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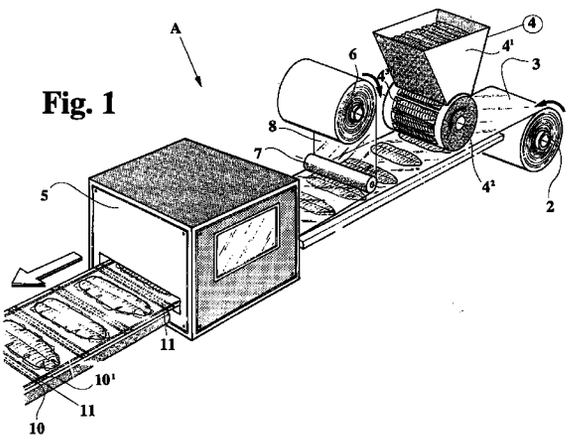
(54) Process and plant for packaging fish, particularly anchovies and sardines, as well as package thus obtained

(57) Process for packaging particularly anchovies, sardines, and packaging thus obtained, in which the fish product, prepared for the preservation, is heaped in at least one means for the delivery of the same along a working line, consisting of:

- advancing a continuous support (3) under a first upstream station (4,41,42), for delivery step by step, above said continuous advancing support (3), a fish product, in single portions (a);
- superposing on a second station (6,8,7) an upper film (8) on said support (3) to cover the fish product laid on the same (a);
- sending the thus obtained product portions, through a downstream working station (5), which, both in a vacuum and in modified atmosphere, is carried out the perimetrical welding of the said upper film (8) to the underlying support (3);
- and between a portion (a) and the adjacent one (a), in carrying out the pre-cutting by a strip system, obtaining a plurality of bags;
- finally, in starting said bags towards a final station, which carries out their packaging in a capacious package for more bags of product.

Fig. 1



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Description

[0001] The present invention has for object a process for packaging, particularly anchovies, sardines, and packaging thus obtained. The innovation finds particular even if not exclusive application in the field of the public distribution of fish food products in oil, pre-packaged.

Prior art

[0002] Anchovies as well as sardines are known. They are an eatable fish product, very tasty, appreciated by the Italian consumers but also widely spread mainly in the Mediterranean Countries. Fished in abundance in our seas, they are found in our daily meals, as an hors d'oeuvre eaten alone, or as a flavouring, for instance in sauces for first courses, but also combined with other food, such as for instance pizza, a known and tasty food eaten all over the world. Such a flexibility is due, together with the typically marked taste, optimal for reviving various dishes which would otherwise be tasteless, to that the product is put on the market in various solutions, more frequently in oil, but also pickled or natural. In all these circumstances, the product is packaged, perfectly clean and boned, in form of fillets, using two preservation solutions: in a glass jar or in a tin box. From the commercial viewpoint, there is only a slight dimensional difference in the containers, according to their destination. Therefore, in the case the products are intended for the wide distribution and the food retail shops, these are put on the market in dimensionally rather small containers, while in case of a direct supply, as public bars and restaurants, the products are generally held in containers larger than the first ones.

[0003] Such needs are obviously related to the consumption levels which, in the two cases, are different.

[0004] Also the fact that the fillets preservation time depends on the consumed amount in the open packages, is an important factor, mainly for what concerns the food proper tasting. It is in fact known that, as it happens with other food, when this latter comes into contact with air, once the packaging is open, it looses, in proportion to the time in which it stays in the packaging, its organoleptic characteristics. For obviating such a drawback, the food should be consumed in short time.

[0005] This circumstance, though, occurs very seldom for the large public, except in few cases. This is mainly due to that the fillets, especially the anchovy ones, are very tasty and only few of them are necessary for being satisfied. For the glutton, thus, the packaging, being either the traditional tin can or the glass jar, will remain open in the refrigerator for more or less long periods. Such stocking period, depending on the amount of fillets, besides the product organoleptic alteration, involves other problems, which undoubtedly involve the hygiene.

