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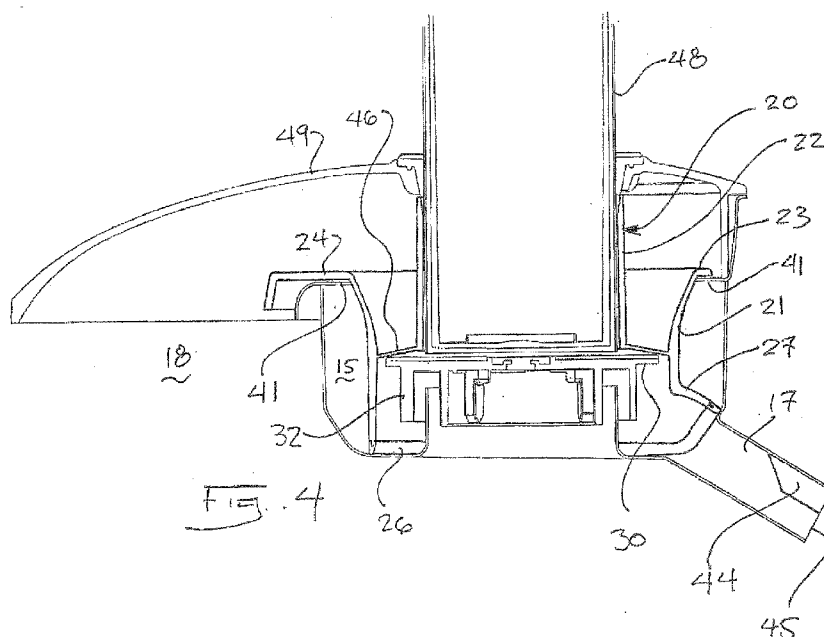
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(54) Title: JUICER WITH SOFT FRUIT ATTACHMENT



(57) Abstract: A removable chute and an optional soft fruit cutting disk are provided as accessories or attachments for a fruit and vegetable juicer. The chute fits within the juicer's juice collector and serves to divert the juice and pulp that are being thrown off of the cutting disk toward the spout of the juicer.

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Juicer with Soft Fruit Attachment

Field of the Invention

The invention pertains to juicer and juicer accessories and more
5 particularly to an accessory for juicing soft fruits.

Background of the Invention

Fruit and vegetable juicers are well known. One popular style of fruit
and vegetable juicer is shown in the applicant's published PCT Specification
10 No. PCT/AU2004/000828 (WIPO Publication No. WO 2005/002404). Fruit
and vegetable juicers of this type are particularly adept at juicing fruits such as
apples and pineapple and vegetables such as carrots and celery. Juicers of the
aforementioned type work by bringing fruits and vegetables into contact with
a rotating cutting (or grating) disk. The cutting disk has fine teeth that reduce
15 the fruit or vegetable to juice and pulp. The juice and pulp are separated by a
fine screen that is attached to and rotates with the cutting disk. The juice is
collected for consumption and the pulp is collected separately for reuse or
disposal.

Juicers of this general kind are not optimally suited for soft fruits such
20 as bananas, soft pears and mangos. In the case of most soft fruits, the pulp or
fruit solids tend to clog the fine screen and inhibit the extraction of juice.
Further, the pulp or fruit solids in many soft fruits are not undesirable and can
form an unobjectionable component to the product that is collected for
consumption.

25 Rather than propose a special purpose juicer for soft fruits, the present
invention seeks to provide parts that can be used in a conventional juicer. The
parts may be provided with a new juicer or sold as aftermarket accessories.
These parts, when fitted to a conventional juicer, greatly enhance its capability
by providing improved results in the handling of soft fruits.

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Objects and Summary of the Invention

It is an object of the invention to provide a fruit and vegetable juicer
that is adapted to the juicing of soft fruits.

It is another object of the invention to provide accessories that can be used to adapt a juicer to the juicing of soft fruits.

It is another object of the invention to provide a juicer having an interchangeable cutting disk, thus adapting it to both hard and soft fruits.

