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### (54) Package for a food product

(57) The invention refers to a package (1) comprising a rigid or semi-rigid flat support (3), possibly perimetricaly provided with walls (9) and with a raised edge (7), a first flexible plastic film (4) coupled to the support (3) at a face thereof, such first plastic film (4) being a film which can be peeled from the support (3), a food product

(2) arranged on such face of the support (3), a second plastic film (5) superimposed on the first plastic film (4) wherein the first and second plastic film (4, 5) are bound together along a peripheral band with the formation of a substantially sack-shaped sealed casing (6) containing said food product (2), such sealed casing (6) being detachable from the support (3) substantially by pulling.

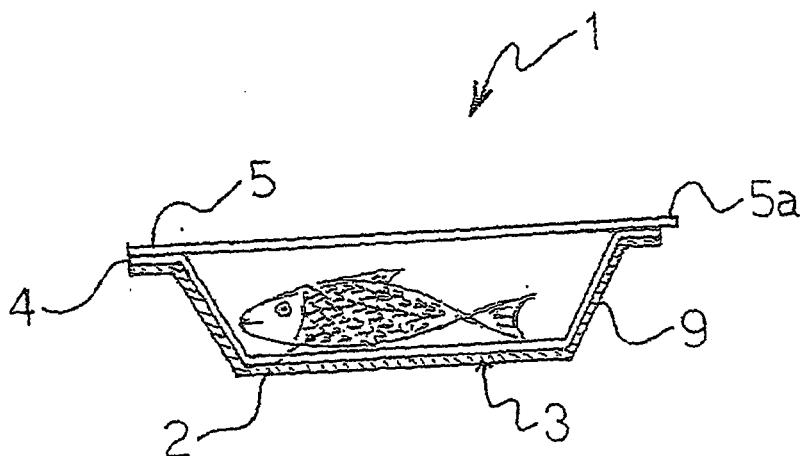


Fig. 1

**Description**Field of application

**[0001]** The present invention in general regards the field of food packaging and more in particular the invention refers to a package for a fresh food product, particularly recommended for self-service sale.

**[0002]** By fresh food product it is here intended a food product susceptible to a quick deterioration of nutritional and organoleptic properties, such as for example meats, sliced salami/ham, fresh fish, but also fresh cheeses and similar food products.

**[0003]** By self-service sale it is intended the sale, particularly in supermarkets and hypermarkets, of fresh pre-packaged food products, directly accessible to the consumer, generally exhibited in refrigerator display cases.

Prior art

**[0004]** Packages for fresh food products such as meat or fish are well known. These packages, mainly used for self-service sale, are generally composed of a plastic material tray, containing slices or pieces of meat or fish, closed by a transparent plastic film.

**[0005]** The aforesaid packages, although advantageous, have the drawback of being particularly bulky and occupying much of the available space in a home refrigerator, where the consumer generally places it once purchased.

**[0006]** To resolve such drawback, the consumer generally removes the food product from the purchased package and repackages it in a "homemade" manner, eliminating the tray.

**[0007]** However, if the food product was packaged in a protective atmosphere, the repackaging operation involves the loss of such protective atmosphere, with considerable reduction of the time period in which a correct preservation is ensured for the fresh food product.

Summary of the invention

**[0008]** The technical problem underlying the present invention is that of providing a package for a fresh food product, such as for example meat, sliced salami/ham, fish and fresh cheeses which is particularly recommended for self-service sale, having structural and functional characteristics such to overcome the limitations and drawbacks which still limit the packages according to the prior art.

**[0009]** The aforesaid problem has been resolved, according to the invention, by a package for a food product comprising:

a rigid or semi-rigid flat support, possibly perimetrically provided with walls and with a raised edge,

a first flexible plastic film coupled to a face of such

support and peelable therefrom,

a food product arranged on said face of the support,

and a second flexible plastic film superimposed on the first plastic film and bound thereto along a peripheral band,

with the formation of a substantially sack-shaped sealed casing containing the food product.

**[0010]** According to the invention, the aforesaid casing can be separated from the rigid or semi-rigid support, being substantially detachable therefrom by pulling, without its integrity being compromised, i.e. preserving the sealed casing characteristics.

**[0011]** In particular, the aforesaid support consists of a sheet or plate of plastic material, or of a plastic material tray container.