[0006] This is the case of bacteria proliferation, mainly in the products left, once opened, in their original containers, as for the tin can, which between one and the other consumptions, being each time taken out of the refrigerator, is subjected to temperature sudden changes. In this hypothesis, to the product natural deterioration, once in contact with air, the oxidation phenomenon may be added, increased by the salt which is naturally present in the food-stuff. This, attacks the can intrados, thus spreading the toxic substances contained in the packaging in the area where the food-stuff is placed. With regard to this, it should be remembered that it's a good rule to extract the food-stuff from its original container, once the packaging is open, and to preserve it at a temperature as low as possible, in suitable plastic containers provided with sealing caps. A second negative aspect, found in the solutions presently existing on the market, regards the handling, for instance of the anchovy packages. Usually, in fact, the consumer for reaching the food, as in the case of the can, must use the traditional key system which by engaging an edge of the tin, in correspondence of the side or of the cap, tightens a part on itself, slowly uncovering the container. Such operation, even for the most skilled ones, involves a certain handling, which in spite of the necessary care, leads to unavoidably loose the product's liquid, whose smell is not pleasant, on the adjacent surfaces. For this reason, when the preservation liquid is oil, the handling of the packaging during the opening operations causes the spreading on the surfaces, including the same can, dirtying the hands and other kitchen tools. In this case, once the packaging is open, and the content consumed, many people place it directly in the refrigerator, dirtying also said surfaces with oil and liquids. This leads the most careful consumer to transfer the food-stuff from the can into another clean container, while the first one will be thrown away.

[0007] A similar situation may also occur with cans like those presently existing, that is those with a strip opening ring. Also in this case, though, a handling is necessary, during the opening operation, or simply when extracting the anchovies in oil in them contained, unavoidably causing, because of the low edge, a dirtying of the can surfaces and of the surrounding area, with the risk of staining also the unfortunate user's clothes.

[0008] The advantage of said cans is that they contain few anchovies, all laid flat, easing because of the little quantity the prompt consumption as a quality guarantee. The anchovies being a poor product, and in order to justify the high prices for the public deriving from the high packaging costs, the manufacturers generally distribute them in small amounts, pre-wounded, sometimes with a caper in the centre or also with special sauces, the whole immersed into an oil bath. In some other cases, for justifying the high price, the manufacturers lay the anchovy fillets, in the can, one on the other, giving the idea of a certain increase of the eatable quantity. For both arts, it was noticed that the packaging costs, have an heavy influence on the cycle going form

production to distribution, a drawback to which others must be added, leading the consumer to a natural dislike. For what concerns the costs, they are various and range from the simple cost of the packaging, to the complex manufacturing, in many case still a manual one, up to the considerable amount of oil necessary for preserving the fillets, for instance anchovy ones, which is destined for being thrown away with the packaging.

[0009] The same problem, mainly concerning the high packaging costs, is found also for other packaging types, which use glass, such as the traditional jar. Such a solution, provides the placing of the fillets, in a greater amount with respect to the traditional cans, wound with or without caper or open, in this latter case vertically arranged. For these the favourite type of preservation is also an oil bath, in which they are suitably closed by a perimetral clip or twist-off type cap. The fact of providing some oil, together with the use of certainly uncomfortable closures, create a situation in which the costs problem is added to an uncomfortable consumption, which like in the previous solutions, leads to dirty the surfaces, and, once the packaging is open, to loose a certain fragrance, a characteristic which should never be lost.

[0010] A purpose of the present invention is also that of obviating the above mentioned drawbacks, offering a real, easy and usefully peerless solution.

