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(CONVENTION. By one or more persons and/or a Company.) 630201 Form 4.

COMMONWEALTH OF AUSTRALIA

Patents Act 1952-1969

CONVENTION APPLICATION FOR A PATENT

(1) Here insert (in full) Name or Names of Applicant or Applicants, followed by Address(es).

~~I~~/We(1) JAPAN VILENE COMPANY, LTD. and SEIZO FUJINO
of 16-2, Sotokanda 2-chome, Chiyoda-ku, Tokyo, Japan
and 4-23-5, Fujimidai, Nerima-ku, Tokyo, Japan, respectively

(2) Here insert Title of Invention.

hereby apply for the grant of a Patent for an invention entitled:(2)
METHODS FOR PACKING AND STORING MEAT AND PACKAGE

(3) Here insert number(s) of basic application(s).

(4) Here insert Name of basic Country or Countries, and basic date or dates.

which is described in the accompanying complete specification. This applications is a Covention application and is based on the application numbered(3)
1-287193
for a patent or similar protection made in(4) Japan
on 2nd November 1989

~~My~~/Our address for service is WATERMARK PATENT & TRADEMARK ATTORNEYS 290 Burwood Road, Hawthorn, Victoria, Australia.

DATED this 19th day of June 19 90

JAPAN VILENE COMPANY, LTD.
and SEIZO FUJINO
by

FO17562 20/06/90

(5) Signature(s) of Applicant(s) or Seal of Company and Signatures of its Officers as prescribed by its Articles of Association.

(5)
Louis C. Gebhardt
Registered Patent Attorney

To: THE COMMISSIONER OF PATENTS.

(CONVENTION. Company.) Form 8.

COMMONWEALTH OF AUSTRALIA

Patents Act 1952-1969

DECLARATION IN SUPPORT OF A CONVENTION APPLICATION FOR A PATENT OR PATENT OF ADDITION

(1) Here insert (in full) Name of Company.

In support of the Convention Application made by(1) JAPAN VILENE COMPANY, LTD. and SEIZO FUJINO

(2) Here insert title of Invention.

(hereinafter referred to as the applicant) for a patent for an invention entitled:(2) METHODS FOR PACKING AND STORING MEAT AND PACKAGE

(3) Here insert full Name and Address, of Company official authorized to make declaration.

I,(3) HIDETOSHI IRIE on behalf of JAPAN VILENE COMPANY, LTD., 16-2, Sotokanda 2-chome, Chiyoda-ku, Tokyo, Japan and I SEIZO FUJINO, of 4-23-5, Fujimidai, Nerima-ku, Tokyo, Japan do solemnly and sincerely declare as follows:

1. I am authorised by the applicant for the patent to make this declaration on its behalf.

2. The basic application as defined by Section 141 of the Act was made in(4) Japan on the 2nd day of November 1989, by JAPAN VILENE COMPANY, LTD.

(4) Here insert basic Country or Countries followed by date or dates and basic Applicant or Applicants.

on ~~XHKXXXXXX~~ ~~dXXXXXXX~~ ~~XXXXXXXXXXXXXX~~

(5) Here insert (in full) Name and Address of Actual Inventor or Inventors.

3.(5) SEIZO FUJINO, 4-23-5, Fujimidai, Nerima-ku, Tokyo, Japan, HIDENORI YOSHIZAWA, 1399, Komahane, Souwa-machi, Sashima-gun, Ibaragi-pref., Japan and YOSHIO HIROSE, 15-2, 2-chome, Kita, Seki-machi, Nerima-ku, Tokyo, Japan ~~is~~/are the actual inventor of the invention and the facts upon which the applicant is entitled to make the application are as follows:

The applicant is the assignee of the invention from the said actual inventors

4. The basic application referred to in paragraph 2 of this Declaration was the first application made in a Convention country in respect of the invention the subject of the application.

DECLARED at Tokyo, Japan

this 5th day of October 19 90

(6) Signature.

(6) Hidetoshi Irie

Representative of JAPAN VILENE, LTD.
Hidetoshi Irie

To: THE COMMISSIONER OF PATENTS.

