

600817

APPLICATION FOR A STANDARD PATENT

I\We,

UNILEVER PLC

of

UNILEVER HOUSE
BLACKFRIARS
LONDON EC4
ENGLAND

hereby apply for the grant of a standard patent for an
invention entitled:

EXTRUDED PRODUCTS AND METHOD AND APPARATUS

which is described in the accompanying complete specification

Details of basic application(s):

Number of basic application	Name of Convention country in which basic application was filed	Date of basic application
8709480	GB	22 APR 87
8709479	GB	22 APR 87

My/our address for service is care of CLEMENT HACK & CO., Patent Attorneys, 601 St. Kilda Road, Melbourne 3004, Victoria, Australia.

DATED this 19th day of April 1988

UNILEVER PLC

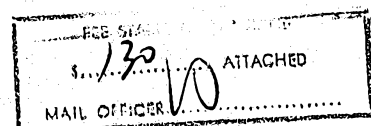
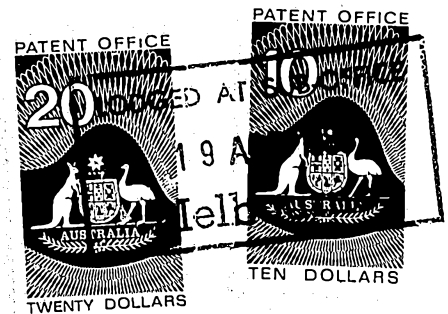
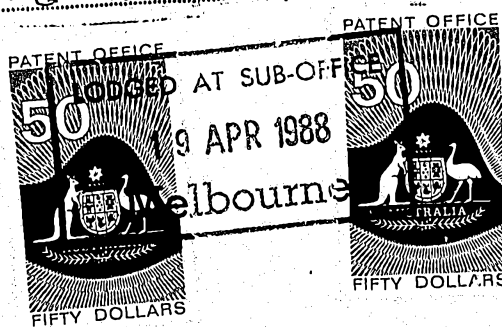
CLEMENT HACK & CO.

LODGED AT SUB-OFFICE
19 APR 1988
Melbourne

TO: The Commissioner of Patents.

APPLICATION ACCEPTED AND AMENDMENTS

ALLOWED 15-6-90.



Forms 7 and 8

AUSTRALIAPatents Act 1952DECLARATION IN SUPPORT OF A CONVENTION OR NON-CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITIONName(s) of
Applicant(s)In support of the application made by UNILEVER PLC

Title

for a patent for an invention entitled

EXTRUDED PRODUCTS AND METHOD AND APPARATUSName(s) and
address(es)
of person(s)
making
declarationI/we, DILSHAD RAJANAuthorised Signatoryof Unilever House, Blackfriars, London E.C.4, Great Britain.

do solemnly and sincerely declare as follows:-

1. I am/~~we are~~ ~~the applicant(s)~~ ~~for the patent~~ ~~or~~ ~~am/are~~ authorised by the abovementioned applicant to make this declaration on its behalf.
2. The basic application(s) as defined by Section 141 of the Act ~~has/were~~ made in the following country ~~or countries~~ on the following date(s) by the following applicant(s) namely:-

Country, filing
date and name
of Applicant(s)
for the or
each basic
application

in Great Britain on 22nd April 19 87
by UNILEVER PLC
in _____ on _____ 19 _____
by _____

3. The said basic application(s) ~~was/were~~ the first application(s) made in a Convention country in respect of the invention the subject of the application.

Name(s) and
address(es)
of the or
each actual
inventor

4. The actual inventor(s) of the said invention ~~was/were~~ are Ian BUTCHER, 243 Southway, Guildford, Surrey GU2 6DT, England, and Kevin Peter HILLMAN, Willow Cottage, Stoke Road, Bishops Cleeve, Cheltenham, Glos. GL52 4RP, England.

See reverse
side of this
form for
guidance in
completing
this part

5. The facts upon which the applicant(s) is/are entitled to make this application are as follows:-
The applicants would be entitled to have assigned to them a patent granted to any of the actual inventors in respect to the said invention.