5 Accordingly, there is provided a soft fruit cutting disk and a removable soft fruit chute. The soft fruit cutting disk is characterised by the absence of the usual frusto-conical mesh filter. The chute fits within the juicer's juice collector and serves to divert the juice and pulp that are being thrown off of the cutting disk toward the spout of the juicer.

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Brief Description of the Drawing Figures

In order that the invention be better understood, reference is now made to the following drawing figures in which:

- Figure 1 is a cross sectional view of a known fruit and vegetable;
- 15 Figure 2 is a perspective view of a soft fruit chute;
- Figure 3 is a perspective view of a soft fruit cutting disk;
- Figure 4 is a cross sectional view of a soft fruit chute and cutting disk fitting to a juicer of the kind depicted in Figure 1; and
- Figure 5 is a top view of a soft fruit chute.

20

Best Mode and Other Embodiments

A juicer of the kind disclosed in the above referenced PCT publication is depicted in Figure 1. This juicer 10 comprises a housing 11 having a transparent lid 12. The lid carries a metal feed tube 13 that directs fruit and vegetables toward a rotating cutting disk and mesh filter assembly 14. The cutting disk and filter assembly 14 is driven by a motor (not shown) carried within the housing 11. The disk and filter assembly 14 sits within a removable metal juice collector 15. In normal operation, juice passes through the frusto-conical filter 16, is collected within the juicer collector 15 and exits the device's spout 17. Conventionally, pulp is collected about the interior of the filter 16, flung upward and outward, and collected by a removable pulp collector vessel 18.

30

In order to adapt a juicer of the type depicted in Figure 1 to the juicing of soft fruits, the cutting disk and filter assembly 14 is removed. The

conventional cutting disk and filter assembly 14 is then replaced by two separate parts, a soft fruit cutting disk 30 (see Figure 3) and a soft fruit chute 20 (see Figure 2).

With reference to Figure 3, the soft fruit cutting disk 30 comprises a
5 base 31 that is characterised by fins 32 that extend radially outward from the generally cylindrical outer service of the base 31. The fins assist in creating an airflow and mechanical impelling action that is beneficial to juice collection, as will be further explained. The fins may be configured with a tip defining an optional concave front surface 37. The fins may also resemble generally
10 smooth tipped or symmetrical mounds 39. Smooth or mound-like fins are quieter and do not produce excessive air flow. Excessive air flow can act to force juice under the seal 26 (see below). The upper surface of the cutting disk comprises a stainless steel cutting surface 33. The cutting surface 33 includes a central cutting blade 34, a generally circular array of perforations formed
15 from individual cutting blades or teeth 35. Only some of the array of teeth is shown in Figure 3. In preferred embodiments there is a peripheral margin or diameter 36 where no teeth, blades or cutting surfaces are found. The soft fruit cutting disk 30 includes a coupling (not shown) on its underside that allows it to be used as a replacement for a conventional cutting disk and filter
20 assembly 14 without further modification.

In preferred embodiments, the outer edge 38 of the top or upper surface of the cutting disk extends radially beyond the feed tube 48 (see Figure 4). By extending toward the protective web 46, the extension of the disk's edge 38 provides an easily cleaned upper surface.

25 This soft fruit cutting disk 30 is combined with a soft fruit chute 20 (as shown in Figure 2). The chute comprises a generally tubular outer jacket 21 and a generally cylindrical inner sleeve 22. As shown in Figure 4, the jacket 21 fits within a juice collector 15 and has an upper rim 23 that sits above the horizontal rim 41 of the juice collector. The jacket upper rim structure 23
30 pilots with and cooperates with the rim 41 of the juice collector to accurately locate it and make assembly with the lid 49 more accurate. The jacket locates the inner sleeve to be in alignment or registry with the cutting disk. The jacket 21 supports an integral handle 24 having a locating notch 25. As suggested by Figure 4, the handle 24 and locating notch 25 allow the soft fruit chute 20 to

be accurately located or oriented with reference to the lip that extends between the juicer collector 15 and the pulp collection area 18.