Seizo Fujino

Seizo Fujino

WATERMARK PATENT & TRADEMARK ATTORNEYS

(12) PATENT ABRIDGMENT (11) Document No. AU-B-57601/90
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METHODS FOR PACKING AND STORING MEAT AND PACKAGE

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(71) Applicant(s)
JAPAN VILENE COMPANY, LTD.; SEIZO FUJINO

(72) Inventor(s)
SEIZO FUJINO; HIDENORI YOSHIZAWA; YOSHIO HIROSE

(74) Attorney or Agent
WATERMARK PATENT & TRADEMARK ATTORNEYS , Locked Bag 5, HAWTHORN VIC 3122

(56) Prior Art Documents
AU 77327/87 A23B 04/06
AU 483736 63888/73 57.4
AU 415492 31611/67 57.4

(57) Claim

A package for packing meat comprising a gas impermeable film for vacuum packing said meat and a liquid absorber housing an absorber between a liquid permeable sheet facing said gas impermeable film and a liquid impermeable sheet facing said meat.

A method of packing meat comprising locating said meat on a liquid absorber housing an absorber between a liquid permeable sheet and a liquid impermeable sheet so that the meat faces the liquid impermeable sheet, vacuum packing said meat and liquid absorber in a gas impermeable film such that juice which exudes from the meat is absorbed through the liquid permeable sheet of said liquid absorber.

630201

Form 10

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952-69

COMPLETE SPECIFICATION

(ORIGINAL)

Class Int. Class

Application Number:
Lodged:

Complete Specification Lodged:
Accepted:
Published:

Priority :

Related Art :

Name of Applicant : JAPAN VILENE COMPANY, LTD.
and SEIZO FUJINO

Address of Applicant : 16-2, Sotokanda 2-chome, Chiyoda-ku, Tokyo, Japan
4-23-5, Fujimidai, Nerima-ku, Tokyo, Japan, respectively

Actual Inventor : SEIZO FUJINO, HIDENORI YOSHIZAWA and YOSHIO HIROSE

Address for Service : WATERMARK PATENT & TRADEMARK ATTORNEYS.
LOCKED BAG NO. 5, HAWTHORN, VICTORIA 3122, AUSTRALIA

Complete Specification for the invention entitled:

METHODS FOR PACKING AND STORING MEAT AND PACKAGE

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

Detailed Description of the Invention

(Industrial Field of Utilization)

The present invention relates to methods for packing and storing meat such as beef and pork and a package

therefor, and more particularly to methods for packing and storing meat and a package therefor in which quality deterioration, decrease of commodity profit rate, and over-absorption of juice of the meat can be prevented by absorbing and removing the juice exuding from the meat.

(Prior Art)

In general, juice exuding from meat (which may also be called extra juice hereinafter) is one of the reasons for lowering the commodity value of the meat.

In more detail, a part of the meat becomes discoloured in contact with the extra juice and the discoloured portion has to be removed, so that it causes lowering of commodity profit rate. Moreover, the term of storing the meat becomes shorter because the above juice tends to propagate general active germs therein.

A method for packing crustacean for the purposes of removing the extra juice which causes the above various problems is proposed in Japanese Laid-Open Patent Publication No. 63-71145. However, in this method, when temporal or continuous pressure is applied to a liquid absorbing member which has absorbed the extra juice, the absorbed juice exudes from the surface of this member. Accordingly, it is difficult to decrease the time of contact between the extra juice and the food. Particularly, in case of storing the meat which is not covered with a

shell, this proposed method is not sufficient for resolving the aforementioned problems.

The present applicant proposed a method for storing meat in Japanese Patent Application No.1-153159 (filed on June 15, 1989).

As shown in Fig. 3, in this method, an absorption sheet (14) made by housing a high absorbent (13) in a bag (12) having a liquid permeable sheet (17) and a liquid impermeable sheet (18) is arranged so as to make the liquid permeable sheet (17) of the absorption sheet (14) contacting meat (11), and these absorption sheet (14) and meat (11) are stored in chilled conditions after being vacuum-packed in a gas impermeable film (15).

According to the method proposed in this Japanese Patent Application No.1-153159, the efficiency of the extra juice absorption has improved, better than the method disclosed in the above laid-open publication, by arranging the liquid permeable sheet (17) in contact with the meat (11), and it has become possible to solve the aforementioned various problems.

(Problems that the Invention is to Solve)

However, it is already anticipated that the absorption sheet will absorb necessary juice besides the extra juice in the meat according to the method in Japanese Patent Application No.1-153159. As it is well known, the juice is

an important part to decide the flavor of the meat, and losing the necessary juice will bring about lowering of the commodity value of the meat. Accordingly, in order to prevent overabsorption of the juice, it has been necessary to predetermine an amount of the ~~transuding~~ exuding juice during its storing term and, according to this predetermination, to adjust the amount or speed of the liquid absorption.