DECLARED at London this 13th day of April 1988Rajan

(12) PATENT ABRIDGMENT **(11) Document No. AU-B-14752/88**
(19) AUSTRALIAN PATENT OFFICE **(10) Acceptance No. 600817**

(54) Title
VARIEGATED EXTRUDED PRODUCTS

International Patent Classification(s)
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B29C 047/04 B29C 047/10

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(71) Applicant(s)
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IAN BUTCHER; KEVIN PETER HILLMAN

(74) Attorney or Agent
GRIFFITH HACK & CO. MELBOURNE

(56) Prior Art Documents
GB 1169500
US 3014437
US 3147717

(57) Claim

1. A method of producing a variegated extruded product comprising feeding a first viscous product through a tube, rotationally introducing a second, different viscous product into said first viscous product, while preventing homogenous mixing, to form a stream of the two distinct products and conducting this stream along at least one divider in the tube, which divider has one of its main dimensions substantially in the direction of flow of the stream prior to extrusion to form the product.

AUSTRALIA

PATENTS ACT 1952

600817
Form 10

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

Short Title:

Int. Cl:

Application Number:
Lodged:

Complete Specification-Lodged:
Accepted:
Lapsed:
Published:

Priority:

Related Art:

This document contains the
amendments made under
Section 49 and is correct for
printing.

TO BE COMPLETED BY APPLICANT

Name of Applicant:

UNILEVER PLC

Address of Applicant: UNILEVER HOUSE
BLACKFRIARS
LONDON EC4
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Actual Inventor:

Address for Service: CLEMENT HACK & CO.,
601 St. Kilda Road,
Melbourne, Victoria 3004,
Australia.

Complete Specification for the invention entitled:
EXTRUDED PRODUCTS AND METHOD AND APPARATUS

The following statement is a full description of this invention
including the best method of performing it known to me:-

EXTRUDED PRODUCTS AND METHOD AND APPARATUS

Variegated or multiflavoured confections, such as ice-cream,
5 water ice, milk ice, sorbet, sherbet, sauce and whipped
cream, are known in the art and have been produced
heretobefore in several different manners, such as by
simultaneously extruding at least two viscous confection
10 materials having different flavours or other properties
through extrusion outlets which are rotating around a common
axis of rotation. The twisted or spirally striped product may
be deposited onto a moving belt as is described in EP-B-44
689 or into a container as is described in GB-A-1 076 117.

15 The present invention provides novel variegated extruded
products and related methods and apparatus. Preferred
products are food products and in particular ice confection
products such as ice cream, sorbet, sherbet, milk ice, water
ice and mellorine.

20 A product according to the invention is characterised in that
it has multiple patterns through the body of the product,
each of which pattern is a roughly concentric or spirally
striped pattern and which patterns are preferably arranged in
25 approximate symmetry. This symmetry may be a simple symmetry
having one axis or one plane of symmetry, but also more
complex symmetries are possible eg. with two or more planes
of symmetry, which planes can be parallel or crossing, or two
or more parallel planes with at least one further plane
30 crossing the parallel ones for instance at right angles.

A method is also provided of producing a variegated extruded
product comprising feeding a first viscous product through a
tube, rotationally introducing a second, different viscous
35 product into said first viscous product (without causing
homogeneous mixing) to form a stream of the two distinct
products and conducting the stream past at least one divider
in the tube which divider has one of its main dimensions

substantially in the direction of flow of the stream prior to extrusion to form the product.

Preferably, the cross-section of the stream is expanded prior to its being conducted past the divider or dividers. After

- 5 said expansion the stream is for example preferably substantially rectangular in cross-section to correspond with the outline of a preferred final product/package. Of course other outlines eg. circular can be chosen for the expanded stream, depending on the outline of the final

10

More than one different viscous product can be introduced into the first viscous product, thereby giving especially interesting effects. For consumer effect the viscous products

15 will normally differ optically but flavour and texture differences are also beneficial. These differences may be used separately, together or (optimally) also with optical differences.