The lower extremity of the soft fruit chute 20 is preferably formed as a polymeric seal 26 that is softer than the chute. The seal 26 is moulded onto a
5 bead that is formed along the lower rim of the jacket 21. The lower part of the chute 20 also incorporates a discharge tunnel or manifold 27 whose lower edge 28 is also formed as a polymeric seal.

As shown in Figure 4, the manifold 27 leads to and preferably seals around the opening to the juicer's spout 17. Thus, practically all of the juice
10 and pulp that are thrown off of the soft fruit cutting disk 30 are effectively trapped within the chute 20. Air flow generated by the fins 32 or mounds 39 drive the juice and pulp thrown off by the cutting disk toward and into the dispensing chute 17. The fins 32 or mounds 39 also help push the juice and pulp toward the dispensing chute 17. Note that in some embodiments, the
15 chute 17 is provided with an internal and integral web 44 that prevents fingers or foreign objects from being inserted into the spout through the open mouth 45.

As shown in Figure 4, the chute 20 further comprises a protective spacer web 46 that interconnects the outer jacket 21 with the inner cylindrical
20 sleeve 22. The web 46 prevents inadvertent unsafe contact with the cutting surface 33 etc., when the pulp collector 18 is not installed. The sleeve 22 is intended to receive the lower portion of the feed tube 48 that is held by the juicer's transparent lid 49. The inside diameter of the upper extremity of the sleeve 22 is chamfered or piloted to better receive the feed tube. There is a
25 smooth sliding fit or narrow gap between the feed tube and the inside of the sleeve 22. In preferred embodiments, the minimal spacing between the underside of the lid 49 and the upper extent of the sleeve 22 firmly locates the chute 20 between the lid and the bottom interior of the juicer collector 15.

It will be appreciated that the present invention replaces the cutting
30 disk (with blade and filter basket) of a conventional juicer with a cutting disk that has no filter basket. In some embodiments of the invention a cutting disk of the kind shown in Figure 1 may be used, so long as the filter basket 16 is removable from the base of the cutting disk. In this way, the base with its blades can be used with a chute 20 as discussed above.

While the present invention has been disclosed with reference to particular details of construction, these should be understood as having been provided by way of example and not as limitations to the scope or spirit of the invention.

What is claimed is:

1. A chute for a fruit and vegetable juicer, comprising:

5 an outer jacket and an inner sleeve;

the jacket adapted to fit within the fruit and vegetable juicer so that the inner sleeve is in registry with a cutting disk of the fruit and vegetable juicer; the inner sleeve being adapted to receive the fruit and vegetable juicer's feed tube.

10

2. The chute of claim 1, wherein:

a web extends between the inner sleeve and the jacket.

15 3. The chute of claim 1, wherein:

the outer jacket has a rim that cooperates with a rim of the fruit and vegetable juicer, to locate it.

20 4. The chute of claim 1, wherein:

the chute has a handle that serves to locate it with respect to a lip formed on the fruit and vegetable juicer.

25 5. The chute of claim 1, wherein:

the jacket has a lower extremity comprising a polymeric seal that is softer than the jacket.

30 6. In combination with a chute according to claim 1, a cutting disk, comprising:

a base having an upper surface having an array of cutting blades and a coupling for attachment to a fruit and vegetable juicer.

7. The combination of claim 6, wherein:

the base has no filter screen.

5

8. The combination of claim 6, wherein:

the base further comprises radial fins that improve the airflow in the fruit and vegetable juicer.

10

9. The combination of claim 6, wherein:

a diameter of the upper surface is larger than a diameter of the feed tube.

15 10. The chute of claim 1, wherein:

an upper extremity of the sleeve is piloted to assist in receiving a feed tube.

11. The chute of claim 1, wherein:

20

the outer jacket has a discharge tunnel.