**[0012]** In the latter case, the support is perimetrically provided with side walls and with a raised edge in order to form such tray-type container.

**[0013]** Advantageously, the aforesaid plastic material is recyclable and/or bio-degradable and preferably it is polyactic acid (PLA) or a polymer mixture containing PLA.

**[0014]** However, it is also conveniently possible to make the support in other low-cost plastic material, such as for example polyethylene terephthalate (PET), polystyrene (PS) or polypropylene (PP), both compacted and expanded.

**[0015]** In accordance still with a further aspect of the invention, the present package permits the packaging of a fresh food in a protective or modified atmosphere.

**[0016]** In such case, the package according to the invention also comprises a predetermined gas or gas mixture trapped in the aforesaid sealed casing, preferably a gas chosen from the group comprising nitrogen, argon, oxygen, helium, carbon dioxide and their mixtures.

**[0017]** Alternatively, in a variant embodiment of the invention provided for when the food product is not preferred in a modified atmosphere, the present package is of so-called "skin" type, the aforesaid casing being vacuum-tight sealed.

**[0018]** In this case, the sealed casing, being perfectly adherent to the packaged food product, renders the present package, when its support is removed, still more compact and less bulky.

**[0019]** Regarding the aforesaid first and second plastic film, it should be said that they are preferably transparent plastic films.

**[0020]** If a protective atmosphere is used inside the package, or in the case of vacuum-tight package, the aforesaid films are impermeable to gases, for example they are multilayer films comprising at least one barrier layer, such as an EVOH (ethyl vinyl alcohol) layer or PVDC (polyvinylidene chloride) layer.

**[0021]** Regarding the aforesaid bond between such

first and second plastic film, it preferably consists of a seal obtained by sealing the two plastic films, one of which, in particular the second plastic film, has an edge protruding over the aforesaid peripheral band.

**[0022]** Advantageously, such protruding edge constitutes a grip for the aforesaid sealed casing, in particular a grip for carrying out the separation, substantially by pulling, of the sealed casing from the rigid or semi-rigid support.

**[0023]** Alternatively, in a variant embodiment of the invention, the support has, near one end of the aforesaid raised edge, and on the face opposite the aforesaid face coupled with the first plastic film, an incision which constitutes a weakening section for the removal of the sealed casing substantially by pulling.

**[0024]** In another aspect thereof, the present invention refers to a process for realising the above-illustrated package comprising the steps of:

providing at least one rigid or semi-rigid flat support, possibly perimetrically provided with walls and with a raised edge on a face of which a first flexible plastic film was previously laminated such that it is a peelable film from the plastic material support;

arranging a food product on the aforesaid face of the plastic material support in contact with the aforesaid first plastic film;

laying a second plastic film on top of the first plastic film;

binding such second plastic film to the first plastic film along a peripheral band thereof, with the formation of a substantially sack-shaped sealed casing containing the food product.

**[0025]** Moreover, if the package according to the invention is of the so-called modified atmosphere type, the present process then comprises, before the formation of the sealed casing, a step of at least partial substitution of the air present between the aforesaid first plastic film and the aforesaid second plastic film with a pre-established gas or gas mixture.

**[0026]** In accordance with one embodiment of the invention, such substitution of air is attained through at least partial extraction of the air present between the first and second film followed by an introduction, always in the space comprised between the aforesaid films, of the pre-established gas or gas mixture.

**[0027]** In this case, this is a vacuum/gas process, in which the modified atmosphere (composed of one or more of the previously mentioned gases) is made via vacuum by means of devices of conventional type.

**[0028]** Alternatively, in accordance with a further embodiment of the invention, the air is only substituted by expulsion through insufflation of the pre-established gas or gas mixture, in a so-called "gas-washing" process.

**[0029]** In the latter case, the pre-established gas or gas-mixture is insufflated between the first and second plastic film arranged one on top of the other.

**[0030]** The insufflated gas expels the air present between the aforesaid two plastic films, occupying in turn the space comprised between them and subsequently remaining trapped in the sealed casing when the plastic films are bound together.

**[0031]** In still another embodiment of the process according to the invention, and in particular if a package is given of the so-called vacuum-tight type (skin-tight), the present process provides entirely extracting the air comprised between the first and second plastic film, without subsequent introduction of any gas.

