

C L A I M S

1. An egg breaking apparatus for breaking eggs having shell and contents including yolk and albumen, comprising

a plurality of egg breaking devices, each adapted for holding, breaking and opening a single egg at a time, where said egg breaking devices are adapted for moving along a direction of travel during the breaking and opening of the eggs, and where said egg breaking devices are arranged in a plurality of columns each extending substantially perpendicular to the direction of travel and in a plurality of rows extending in the direction of travel of the egg breaking devices,

at least one breaking activator adapted for activating each egg breaking device to break and open an egg held by it,

at least one egg contents receiving device for receiving the contents of eggs broken and opened by the egg breaking devices, said contents being discharged from the shell under the influence of gravity,

at least one an albumen collection unit for collecting albumen remaining on shells and/or egg breaking devices after the egg contents have been discharged under the influence of gravity, said albumen collection unit comprising at least one collection member with at least one opening adapted for allowing the passage of a fluid, said opening(s) being provided in an outer surface of the collection member(s),

characterized in that the albumen collection unit further comprises at least one cover member adapted for covering the opening(s) in the collection member(s), and in that the collection member(s) and/or the cover member(s) are moveable between a first mutual position where the cover member(s) cover(s) the opening(s) and a second mutual position where the opening(s) is/are uncovered.

2. An egg breaking apparatus according to claim 1, where the collection member(s) is/are adapted for being rotated, swung or displaced in relation to the cover member(s), and/or where the cover member(s) is/are adapted for being rotated, swung or displaced in relation to the collection member(s).

3. An egg breaking apparatus according to claim 1 or 2, where, when in the first mutual position, an inner surface of the/each cover member facing the/each collection member is substantially at level with the outer surface of the collection member and cover(s) the opening(s) substantially entirely.

5 4. An egg breaking apparatus according to one or more of the preceding claims, comprising a series of openings extending substantially perpendicular to the direction of travel of the egg breaking devices, and where each opening of the series is preferably arranged below a row of egg breaking devices.

10 5. An egg breaking apparatus according to claim 4, where the number of openings in the series corresponds to ones or twice the number of egg breaking devices in each column.

 6. An egg breaking apparatus according to one or more of the preceding claims, where a single collection member extends underneath several
15 rows of egg breaking devices, preferably under at least half of the rows of egg breaking devices.

 7. An egg breaking apparatus according to one or more of the preceding claims, where the collection member(s) is/are connected to a vacuum source in a manner so that ambient air and possibly albumen can be drawn in
20 through the openings.

 8. An egg breaking apparatus according to one or more of the preceding claims, where the total surface area of the opening(s) at level with the outer surface of the collection member is 20 mm² to 100 mm² per egg breaking device in each column, preferably 30 mm² to 60 mm² per egg breaking
25 device in each column, and still more preferred approximately 40 mm² per egg breaking device in each column.

 9. An egg breaking apparatus according to one or more of the preceding claims, where the egg breaking apparatus further comprises a fluid regulator adapted for regulating the amount of fluid supplied to/extracted from
30 the collection member.

 10. An egg breaking apparatus according to one or more of the preceding claims, comprising a plurality of egg contents receiving devices each

adapted for receiving the contents of one egg at a time, or one common egg receiving device arranged at a bottom of the apparatus.

11. A method for increasing the yield of an egg breaking process, where:

5 eggs having shell and contents including yolk and albumen are fed to a plurality of egg breaking devices, each adapted for holding, breaking and opening a single egg at a time, where said egg breaking devices are moving along a direction of travel during the breaking and opening of the eggs and where said egg breaking devices are arranged in a plurality of columns each
10 extending substantially perpendicular to the direction of travel and in a plurality of rows extending in the direction of travel of the egg breaking devices,

at least one breaking activator activates the egg breaking devices to break and open the eggs,

the contents of eggs broken and opened by the egg breaking devices
15 are received by at least one egg contents receiving devices, said contents being discharged from the shells under the influence of gravity,

albumen remaining on the shells and/or egg breaking devices after the contents have been discharged under the influence of gravity is collected by an albumen collection unit by passing a fluid through at least one opening
20 provided in an outer surface of at least one collection member in order to separate strings of albumen from the shells,

characterized in that

at least one cover member is caused to cover the opening(s) in the collection member(s) at least partially at intervals by moving the collection
25 member(s) and/or the cover member(s) back and forth between a first mutual position where the cover member(s) cover(s) the opening(s) and a second mutual position where the opening(s) is/are uncovered.

12. A method according to claim 11, where collection member(s) and/or the cover member(s) is/are moved from the first mutual position to the
30 second mutual position and back to the first mutual position every time a column of egg breaking devices passes the collection member or at an interval of 30 seconds to 2 minutes.

13. A method according to claim 11 or 12, where the collection member(s) and/or the cover member(s) is/are rotated, swung or displaced in relation to the other.

14. A method according to one or more of claims 11-13, where the
5 cover member(s) is used for removing albumen residue, chalaza and/or shell fragments from the outer surface of the collection member during movement between the first and the second mutual positions.

15. A method according to one or more of claims 11-14, where a
vacuum source is used for providing an under-pressure in the collection
10 member so that ambient air and possibly albumen is drawn in through the opening, at least when the collection member(s) and the cover member(s) are in their second mutual position.

16. A method according to claim 15, where, at least when collection
member(s) and the cover member(s) are in their second mutual position, the
15 under-pressure in the collection member results in an air speed of 6-10 m/s at a distance of 10 mm above the/each opening.