12. The chute of claim 11, wherein:

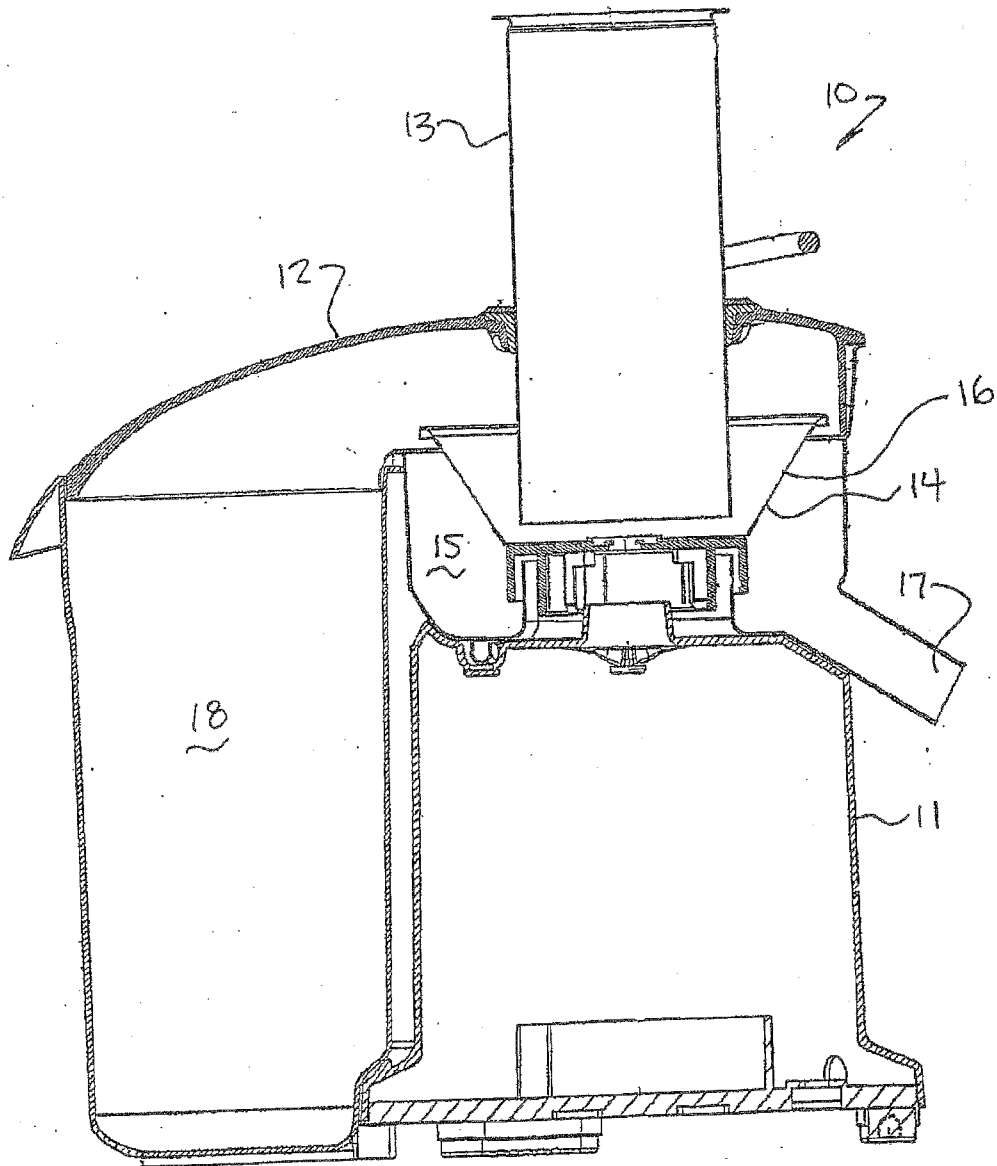
25 the discharge tunnel leads to the fruit and vegetable juicer's spout.