[0011] These and other purposes are reached with this invention according to the characteristics as in the enclosed claims solving the mentioned problems by means of a process for packaging particularly anchovies, sardines, and packaging thus obtained, in which the fish product, prepared for the preservation being at least of the boned and eventually aromatized type, is heaped in at least one means for the delivery of the same along a working line, consisting:

- of a first upstream station, delivering step by step, and above a continuous support, the fish product, in single portions;
- then in superposing an upper film on said support and on the fish product;
- in sending the thus obtained portions, through a downstream working station, which, both in a vacuum and in modified atmosphere, carries out the perimetrical welding of the upper film to the underlying support;
- and eventually, between a portion and the adjacent one, in carrying out the pre-cutting by a strip system, obtaining a plurality of bags one linked to the other;
- finally, in starting said bags towards a final station, which carries out the packaging in a capacious package for more bags of product. Thus obtaining the following advantages, which reach an immediate and considerable technical progress, is possible:
- in the first place, a peerless fragrance, meaning that each product unit, being separately packaged, maintains its original organoleptic characteristics almost unchanged, offering to the consumer the possibility of tasting always fresh products, independently of the consumed quantity;
- a better comfort, meaning that when satisfying the appetite is necessary, only a single bag at a time is used, which contains a product originally already pre-arranged for being preserved, but without oil in excess or other free liquid, a condition which besides giving a better taste avoids dirtying the adjacent surfaces, the cutlery and the like;
- an optimal quality and hygiene of the product, which is perfectly preserved, without coming into contact with the elements which ease its degradation;
- a better productive capacity, increasing the packaging cycle speed and e peerless flexibility, being able to pass from a kind of product to the other, with the possibility of operating independently of the preservation pre-treatment and of eventual additional processes which aim at making the product more tasty;
- a considerable economical benefit, easing the product consumption, because, there is no more resort to the expensive packages, such as the tin can or glass jar, and at the same time, avoiding or eventually reducing the use of eatable oil so that the product is just slightly impregnated.

[0012] These and other advantages will appear from the following detailed description of a preferred embodiment solution with the aid of the enclosed schematic drawings whose execution details are not to be considered as limitative but are only given as examples, where respectively:

Figure 1., is a perspective view of the fish product packaging plant; while Figure 2., shows always in perspective, according to an enlarged view, a fish product unit packaged into a bag.

Description of a possible execution.

[0013] Referring also to the figures, it may be noticed that a process for the fish product packaging, consists in carrying out upstream the working line, a preservation pre-treatment, particularly of anchovies, sardines (a), eventually combining with the same ones some components also aiming at flavouring the product, such as for instance some oil (1), some sauces or other aromatizing ingredients. Once carried out said pre-treatment cycle, the anchovies (a), are at first drained, and then sent to a packaging line (A). More in detail, said line, is made up of at least one coil (2), from which a support (3) is unwound in continuous, preferably consisting of a polyethylene film. Said support (3), is then made pass through at least a station (4) for the previously heaped anchovies (a) step by step delivery. In this case, the sta-

tion (4), is made up of a hopper (4^1), in whose inside the anchovies (a) are inserted in a heap, and an underlying drum (4^2), on whose surface some suitable seats (4^3) are obtained aiming at housing time by time the anchovies (a) picked up from the overlapping hopper (4^1), for later being laid, parallel, by means of a drum rotation (4^2), coplanar and equidistant, above said support (3).

[0014] In this condition, the support (3) and the anchovies (a) thus laid on the same, are sent towards a further downstream station (5) which, in this case, consist of a vacuum bell automatic working centre. Operationally, before the support (3) and the anchovies (a) are passed inside of the station (5), a coil (6) by means of a suitable tightener (7), lays in continuous a polyethylene upper film (8), at least covering the anchovies (a) and their surrounding area, as these advance towards the downstream station (5). Finally, inside of this latter, perimetrally to the anchovy (a), a longitudinal, continuous welding (9) with heated wheel, and a double horizontal welding (10) with current pulse welder guns is carried out.