**[0032]** The main advantage of the package according to the present invention lies in the possibility of reducing, if desired, the space occupied by the package itself, without compromising its capacity to correctly preserve the food product therein contained.

**[0033]** The preservation of the food product is in fact entrusted to the sealed casing, which advantageously remains integral even after its separation from the rigid support and which, as needed, can enclose a modified atmosphere and/or comprise barrier layers which are impermeable to gases, ensuring a particularly prolonged preservation time of the food product.

**[0034]** The possibility of removing the sealed casing from the package support, for example from the tray container, in fact permits to have a casing which is no longer rigid but rather of slack sack type, and is therefore less bulky compared to the completely substantially rigid type package, and capable hence of optimising the space occupied during preservation, for example in a home refrigerator.

**[0035]** Alternatively, the sealed casing can be made as a skin package, resulting still more compact when separated from the support.

**[0036]** The rigid or semi-rigid support, on the other hand, both when in substantially flat form, like a sheet or plate of plastic material, and when in tray form, i.e. with support perimetrically provided with walls, protects the sealed casing during the storing period of the package inside the production site and also at the point of sale. The rigid support also ensures the protection of the sealed casing during the transport from the production site to the point of sale and from the latter to the home.

**[0037]** The rigid support, moreover, renders the packaging process of the food product particularly easy; such process can rely on the support provided by the tray container or by the sheet of rigid or semi-rigid plastic material.

**[0038]** A further advantage of the package according to the present invention lies in the low environmental impact which it has regarding its disposal and/or recycling.

**[0039]** Considering that the rigid or semi-rigid support, for example the tray container, represents about 80% by weight and 95% by volume of the package (without considering the food contained therein), one easily understands the advantage of making the tray container in low

cost and biodegradable material like PLA, which among other advantages also has that of being obtained from a renewable source.

**[0040]** It should also be observed that the present package is particularly advantageous if barrier layers are provided for.

**[0041]** In the packages made available by the prior art, protection from oxygen is generally attained by employing composite solutions, like tetrapak®, which do not permit an easy separation of the components.

**[0042]** With the present package, it is possible to separate the recyclable components from those non-recyclable, or in any case to selectively dispose the different materials which make up the package according to the invention.

**[0043]** In other words, the tray container, or more in general the rigid or semi-rigid support of the package and the sealed casing, being intended for different roles, and being separable already during the use of the present package, can each be advantageously made of a pre-established material with specific respective advantages.

**[0044]** Advantageously, it follows that, for example, for the food product contained in the present package, it is possible to have a greater thermal insulation, provided by the rigid or semi-rigid support, especially if of expanded type, when this is more desirable than during the consumer's travel from the point of sale to his/her home.

**[0045]** Once the consumer has reached home, the package is generally put in the refrigerator and following the removal, for example of the tray container, the thermal insulation that the package has towards the food product therein contained is considerably reduced, as is desirable in order to attain quick cooling when the package itself is preserved in a refrigerated environment.

**[0046]** Further advantages and characteristics of this invention will be clearer from the description of several preferred embodiment examples of a package for a food product according to the invention, made hereafter with reference to the attached drawings, provided for illustrating and non-limiting purposes.

#### Brief description of the drawings

**[0047]** In such drawings:

- Figure 1 shows a cross section schematic view of a package for a food product according to the present invention;
- Figure 2 shows the package of figure 1 during the separation operation of the sealed casing from the rigid support;
- Figure 3 shows the package of figure 1 without the rigid support;
- Figure 4 shows a detail of the package of figure 1 in enlarged scale, in accordance with a variant embod-

iment of the invention.

#### Detailed description

5 **[0048]** With reference to the aforesaid figures, a package for a food product according to the present invention is indicated in its entirety with 1.

**[0049]** In particular, in the non-limiting example of the figures, the fresh food product is composed of fish, indicated with 2. The package 1 essentially comprises a flat support 3, in the figures represented with perimeter walls 9 and with a raised edge 7 in order to form a tray container of rigid or semi-rigid type, a first flexible plastic film 4 coupled to a face of such support 3 on which the food product 2 is arranged and a second flexible plastic film 5 superimposed on said first plastic film 4.

**[0050]** In accordance with a first aspect of the invention, the first plastic film 4 is a peelable film, in other words, the first plastic film 4 is coupled to the support 3 in a manner such that it can be substantially removed by pulling therefrom.