13. The chute of claim 12, wherein:

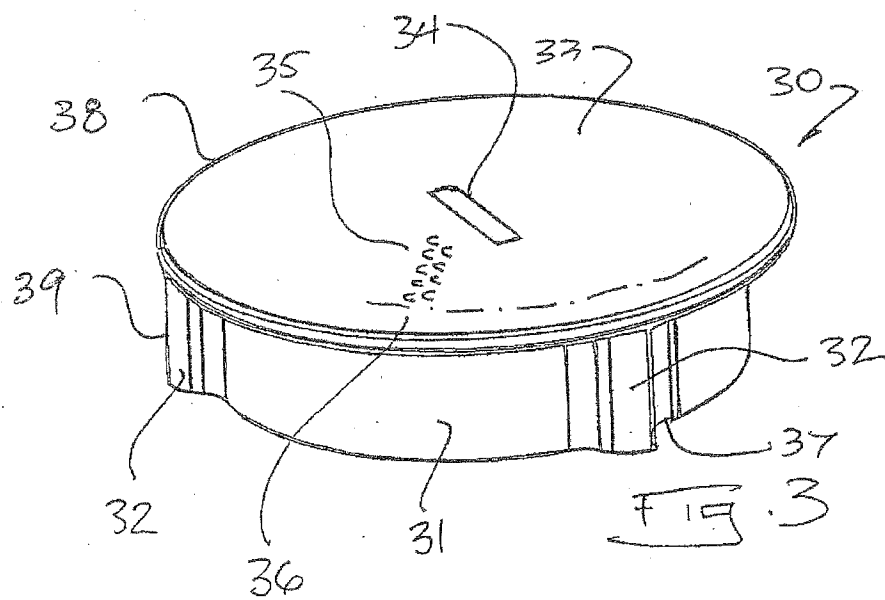
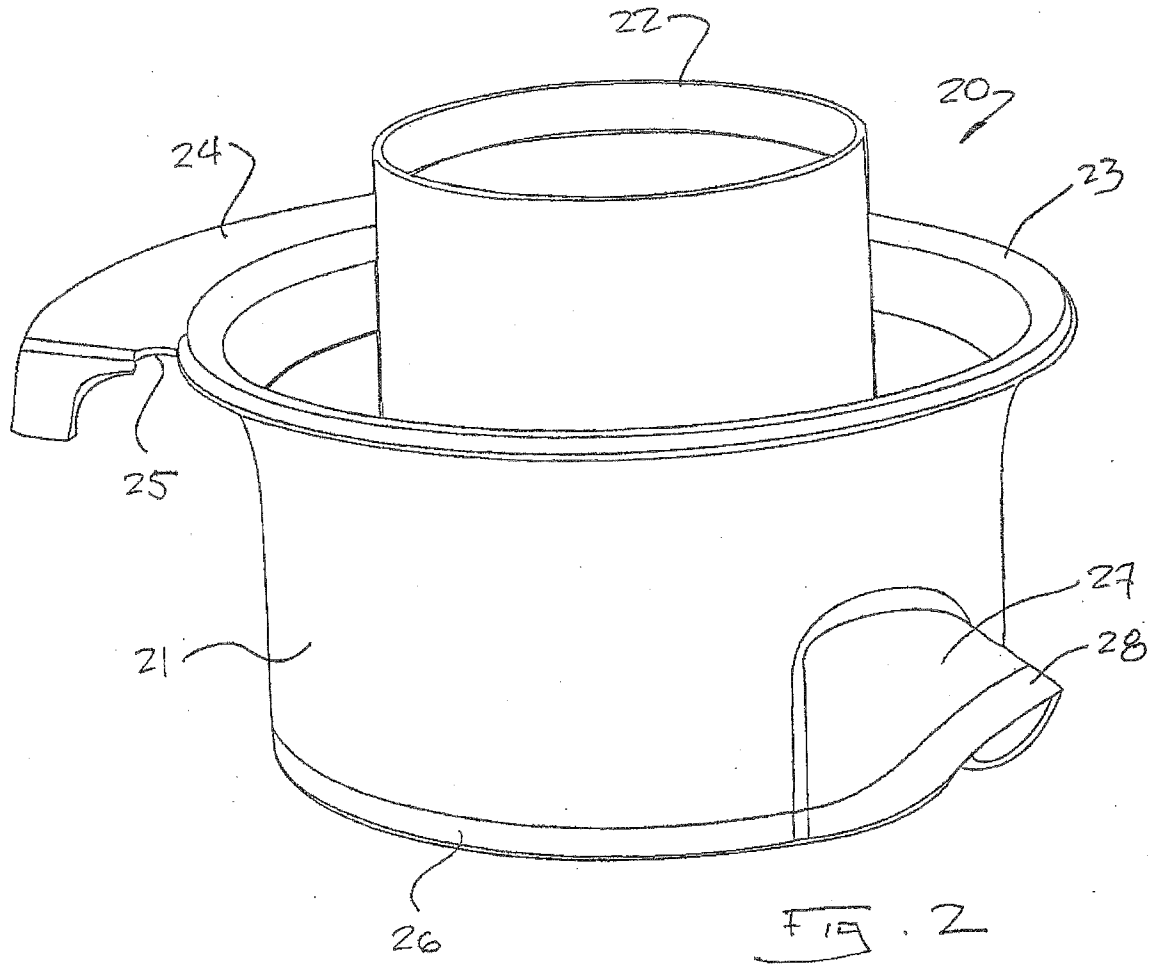
the discharge tunnel seals against the fruit and vegetable juicer's spout.