However, the amount and speed of the juice exuding ~~transuding~~ from the meat are varied according to sizes and shapes of the meat and to its storing conditions. Therefore, it is difficult to comprehend the amount and speed of the ~~transuding~~ exuding extra juice, and high technique has been necessary to store the meat in stable conditions while keeping its commodity value high.

The present invention is made to solve the above problems, and the problems that the present invention is to solve are quality deterioration of the commodity, decrease of commodity profit rate, and overabsorption of the juice inside the meat.

An object of the present invention is to provide methods for packing and storing meat and a package thereof which can prevent the quality deterioration of the commodity, the decrease of commodity profit rate, and the overabsorption of the juice by absorbing and removing the juice ~~transuding~~ exuding from the meat.

SUMMARY OF THE INVENTION

The invention accordingly provides a package for packing meat comprising a gas impermeable film for vacuum packing said meat and a liquid absorber housing an absorber between the liquid permeable sheet facing said gas impermeable film and a liquid impermeable sheet facing said meat.

The invention also provides a method of packing meat comprising locating said meat on a liquid absorber housing an absorber between a liquid permeable sheet and a liquid impermeable sheet so that the meat faces the liquid impermeable sheet, vacuum packing said meat and liquid absorber in a gas impermeable film such that juice which exudes from the meat is absorbed through the liquid permeable sheet of said liquid absorber.

Conveniently the meat packed is refrigerated.

According to the invention, capillary phenomena occur at spaces between the meat and the liquid impermeable sheet, between the gas impermeable film and the meat, and between the gas impermeable film

and the liquid permeable sheet respectively. Accordingly, the extra juice exuding from the meat reaches the liquid permeable sheet because of this capillary phenomenon. Consequently, only the extra juice exuding from the meat is absorbed by the absorber via the above liquid permeable sheet by applying the method of the present invention.

The invention will now be described and illustrated with reference to one embodiment illustrated in the drawings.

The method comprises two components, (I) and (II).

(I) A liquid absorber (19) made by having an absorber (16) between a liquid permeable sheet (17) and a liquid impermeable sheet (18) is arranged so as to make the liquid impermeable sheet (18) facing the meat (11).

(II) This meat (11) and the above liquid absorber (19) are vacuum-packed in a gas impermeable film (15) so as to make juice which exudes from the meat (11) absorbed through the liquid permeable sheet (17) of the liquid absorber (19).

Each of the above components is now explained in details hereinafter according to Fig. 1 showing a

diagrammatic cross-sectional view of a package.

In the first place, the above component (I) is explained.

In the present invention, the liquid absorber (19) comprises the liquid permeable sheet (17), the liquid impermeable sheet (18), and the absorber (16) held between these two sheets. The above liquid absorber (19) is arranged on the meat so as to make the liquid impermeable sheet (18) facing the meat which can take various shapes such as a block shape shown in Fig. 1, a thinly sliced shape, and others. Accordingly, the meat (11) does not contact the liquid permeable sheet (17) of the liquid absorber (19) directly, so that there is no such problem as the flavor of the meat is deteriorated because of forced absorption of the necessary juice inside the meat into the liquid absorber.

The meat (11) and the liquid impermeable sheet (18) of the liquid absorber (19) are usually arranged in contact with each other, but if it is necessary, a liquid permeable member (not shown in the drawings) such as paper or the like can be also provided between the meat (11) and the liquid impermeable sheet (18). It may be the case, for example, that the meat ~~lapped~~ wrapped in paper is vacuum-packed together with the liquid absorber in the gas impermeable film.

The aforementioned component (II) is now explained.

In the state of the already discussed component (I), the meat (11) and the liquid absorber (19) are vacuum-packed in the gas impermeable film (15), so that capillary phenomenon occurs at spaces between the meat (11) and the liquid impermeable sheet (18), between the meat (11) and the gas impermeable film (15), and between the liquid permeable sheet (17) and the gas impermeable film (15) respectively. Therefore, the extra juice exuding ~~transuding~~ from the meat (11) is moved and diffused along a meat side surface of the gas impermeable film (15), and is absorbed by the liquid absorber (19) after reaching the liquid permeable sheet (17).