**[0051]** For example, such first peelable film 4 is a flexible and transparent plastic film, which was laminated on the support 3 in a conventional manner.

25 **[0052]** In accordance with the invention, the first plastic film 4 and the aforesaid second plastic film 5 superimposed thereon are bound to each other along a peripheral band, in such a manner making a sealed casing 6.

**[0053]** The sealed casing 6 is a substantially sack-shaped casing which, in accordance with the invention, is also substantially detachable by pulling from the aforesaid support 3, as is shown in figures 2 and 3 where the present package is represented during the separation operation of the sealed casing 6 from the support 3 and without the same support 3.

**[0054]** Regarding the support 3, it should be noted that it is possible to provide for, in accordance with the invention and as an alternative to the tray container form illustrated in the figures, a support 3 constituted by a sheet or plate, for example made of plastic material, that is a flat support lacking perimeter walls, which in the attached figures is not represented.

**[0055]** For the aforesaid separation operation, the second film 5 may have an edge 5a laying over the support 3, in other words an edge 5a protruding beyond the aforesaid peripheral band, so to ease its grip for the pulling operation and consequent separation of the sealed casing 6 from the support 3.

**[0056]** It should be observed that, as illustrated here with reference to figures 2 and 3, the edge 5a projects beyond the aforesaid raised edge 7 of the support 3, at which the bond between the first and second plastic material film 4, 5, is made, preferably by heat-sealing of the two plastic films.

55 **[0057]** Alternatively, the aforesaid separation operation by pulling can be facilitated by a weakening line provided in the rigid support 3.

**[0058]** In this case, as illustrated in the example of fig-

ure 4, the package 1 comprises an incision made near an end edge of the support 3, in particular on an end edge of the raised perimeter edge 7, on the face thereof opposite the face on which the first plastic film 4 is coupled.

**[0059]** The incision 8 has a pre-established depth, such to be slightly less than the thickness of the support 3.

**[0060]** In this manner, it is possible to "break" the rigid support 3 at such incision 8, advantageously without damaging the sealed casing 6, and to use the broken end portion as a grip for the subsequent pulling-separation operation.

**[0061]** If one desires a prolonged preservation of the food product, the present package moreover comprises a predetermined gas, or gas mixture, trapped between the first 4 and second 5 plastic film, which realizes, inside the sealed casing 6, a modified and protective atmosphere for the food product contained in the package.

**[0062]** In such case, as with the vacuum-tight package, the aforesaid plastic films are impermeable to gases, for example they are multilayer plastic films with at least one barrier layer.

**[0063]** By barrier layer it is intended a particularly resistant layer to the passage of gas, normally having a thickness in the range of 2-12 microns, generally composed of EVOH (ethyl vinyl alcohol) or PVDC (polyvinylidene chloride), not represented in the figures.

**[0064]** In accordance with the invention, the present package is made according to the previously illustrated process.

**[0065]** It is intended that a man skilled in the art, in order to satisfy particular and contingent needs, can make numerous modifications to the package according to the invention and to its process of realization described above, all modifications being moreover comprised in the scope of protection of the invention as defined by the following claims.

## Claims

1. Package (1) comprising a rigid or semi-rigid flat support (3) possibly perimetricaly provided with walls (9) and with a raised edge (7), a first flexible plastic film (4) coupled to said support (3) at a face thereof said first plastic film (4) being a film which can be peeled from said support (3), a food product (2) arranged on said face of said support (3), a second plastic film (5) superimposed on said first plastic film (4) wherein said first and said second plastic film (4, 5) are bound together along a peripheral band with the formation of a substantially sack-shaped sealed casing (6) containing said food product (2), said sealed casing (6) being detachable from said support (3) substantially by pulling.
2. Package according to claim 1, wherein said support (3) is a sheet or plate made of plastic material.

