

FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
AND
THE PATENTS RULES, 2003

**COMPLETE
SPECIFICATION**

(See Section 10; rule 13)

TITLE OF THE INVENTION

“FOLDING UNIT FOR POURABLE FOOD PRODUCT PACKAGING
MACHINES”

APPLICANT

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The following specification particularly describes
the invention and the manner in which
it is to be performed

CLAIMS

1) A folding unit (1) for producing packages (2) of pourable food products from sealed packs (3) having each a main portion (7) and opposite end portions (8, 9) arranged on opposite sides of said main portion (7); each pack (3) comprising, for each end portion (8, 9), a fin (17, 18) and a pair of flaps (19, 20) projecting laterally from said main portion (7);

said unit (1) comprising:

- a first movable conveying member (35) which is fed with a plurality of said packs (3) and which feeds the pack (3) along a forming path (B); and
- folding means (24) which interact with each said pack (3) along said forming path (B) to fold relative said end fin (18) onto a relative said end portion (8);

characterized in that said folding means (24) comprise:

- a first member (36) movable along said forming path (B) together with said conveying member (35) and defining a first slot (40) receiving, in use, said end fin (18); and
- a second member (72) movable relative to said first member (36) between a first position in which it engages at least partially said slot (40), so as to fold said end fin (18) onto a relative said end portion (8), and a second position in which it leaves free said slot (40).

2) The folding unit of claim 1, characterized in that said second member (72) comprises at least one first element (76) adapted to mesh with a second

element (73), so as to cause the movement of said second member (72) between said first and said second position.

3) The folding unit of claim 2, characterized in that said at least one first element (76) is a rack and said second element (73) is a toothed sector.

4) The folding unit of claim 2 or 3, characterized in that said second member (72) comprises at least one wedge (75) adapted to raise, in use, relative said flaps (19) towards said main portion (7).

5) The folding unit of claim 4, characterized in that said wedge (75) is arranged on a first side of said second member (72) and said first element (76) is arranged on a second side, opposite to said first side, of said member (72).

6) The folding unit of claim 4 or 5, characterized in that said wedge (75) is arranged downstream from said first element (76), proceeding according to the advancing direction of said conveying member (35).

7) The folding unit of any one of the foregoing claims, characterized in that each conveying member (35) comprises a paddle (43) adapted to thrust said pack (3) along said forming path (B);

said first member (36) comprising a portion (37) from which said paddle (43) protrudes and said slot (40) being arranged downstream from said portion (37), proceeding according said advancing direction of said conveying member (35);

said second member (72) comprising, for each side of said first member (36), one said wedges (75) and one said rack.

8) The folding unit of any one of claims 2 to 7, characterized in that said second element (73) forwardly protrudes from said conveying member (35), proceeding according said advancing direction of said
5 conveying member (35).

9) The folding unit of any one of the foregoing claims, characterized in that said first member (36) defines a pair of second slots (39) connected to said first slot (40);

10 said second member (72) comprising a pair of arms (90) movable within relative said second slots (39) and a central element (91) interposed between said arms (90); said central element (91) engaging said slot (40) when said second member (72) is
15 arranged, in use, in said first position.

10) The folding unit of claim 9, when depending on claim 7 or 8, characterized in that each said arm (90) comprises a relative said wedge (75) and a relative rack.

20 11) The folding unit of any one of the previous claim, characterized by comprising a plurality of said conveying members (35) defining a closed loop;

each said conveying member (35) comprising also said second element (73);

25 said second toothed element (73) of each said upstream conveying member (35) meshing with said first element (76) of the immediately downstream conveying member (35).

30 12) The folding unit of claim 11, characterized in that said forming path (B) is a closed loop path comprising:

- a first curved portion (P1) along which each said conveying member (35) is fed, in use, with a

relative said pack (3) to fold, and along which each pair of consecutive conveying members (35) move towards each to each other; and

- a second rectilinear portion (P2) arranged
5 downstream from said inlet portion (P1) along which each pair of consecutive said conveying members (35) move substantially integrally to each other;

said second member (72) moving, in use, from said second position towards said first position
10 along said first curved portion (P1);

said second member (72) being arranged, in use, in said first position along said second rectilinear portion (P2).

13) The folding unit of claim 12, characterized
15 in that said forming path (B) comprises also a second curved portion (Q) arranged downstream from said rectilinear portion (P2) proceeding along said advancing direction of said conveying members (35), and along which said conveying members (35) move, in
20 use, away from to each other; said conveying members (35) moving from first to said second position, along said second curved portion (Q).

dated this 22 day of April 2014.

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