
Candidate's Answer – Paper A (El./Mech.)

Apparatus and Method for extracting juice from a fruit

The present invention relates to apparatus for extracting juice from a fruit according to the preamble of claim 1. The invention further relates to a method of extracting juice from a fruit according to the preamble of claim 14.

In processing citrus fruit, such as oranges, lemons or limes to make fruit juice, the fruit pulp must be accessed.

One method for achieving this is by slicing the fruit in half and then squeezing the fruit pulp within the peel. This process is tiring and time consuming.

D1 discloses apparatus for extracting juice in an automatic manner for immediate consumption. However the operation of D1 requires a complex construction requiring both combined rotational and translational movements where a cup holding the fruit is rotated in a downward position and projecting cones are moved upward linearly to squeeze the juice from the fruit. This can result in a slow extraction process.

The present invention provides apparatus in accordance with claim 1.

This provides the advantage of using only rotational movement to allow extraction of fruit juice, thereby simplifying the construction.

Further by synchronising the rotation of the cavity and surface projection the extraction process can be increased by allowing a plurality of fruit to be squeezed sequentially as part of the same rotational movement. Particularly if a plurality of cavities are provided on an element.

The present invention provides the further advantage of providing means for handling fruits of various sizes by having sets of elements for different fruit sizes.

Further by housing the extracting arrangement in a transparent hood this provides the advantage of allowing the juice extraction process to be visible.

Claims

- 1) Apparatus for extracting juice from a fruit comprising a first rotatable element (2) having a cavity (3) for receiving the fruit and a second rotatable element (5) having a projecting surface (6) characterized by means for synchronising the rotation of the first element (2) and second element (5) so that the projecting surface (6) of the second element (5) enters into the cavity (3) of the first element (2) during rotation of the first element (2) and the second element (5), thereby allowing juice to be squeezed from the fruit.
- 2) Apparatus according to claim 1, characterized in the first element (2) and second element (5) are arranged to rotate in opposite directions.

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- 3) Apparatus according to claim 1 or 2, characterized in means for varying the distance the projecting surface (6) enters the cavity (3) during rotation.
 - 4) Apparatus according to any preceding claim, characterized in the first element (2) forms one of a set of elements, the set of elements having cavities (3) of different dimensions.
 - 5) Apparatus according to any preceding claim, characterized in the second element (5) forms one of a set of elements, the set of elements having projecting surfaces (6) of different dimensions.
 - 6) Apparatus according to any preceding claim, characterized in that the projecting surface (6) is provided with a groove (13) such that during rotation a blade (7) passes through the groove (13) to allow removal of fruit peel.
 - 7) Apparatus according to any preceding claim, characterized in the first element (2) and second element (5) are mounted on rotatable shafts (8,9), the respective shafts (8,9) having different profiles.
 - 8) Apparatus according to any preceding claim, characterized in the first element (2) having a plurality of cavities (3).
 - 9) Apparatus according to any preceding claim characterized in the second element (5) having a plurality of projecting surfaces (6).
 - 10) Apparatus according to any preceding claim characterized in the means for synchronising is achieved via a gear drive.
 - 11) Apparatus according to any of claims 1 to 9, characterized in the means for synchronising is achieved electronically.
 - 12) Apparatus according to any preceding claim, characterized in the first element (2) and second element (5) are closed in a transparent hood (22).
 - 13) Apparatus according to any preceding claim, characterized in having a cutting element (4) for cutting the fruit during rotation of the first element (2).
 - 14) Method for extracting juice from a fruit characterized in synchronising the rotating of a first element (2) having a cavity (3) and a second element (5) having a projecting surface (6) such that the projecting surface (6) enters into the cavity (3) during the rotation of the first element (2) and second element (5).

Note to examiner

Other than the invention for synchronized rotation mechanism it would also seem possible to file an additional application to the different sets of cylinders (2) and drums (5) for different fruits and also to apparatus having the mechanism for adjusting the distance between the shafts 8 and 9.

The transparent hood also seems to have novelty, however for the owner of a small coffee shop it would not seem worthwhile investing any significant amount of money on arguing the inventive merits of this idea.