3. Package according to claim 1, wherein said support (3) is a tray container made of plastic material.
4. Package according to claim 2 or 3, wherein said plastic material is recyclable and/or biodegradable.
5. Package according to claim 4, wherein said biodegradable plastic material is polylactic acid (PLA) or a polymer mixture containing PLA.
10. 6. Package according to any one of the preceding claims, further comprising a predetermined gas or gas mixture trapped in said sealed casing (6).
15. 7. Package according to claim 6, wherein said predetermined gas is chosen from the group comprising nitrogen, argon, oxygen, helium, carbon dioxide and their mixtures.
20. 8. Package according to any one of the claims 1-5, wherein said sealed casing is vacuum-tight.
9. Package according to any one of the preceding claims, wherein said first and second plastic film (4, 5) are films impermeable to gases.
25. 10. Package according to claim 9, wherein said first plastic film (4) and said second plastic film (5) are multi-layer films comprising at least one barrier layer.
30. 11. Package according to claim 10, wherein said barrier layer is a layer made of EVOH or PVDC.
35. 12. Package according to any one of the preceding claims, wherein the bond between said first and said second plastic film (4, 5) consists of a seal by sealing said films.
40. 13. Package according to any one of the preceding claims, wherein said second plastic film (5) has an edge (5a) protruding beyond said peripheral band, constituting a grip for said sealed casing (6).
45. 14. Package according to any one of the claims 1-12, wherein said support (3) has, near an end edge and on the face opposite said face coupled with said first plastic film (4), an incision (8) constituting a weakening section for the removal of said sealed casing (6) substantially by pulling.
50. 15. Process for realising a package (1) for a food product (2) comprising the steps of:
  - a) providing at least one rigid or semi-rigid flat support (3), possibly perimetricaly provided with walls (9) and with a raised edge (7) on a face of which a first flexible plastic film (4) has been previously laminated, such that said first plastic film

(4) is a film which can be peeled from said plastic material support (3);

b) arranging a food product (2) on said face of said plastic material support (3), in contact with said first plastic film (4);

c) laying a second plastic film (5) on top of said first plastic film (4);

d) binding said second plastic film (5) to said first plastic film (4) along a peripheral band thereof, with the formation of a substantially sack-shaped sealed casing (6) containing said food product (2).

16. Process according to claim 15, further comprising, before the formation of said sealed casing (6), a step of at least partial substitution of the air present between said first plastic film (4) and said second plastic film (5) with a pre-established gas or gas mixture.

17. Process according to claim 16, wherein said substitution is attained through at least partial extraction of the air comprised between said first (4) and said second (5) plastic film, followed by an insertion of said gas or gas mixture between said plastic films (4, 5) arranged one on top of the other.

18. Process according to claim 17, wherein said substitution is attained by expulsion of said air by means of insufflation of said pre-established gas or gas mixture between said plastic films (4, 5) arranged one on top of the other.

19. Process according to claim 15, further comprising, before the formation of said sealed casing (6), a step of entirely extracting the air comprised between said first plastic film (4) and said second plastic film (5).

20. Process according to claim 16, wherein said pre-established gas is chosen from the group comprising nitrogen, oxygen, argon, helium, carbon dioxide and their mixtures.

21. Process according to any one of the claims 15-20, wherein said rigid or semi-rigid support (3) is made of recyclable and/or biodegradable plastic material.

22. Process according to claim 21, wherein said biodegradable plastic material is polylactic acid (PLA) or a polymer mixture containing PLA.

23. Process according to any one of the claims 15-22, wherein said first and second plastic film (5) are films impermeable to gases.

24. Process according to claim 23, wherein said first plastic film (4) and said second plastic film (5) are multilayer films comprising at least one barrier layer.

25. Process according to claim 24, wherein said barrier layer is a EVOH or PVDC layer.

26. Process according to any one of the claims 15-25, wherein the bond between said first plastic film (4) and said second plastic film (5) is made by means of sealing said films.

27. Process according to any one of the claims 15- 26, wherein said second plastic film (5) has an edge (5a) protruding beyond said peripheral band constituting a grip of said sealed casing (6).

28. Process according to any one of the claims 15-27, wherein said support (3) is incised near an end edge and on the face opposite said face coupled with said first plastic film 4, with the attainment of an incision (8) constituting a weakening section for the removal of said sealed casing (6) substantially by pulling.

29. Rigid or semi-rigid support for use in the process according to any one of the claims 15-28 constituted by a plate or by a tray made of plastic material, on a face of which a flexible plastic film is laminated which can be peeled from said face.