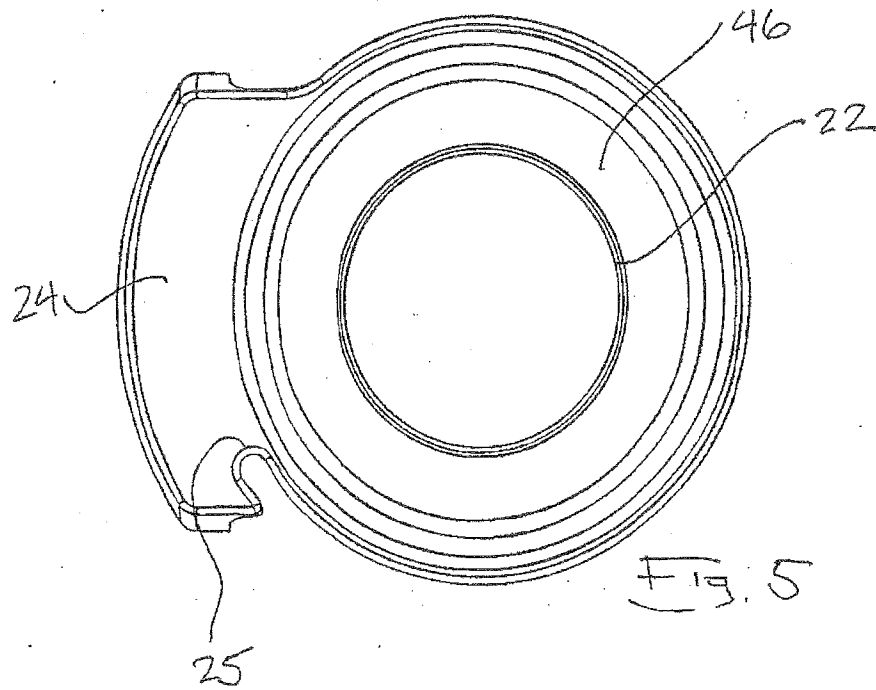
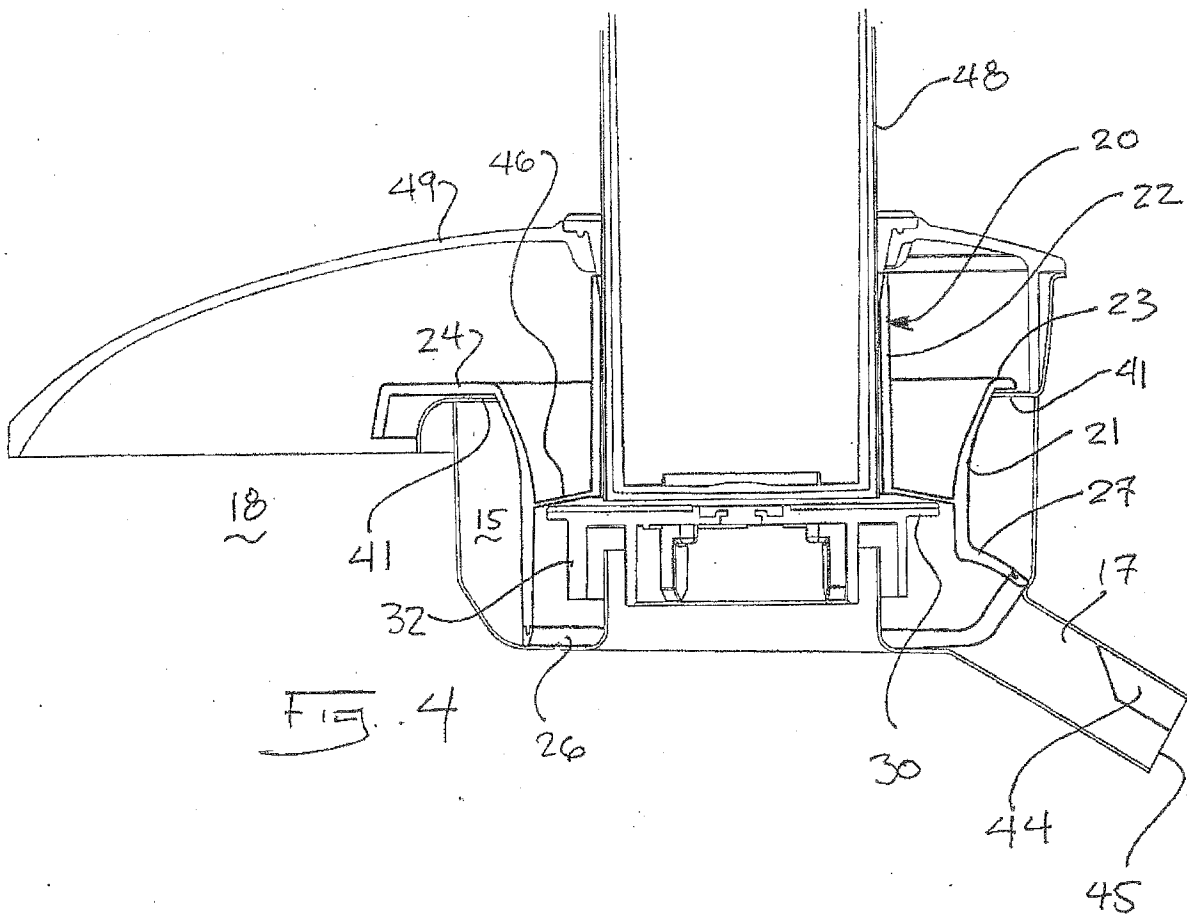
30 14. A device comprising a fruit and vegetable juicer having the combination of chute and cutting disk of claim 6.

Fig. 1



PRIOR ART





INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2008/001680

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

A47J 19/02 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC A47J 19/ key words (MESH+, SIEVE+, SCREEN+, FILTER+) 5D (WITHOUT, ABSE+, NONE, NO, LACK) JUICE+, PULP+, BANANA, MANGO+, PEAR?, SOFT)FILTER+,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 463093 A (CADE A F) 22 March 1937 Whole document	1-14
A	GB 537667 A (BAKER B D) 1 July 1941 Whole document	1-14
A	DE 3825640 A (LICENTIA GMBH) 1 February 1990 Whole document & Abstract	1-14



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See patent family annex

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"&" document member of the same patent family

"P" document published prior to the international filing date but later than the priority date claimed

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2008/001680

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Patent Document Cited in Search Report		Patent Family Member
GB	463093	NONE
GB	537667	NONE
DE	3825640	NONE
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