[0015] In a possible solution, between horizontal welding (10) and adjacent welding (10^1), defining two bags of anchovies (a^1) and preferably inside of the working station (5), a pre-cut (11) concerning the upper film (8) and the underlying support film (3), whose trace is an horizontal cut with strip system is carried out. From the working line (A), that is at the working station exit (5), a continuous belt, is obtained, made up of an assembly of linked anchovy bags (a^1), which may be numerically defined and interrupted, an operation mechanically realised also from inside the same station (5), for then being packaged in suitable cans for instance in card-board, in layers or in a coil wound according to the retail selling needs.

Claims

1. Process for packaging, particularly anchovies, sardines, and packaging thus obtained, characterised in that the fish product (a), prepared for the preservation, is heaped in at least one means (4) for the delivery of the same along a working line (A), consisting of:

   - advancing a continuous support (3) under a first upstream station (4,41,42) , for delivering above said support (3), the fish product (a), suodivided in portions comprising at least one unit;
   - superposing and sealingly perimetrally coupling to said support (3) an upper film (8) providing the fish product (a) in intermediate position;
   - then, considering the provided portions, in carrying out the eventual cutting of the thus obtained coupled assembly (a1).

2. Process for packaging, particularly anchovies, sardines, according to claim 1., characterised in that some fish product (a), prepared for the preservation being at least of the boned and eventually aromatised type, is heaped in at least a means (4) for the delivery of the same along a working line (A), consisting:

   - on a first upstream station, in delivering step by step, and above said continuous support (3), the fish product (a);
   - then in superposing an upper film (8) on said support (3) and on the fish product (a) ;
   - in sending the product portions (a), towards a downstream working station (5), which, both in a vacuum condition and in modified atmosphere, is carried out the perimetrical welding of the said upper film (8) to the said underlying support (3).

3. Process, according to claim 1. and 2. characterised in that between the said fish product portion (a) and adjacent portion (a), an horizontal pre-cut with strip system (11) is carried out, obtaining a plurality of bags (a^1), one linked to the other, said pre-cut being made inside of the working station (5) or in a following downstream station.

4. Process, according to previous claims, characterised in that after joining the upper film (8) to the support (3) , the welding between them is carried out on four sides relizing some single bags (a^1), one linked to the other, each of said bags (a^1) making up a portion consisting of a fish product (a) unit.

5. Plant, according to previous claims, characterised in that, following an upstream to downstream path, it consists of at least:

   - a coil (2), from which a support (3) is unwound in continuous, said support being a polyethylene film;
   - a station (4) for the delivery, step by step, of the fish (a);
   - a second coil (6), and suitable tightener transmission means (7) for laying in continuous a polyethylene upper film (8), covering at least the fish (a) and their surrounding area, as these advance towards a downstream station (5);
   - a vacuum bell automatic working station (5) with longitudinal and transverse welding system (5), also comprising a strip pre-cut system.

6. Plant, according to previous claim, characterised in that the said station (4), is made up of a hopper (4^1), inside of which the heaped fish (a) are inserted, and an underlying drum (4^2), on whose surface some suitable seats (4^3) are obtained, aim-

ing at housing each time the anchovies (a) picked up from the overhanging hopper (4^1), for then being laid, above said support (3).

7. Plant, according to previous claims, characterised in that the anchovies (a) picked up from the overhanging hopper (4^1), are laid parallel, as well as coplanar and equidistant above said support (3).

8. Packaging, according to previous claims, characterised in that it consists of a bag (a^1), obtained by joining an upper film (8) to the support underlying film (3), and carrying out the welding on the four sides, said bag (a^1) making up a single portion consisting of a fish product unit (a).

