système de liaison comportant un premier organe de tige de liaison (87) et un second organe de tige de liaison (88) qui s'étendent respectivement à travers lesdits premier trou (85) et second trou (86), ledit premier organe de tige de liaison (87) et ledit second organe de tige de liaison (88) reliant ledit organe intérieur (82) et ledit organe extérieur (83), ledit arrêt (80) étant formé à côté dudit second organe de tige de liaison (87).

18. Un dispositif selon la revendication 17, dans lequel ledit arrêt (80) comporte une surface inclinée (91) qui est dirigée vers le bas.

19. Un dispositif selon la revendication 14, dans lequel ledit système de liaison comporte un anneau en forme de plaque (84) inséré entre ledit carter supérieur (6) et ledit carter inférieur (2) pour repousser ledit organe intérieur (82) et ledit organe extérieur (83) vers l'extérieur pour amener en contact ledit arrêt (80) avec ladite partie verticale (74) de ladite rainure en forme de L (73), ledit ressort (84) comportant à ses extrémités opposées une première partie en découpe (92) et une seconde partie en découpe (93) qui sont susceptibles de venir en contact respectivement avec ledit premier organe de tige de liaison (87) et ledit second organe de tige de liaison (88).

Fig. 1

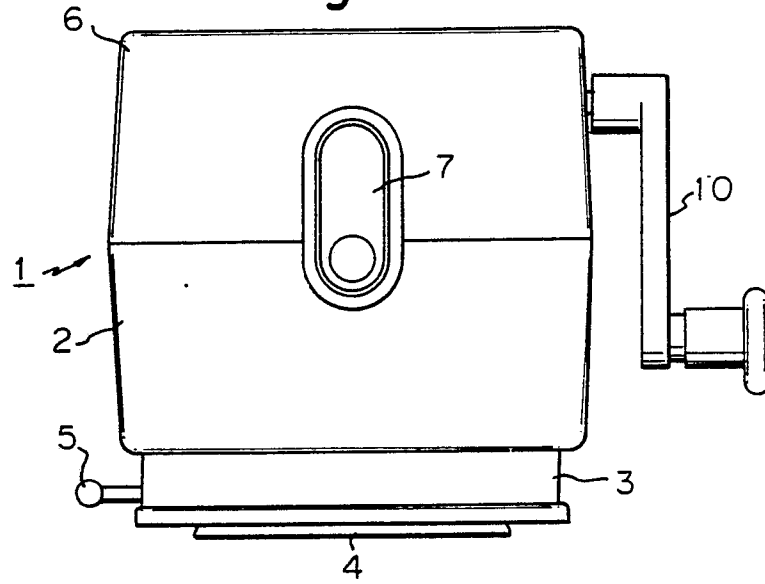


Fig. 2

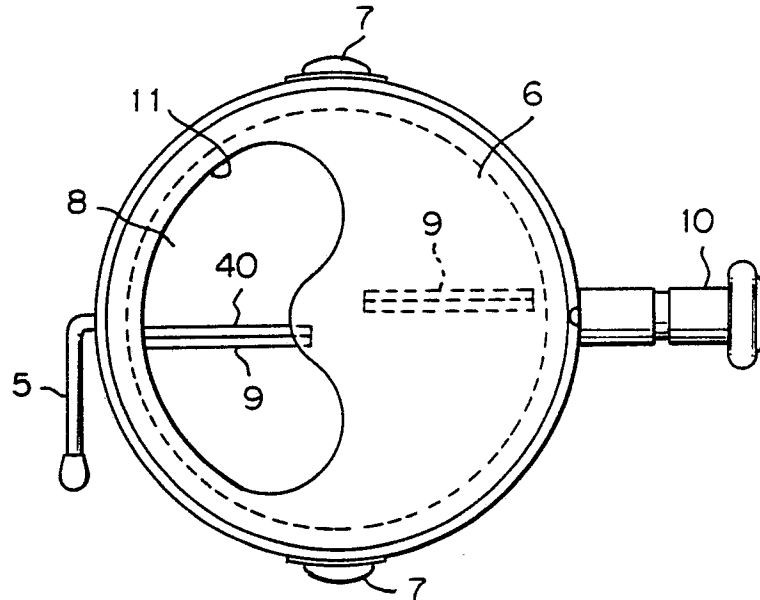


Fig. 3

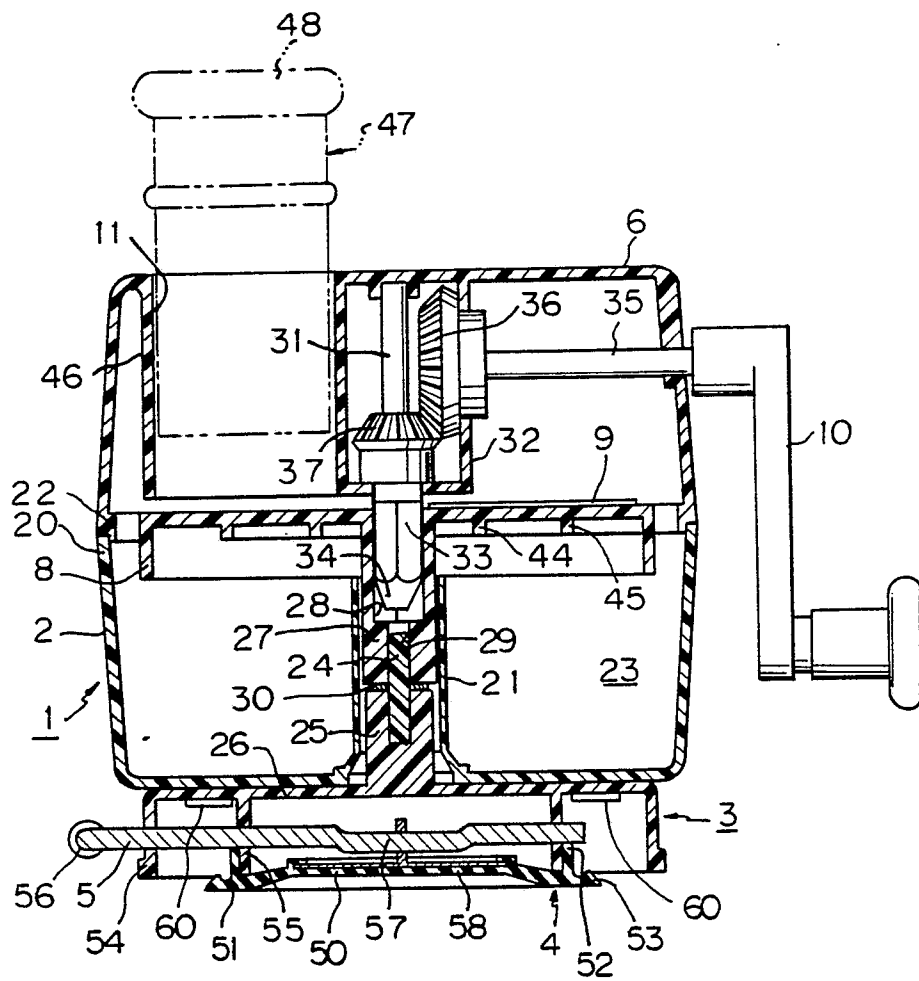


Fig. 4

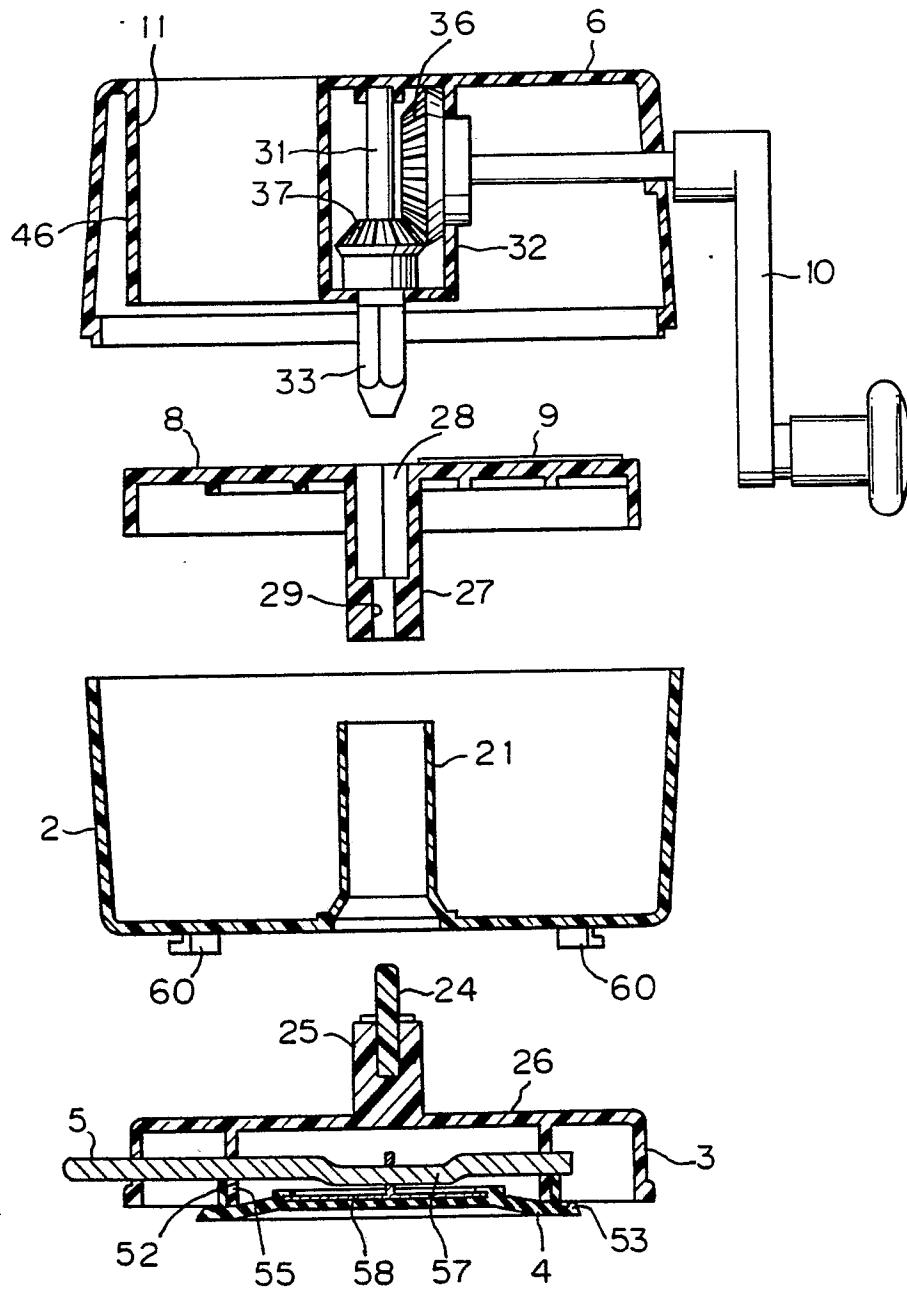


Fig. 5

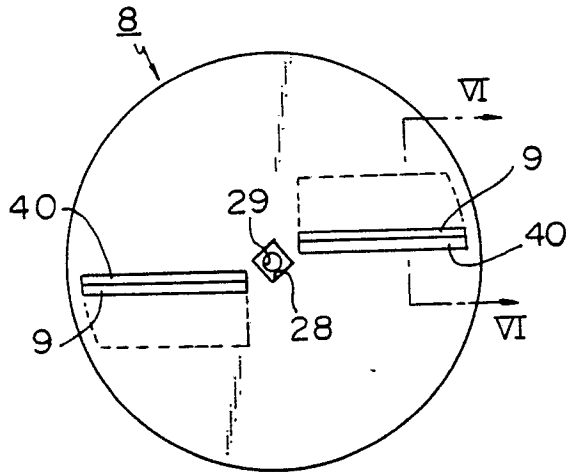


Fig. 6

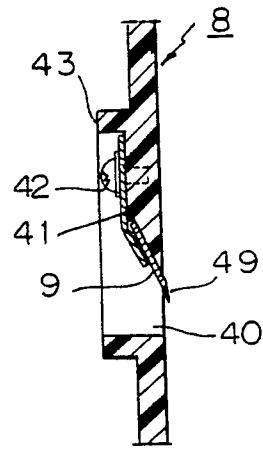


Fig. 7

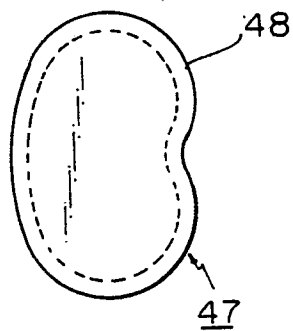


Fig. 8