20

The extruded stream is preferably cut at right-angles to its flow, eg. by a wire, to form the product as it is extruded from the tube downstream from the divider or dividers.

25

Particularly attractive patterns are obtained when one or more dividers are arranged in a regular way in the stream such as through its centre line. If multiple dividers are used, a cross-shaped arrangement, a parallel arrangement and a combination thereof are suitable. Of course other interesting variegated products, not necessarily with

30 symmetrical patterns, can be made by using dividers with other shapes, eg. circular or zig-zag in cross-section.

35

The invention also provides an apparatus for manufacturing variegated extruded products comprising an extrusion tube fed by a first and at least a second conduit, at least part of said such second conduit in the tube being rotatable about an axis which is preferably centrally disposed in the tube, and at least one divider arranged downstream of the second

conduit with one main dimension substantially in the main direction of the tube. Preferably, the cross-section of the tube increases shortly before the position of the divider, considered in a downstream direction. The divider, or baffle, can conveniently be a piece of metal plate.

For a better understanding of the present invention, reference may be made to the accompanying drawings in which

10 Fig. 1 is a cross-sectional view of an extruded product according to the invention in a simple embodiment thereof;

15 Fig. 2 is a vertical section of an apparatus according to the invention for making the product of Fig. 1;

Fig. 3 is a partial sectional view taken along the line III-III in Fig. 2;

20 Fig. 4 is a cross-sectional view taken along the line IV-IV in Fig. 2;

Fig. 5 is a partial cross-sectional view taken along the line V-V in Fig. 2 and

25 Figs 6 to 10 are further examples of dividers in a sectional view similar to Fig. 5.

30 An extrusion apparatus (nozzle) 1 according to the present invention comprises a tube 2 in which a hollow shaft 3 is rotatably mounted in sealing bearings 4. The shaft is perforated between the bearings. At one end it is provided with driving means and at the other end with hollow vanes 5 communicating with the hollow shaft and opening at their ends remote from the shaft. The vanes 5 are rotatable with a little play inside the tube 2.

A feeding conduit 6 communicates with the tube 2 between the

bearings 4 and a second feeding conduit 7 between one bearing and the vanes 5. Beyond the vanes the tube gradually widens to an end nozzle 8 of roughly rectangular cross-section with rounded corners to conform to a usual "rectangular" ice-cream tub. In this widened end nozzle 8 a rigid metal plate divider 9 is arranged having one main dimension in the longitudinal axis of the conduit. The other main direction is spanning the width of the rectangular cross-section as shown in Fig. 5.

10 Fig. 6 to 10 show different arrangements of dividers giving rise to other patterns of the material extruded through the nozzle.

15 The pattern of the product obtained by the nozzle depicted in Figs. 2 to 5 is schematically shown in Fig. 1.

20 Preferred viscous products are viscous aerated products such as ice-cream, sorbets etc. Sorbets are particularly useful as viscous products to be introduced rotationally, ie. to form the pattern. However, it should be noted that non-aerated products can be used eg. sauces. Indeed, the invention is not limited to foodstuffs.

25 To make, for example, an ice cream product patterned with a differently coloured sorbet, ice cream is fed through feeding conduit 7 to tube 2 and a differently coloured sorbet is fed through feeding conduit 6, hollow shaft 3 and hollow vanes 5. The hollow shaft is rotated at 40/50 r.p.m. The end of the widened end nozzle 8 is suitably blocked in a customary manner to help establish continuous, full flow. When this has been achieved, portions of the extrudate are cut off as they leave the apparatus and are packaged and hardened in a conventional manner in "rectangular" tubs, which in horizontal outline conform to the horizontal cross-section of the end nozzle 8. The cross-section of the extrudate obtained in this manner is shown in Fig. 1.

30

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of producing a variegated extruded product comprising feeding a first viscous product through a tube, rotationally introducing a second, different viscous product into said first viscous product, while preventing homogenous mixing, to form a stream of the two distinct products and conducting this stream along at least one divider in the tube, which divider has one of its main dimensions substantially in the direction of flow of the stream prior to extrusion to form the product.
2. A method according to claim 1, wherein multiple dividers are arranged in the tube.