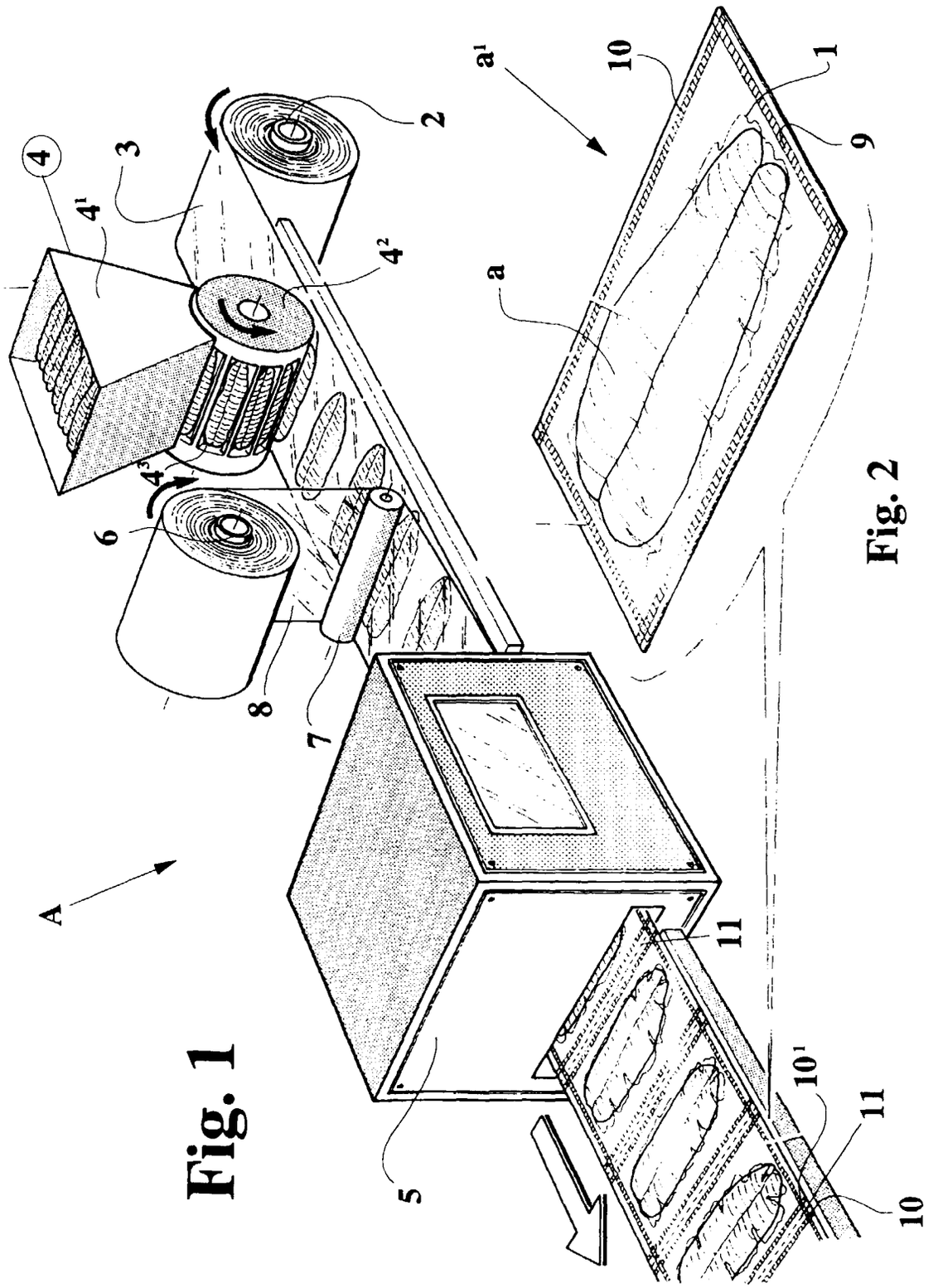

Fig. 1

Fig. 2

European Patent Office

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Application Number
EP 99 10 2105

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17 May 1999	Jagusiak, A

CATEGORY OF CITED DOCUMENTS

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