According to experiments performed by the inventor, within 450 - 680(mmHg) of vacuum degree is preferable during the above vacuum-packing. An upper limit of this range can be set so as to be high enough to generate the capillary phenomenon, and a lower limit is determined so as to be low enough to make only the extra juice substantially ~~transuding~~ exuding from the meat. This concrete preferable range can be expected to realize various effects such as prevention of propagation of general active germs caused by the extra juice, prevention of dislocation of the liquid absorber (19) and the meat (11), and effective absorption of the extra juice.

~~A method for storing meat according to claim 2 is now explained.~~

When the meat vacuum-packed ~~in the above method of claim 1~~ is kept at 3 - 6(, namely chilled, while not being freezed, the juice can be absorbed by the liquid absorber without being freezed. Moreover, the low temperature can be expected to decrease propagation of the general active germs.

~~A package according to claim 3 is now explained.~~

The package of the present invention comprises at least the gas impermeable film (15) for vacuum-packing the meat (11), and the liquid absorber (19).

The gas impermeable film (15) has various characteristics such as gas impermeability, strength, and flexibility which can realize the vacuum-packing of the meat, and is made of materials which do not has had influence on human bodies. More concretely, conventionally used polyester film and polypropylene film of 40(μm) thickness would be preferable.

The liquid absorber (19) is formed by having the absorber (10) between the liquid permeable sheet (17) and the liquid impermeable sheet (18).

The liquid permeable sheet (17) has, in addition to water permeability and water resistance, such density (porosity diameters) as the absorber (16) does not come out

therethrough, and its materials which do not have bad influence on human bodies are desirable as well as the above gas impermeable film (15). As concrete examples of the liquid permeable sheet, preferable are wet laid nonwoven fabric, spunbonded nonwoven fabric, paper having hydrophilic property, and others which have such strength and elongation as a sheet shape of the liquid absorber (19) can be maintained as it is. This liquid permeable sheet (17) can be formed in multiple layers trying to ensure heat seal property at constitution of the liquid absorber (19), which is not shown in the drawings.

The liquid impermeable sheet (18) is made of materials which are impermeable to liquid, and have water resistance, and have no bad influence on human bodies as a food packing container. For concrete example, a polypropylene film of about 25(μm) thickness or a double layer film of about 30(μm) thichness formed of a polypropylene film and a polyethylene film or the like are preferably used.

These liquid permeable and impermeable sheets (17) and (18) are laminated on each other so as to have the absorber (16) therebetween, and both the above sheets are bonded each other by means of adhesive made of hydrophobic synthetic resin or by means of fusion by heat.

The absorber (16) has to be formed of materials which

have function of absorbing the extra juice and have no bad influence on human bodies in case of storing the meat. For concrete example, desirable is a water absorptive polymer sheet in which pulp or the like are added to absorptive polymer powder. Moreover a film, nonwoven fabric, and a mesh sheet, which all include water absorptive polymer, can be also used as the absorber (16). As this water absorptive polymer, preferable are cross linking polyacrylic salt, starch-acrylonitrile graft polymer, vinyl acetate-acrylic salt copolymer, isobutylene-maleic anhydride copolymer, polyvinyl alcohol (PVA)-maleic copolymer, carboxymethyl cellulose (CMC) cross linking material, and so on, of 50 - 1,000 multiplication due to water absorptivity.

Moreover, as shown in Fig. 2, when pulp sheets (20) are provided on both surfaces of the absorber (16) of a film, nonwoven fabric, and a mesh sheet all including high water absorptive polymer, the sheet shape of the absorber (16) can be more surely maintained, and it can be expected that absorption of the extra juice is evenly performed all over the surfaces of the absorber (16).

The liquid absorber (19) can also be formed by having only the aforementioned water absorptive polymer powder, as the absorber (16), held and filled between the liquid permeable sheet (17) and the liquid impermeable sheet (18).

Although embodiments according to this application have been

explained in detail so far, it is obvious that this invention is not limited to these embodiments. For example, one liquid absorber is pressed on one piece of meat in these embodiments, but plural liquid absorbers can be also pressed on one meat.

Effects of the Invention

As it is apparent from the above explanation, the liquid absorber is arranged so as to make the liquid impermeable sheet facing meat, so that juice inside the meat will not be absorbed. Moreover, the meat and the liquid absorber are vacuum-packed in the gas impermeable film, so that the aforementioned capillary phenomenon can be utilized to carry the exuding extra juice to the liquid permeable sheet and to have it absorbed into the liquid absorber.