DATED THIS 4TH DAY OF JUNE 1990

UNILEVER PLC

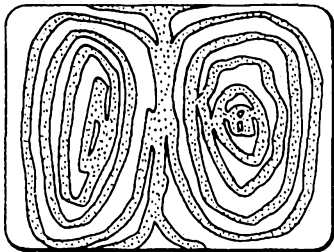
By its Patent Attorneys:

GRIFFITH HACK & CO.

Fellows Institute of Patent
Attorneys of Australia.



Fig. 1.



14752/88

Fig. 2.

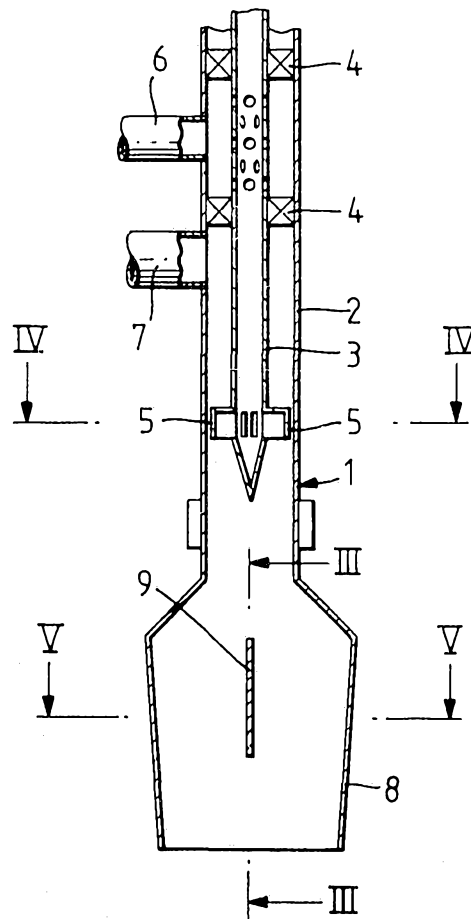


Fig. 3.

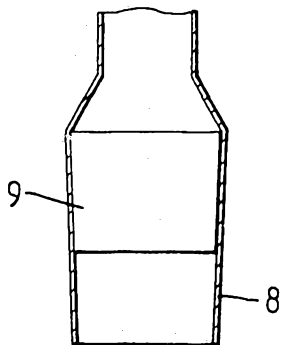


Fig. 4.

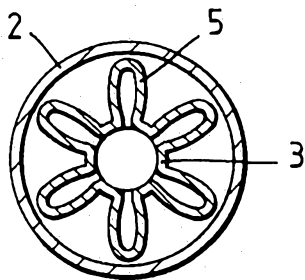


Fig. 5.

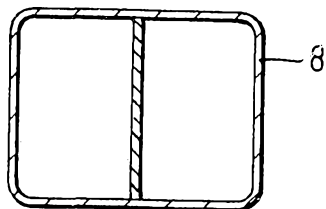


Fig. 6.

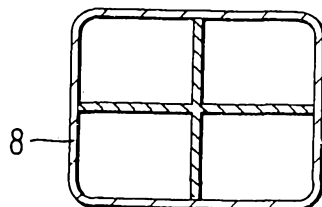


Fig. 7.

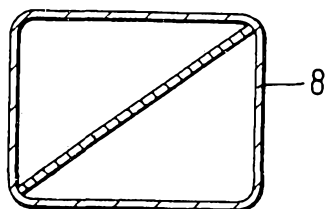


Fig. 8.

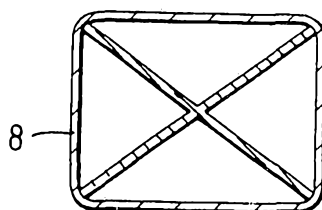


Fig. 9.

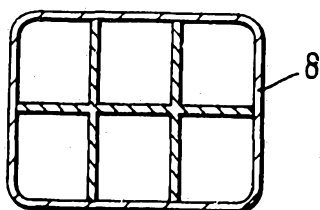


Fig. 10.