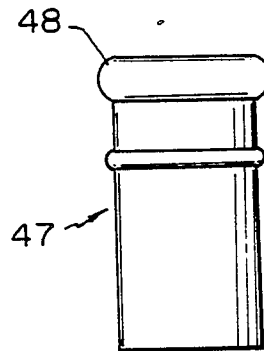


Fig. 9

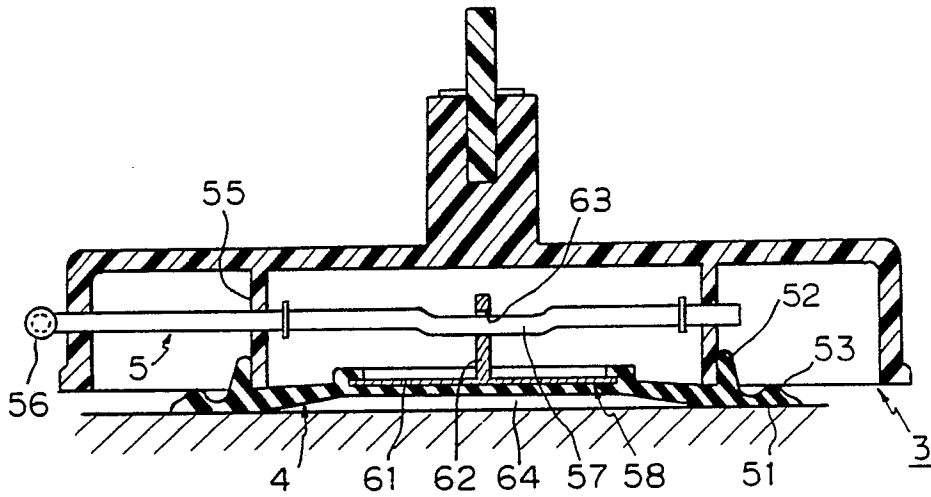


Fig. 10

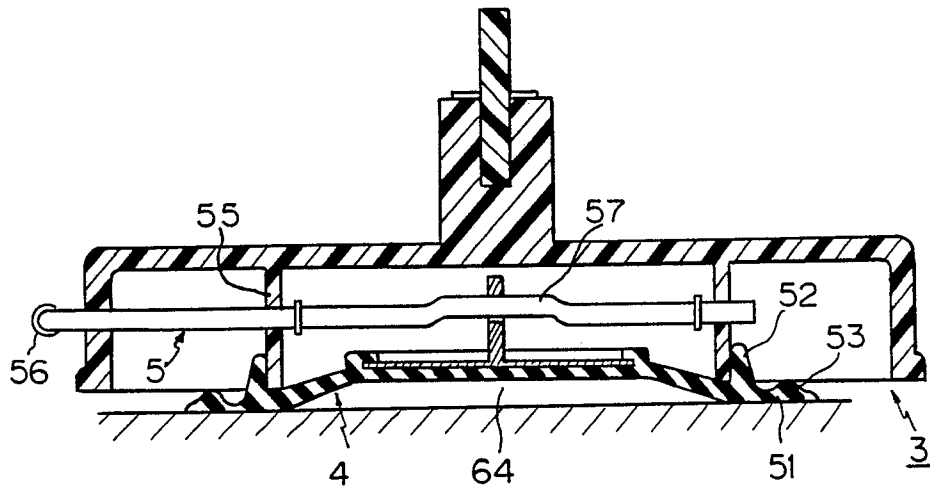


Fig. 11

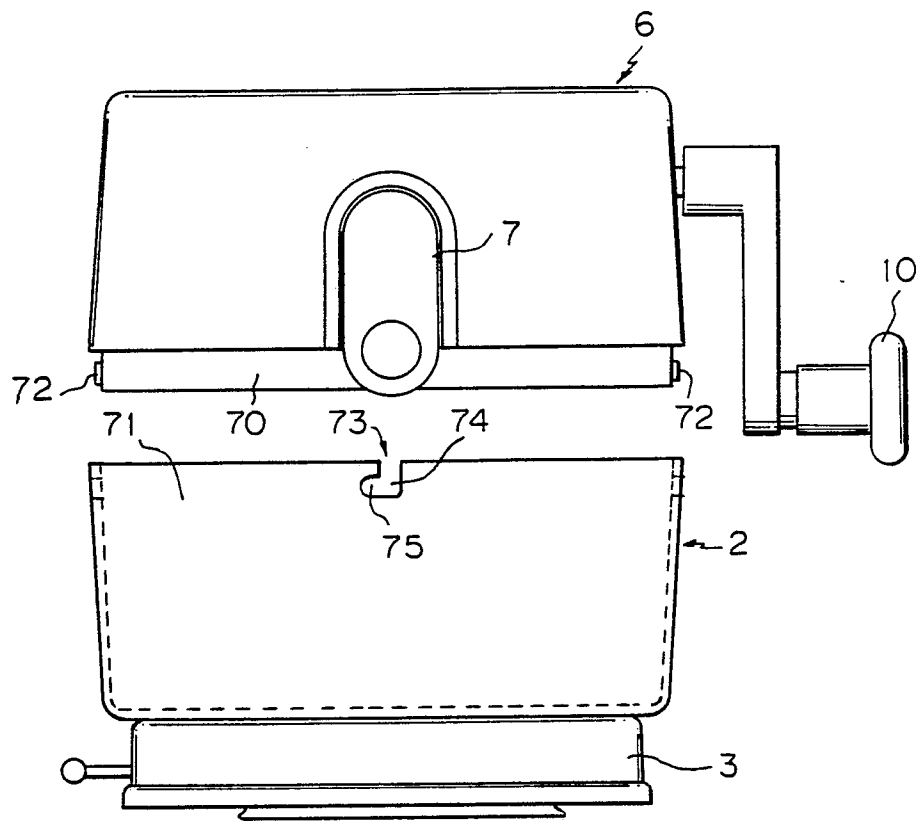


Fig. 12

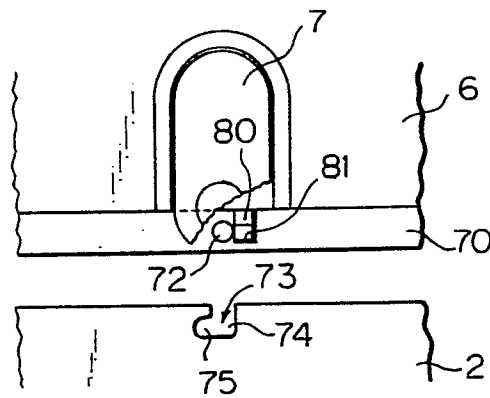


Fig. 13

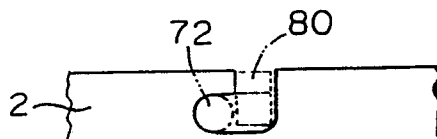


Fig. 14

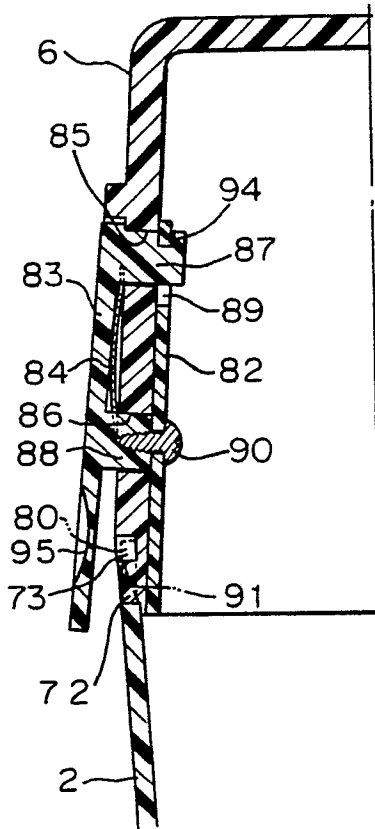


Fig. 15

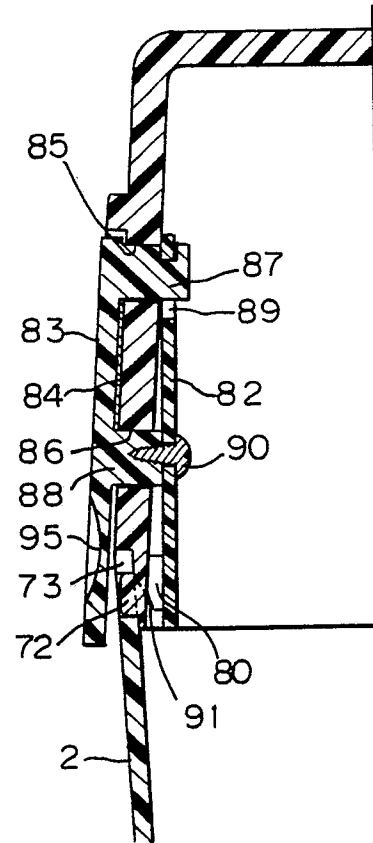


Fig. 16