Accordingly, the deterioration of commodity value of the meat and the lowering of commodity profit rate of the meat due to discolouration can be prevented by avoiding contact between the extra juice and the surface of the meat. The liquid absorber is pressed against the gas impermeable film because of volume increase of the liquid absorber due to swelling, so that returning back of the extra juice absorbed by this liquid absorber is expected to be prevented. Especially, even when temporal or continuous pressure is applied, returning back to the extra juice via the liquid permeable sheet can be lowered because this kind of pressure and the above pressure due to the volume increase correspond to each other.

When the vacuum-packed meat is chilled, various technical problems such as the aforementioned deterioration of commodity value, decrease of commodity profit rate, and over-absorption can be solved with removal of the extra juice from the meat.

Brief Explanation of the Drawings

Fig. 1 is an enlarged cross-sectional view showing a package used for packing meat;

Fig. 2 is an enlarged cross-sectional view of a liquid absorber; and

Fig. 3 is an enlarged cross-sectional view showing a package of prior art.

Explanation of Codes

11: meat; 12: a bag; 13: a high absorbent; 14: an absorption sheet;
15: a gas impermeable film; 16: an absorber; 17: a liquid permeable sheet;
18: a liquid impermeable sheet; 19: an absorber; 20: a pulp sheet

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A package for packing meat comprising a gas impermeable film for vacuum packing said meat and a liquid absorber housing an absorber between a liquid permeable sheet facing said gas impermeable film and a liquid impermeable sheet facing said meat.

2. A method of packing meat comprising locating said meat on a liquid absorber housing an absorber between a liquid permeable sheet and a liquid impermeable sheet so that the meat faces the liquid impermeable sheet, vacuum packing said meat and liquid absorber in a gas impermeable film such that juice which exudes from the meat is absorbed through the liquid permeable sheet of said liquid absorber.

3. A method as claimed in Claim 2 wherein the meat is refrigerated.

DATED this 17th day of June, 1992

JAPAN VILENE COMPANY LTD and SEIZO FUJINO

WATERMARK PATENT & TRADEMARK ATTORNEYS
THE ATRIUM
290 BURWOOD ROAD
HAWTHORN VICTORIA 3122
AUSTRALIA

Fig 1.

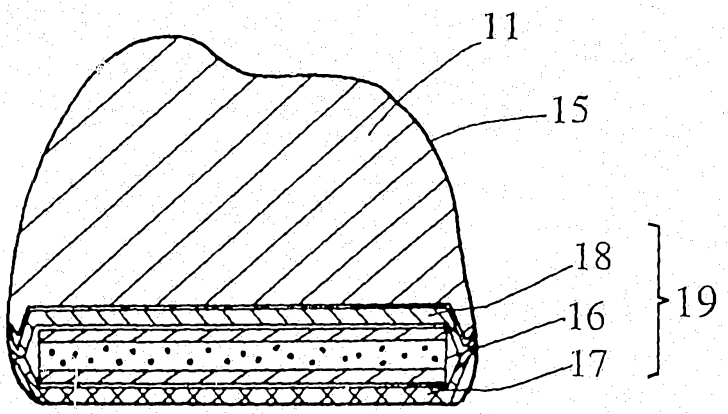

Fig 2.

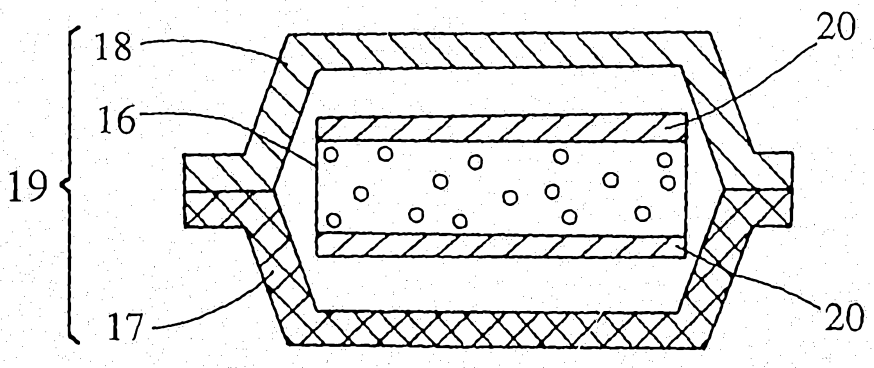

Fig 3.