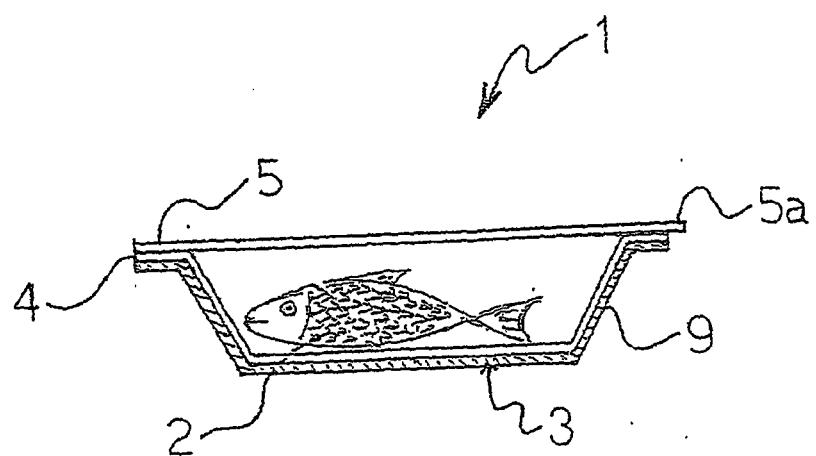


Fig.1

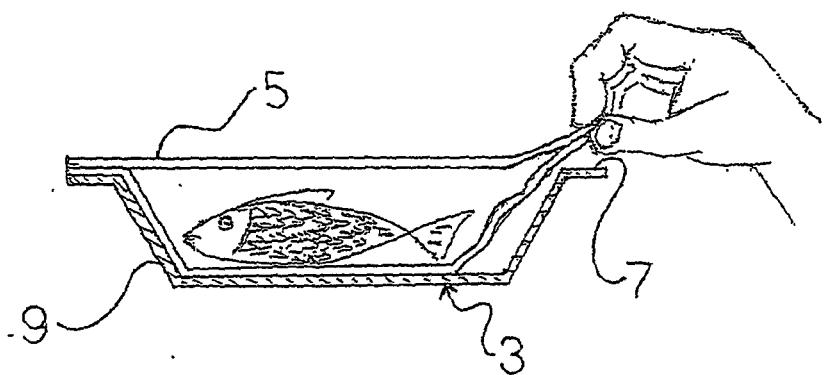


Fig.2

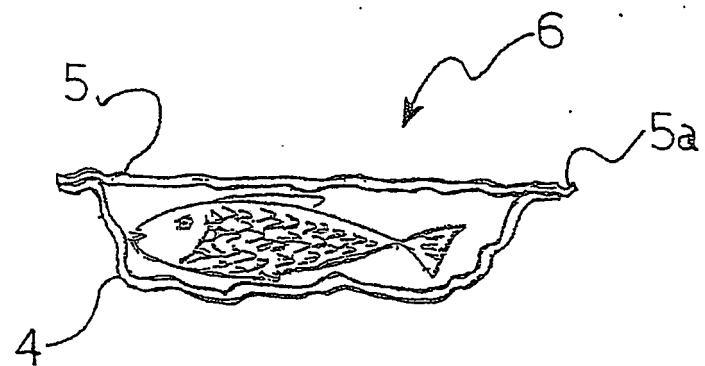


Fig.3

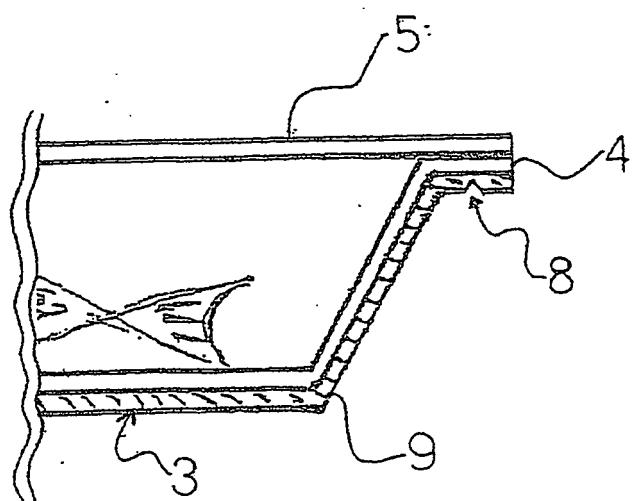


Fig.4