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(54) **Changing system for carrier with tubing foil for filling machines**

(57) The invention relates to a exchange system for filling machines which are provided with a system by which cylindrical carriers with an empty supply of zigzag folded tube foil can be replaced by a loaded carrier and that prevents that the filling unit during replacement is polluted or that any residue of the materials to be packed end up in the surroundings.

These problems are prevented by making use of carriers with a loaded supply of tube foil that are mounted on the filling head. The exchange system comprises that the last piece of tube foil that was closed during the last filling, together with the elastic ring that was used, is wrapped in the first pack from the new supply of tube foil and can be removed without the filling head being exposed to the outside air.

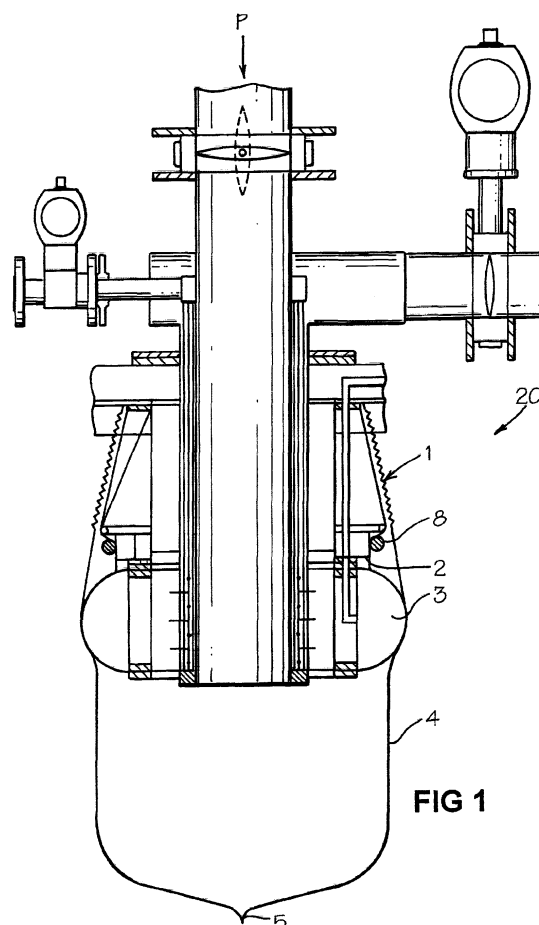


FIG 1

Description

[0001] The invention concerns an exchange system for a supply of tube foil that has been pressed together in a zigzag shape for a packaging machine for powdery or granular materials.

Packaging machines of this kind are disclosed in EP 0.443.349. They make use of tube foil as packaging material and experience the problem that regularly a new supply of tube foil has to be attached to the head. For some of the materials that are to be packed, it is of vital importance that they are not put into contact with the open air. If such is the case, the pack is filled with nitrogen.

When installing the new supply of tube foil to the upper side of the head of the filling tube in the conventional way, the filling head is brought into contact with the open air and powder can be dispersed into the air, by which the filling unit is contaminated or residue of the material to be processed can spread in the surroundings or fall on to the floor/ground and polluting it.

The invention prevents these problems by making use of an exchangeable carrier with a supply of tube foil which is applied to the filling head.

This exchange system comprises that the last piece of tube foil that was closed during the last filling is, together with the elastic ring that has been used, wrapped in the first pack from the new supply of tube foil and can be removed without the filling head being exposed to the outside air.

By making use of an elastic ring for clamping the end of the tube foil on a support ring so that the empty carrier can be taken off the filling head and a carrier with a supply of tube foil can be mounted on the filling head, it is possible to change the carrier with a supply of tube foil in a dust free a substantially gas tight way. The nitrogen atmosphere above the filled off material is therefore not disturbed, by which it is guaranteed that this powdery or granular product is absolutely isolated from the surroundings and contamination of the product and of the surroundings is precluded.

[0002] The invention will now be elucidated referring to a schematic drawing in vertical cross section

Fig. 1 shows the filling head of the filling machine.

Fig. 2 shows the situation at the start of the filling operation.

Fig. 3 shows the situation before the first filling.

Fig. 4 shows the last piece of tube foil as well as the new supply of tube foil.

Fig. 5 shows first pack with end of tube foil with ring.

Fig. 6 shows a schematic axial cross section across a carrier having a number reinforcement rings divided over the height .

Fig. 7 shows a plan view of the carrier of fig.6.

[0003] Fig. 1 shows the filling head, generally indicated with 20, of a packaging machine according to EP 0.443.349, which is provided with several devices to package powdery or granular products P, such as syn-

thetic granules, in tube foil. The place where the supply of pressed together tube foil (4) is allocated, is indicated with (1).

The support ring (2) is dust proof and gas tight connected with the filling head (20). Below the support ring (2) an inflatable rubber ring band (3) is allocated that acts as temporary sealant in the packaging cycle.

The tube foil (4), which is pulled off the carrier, is sealed or tied up at (5), to form a bottom of a bag.

[0004] Fig. 2 shows the starting position in which the carrier (1) with the supply of tube foil (4) is placed on the filling head. The tube foil is placed on the carrier in such a manner that the last part (6) is turned back or doubled so that the first begin part (7) extends at the same side over the last part (6). The end part is clamped dust proof on the support ring (2) with an elastic ring (8). This ring may have a round, oval or rectangular cross section.

[0005] Fig. 3 shows that the begin part (7) is pulled down and is sealed at (5) with a welding or tie up. The sack that is formed this way is filled thereafter with product P and sealed whereby a second sealing at the top forms the bottom of the next bag. In this way the tube foil of the carrier (1) is used.

[0006] Fig. 4 shows the situation whereby the last piece of tube foil (4) is sealed (5). The new carrier (1') with a supply of tube foil is installed and with the first length (7') of this new supply the first bag (4') (see fig 5) is formed.

Because during the installation of the new carrier (9) the elastic ring is pushed downwards (8) and the foil (4) of the new carrier (9) with the new elastic ring (8') is placed on the support ring, the last piece of the foil (4) of the carrier (1) can be removed from the support ring (2) and packed in the bag (4').

[0007] The foil (4) of the new carrier (1') can now further be used for a new set of packaging.

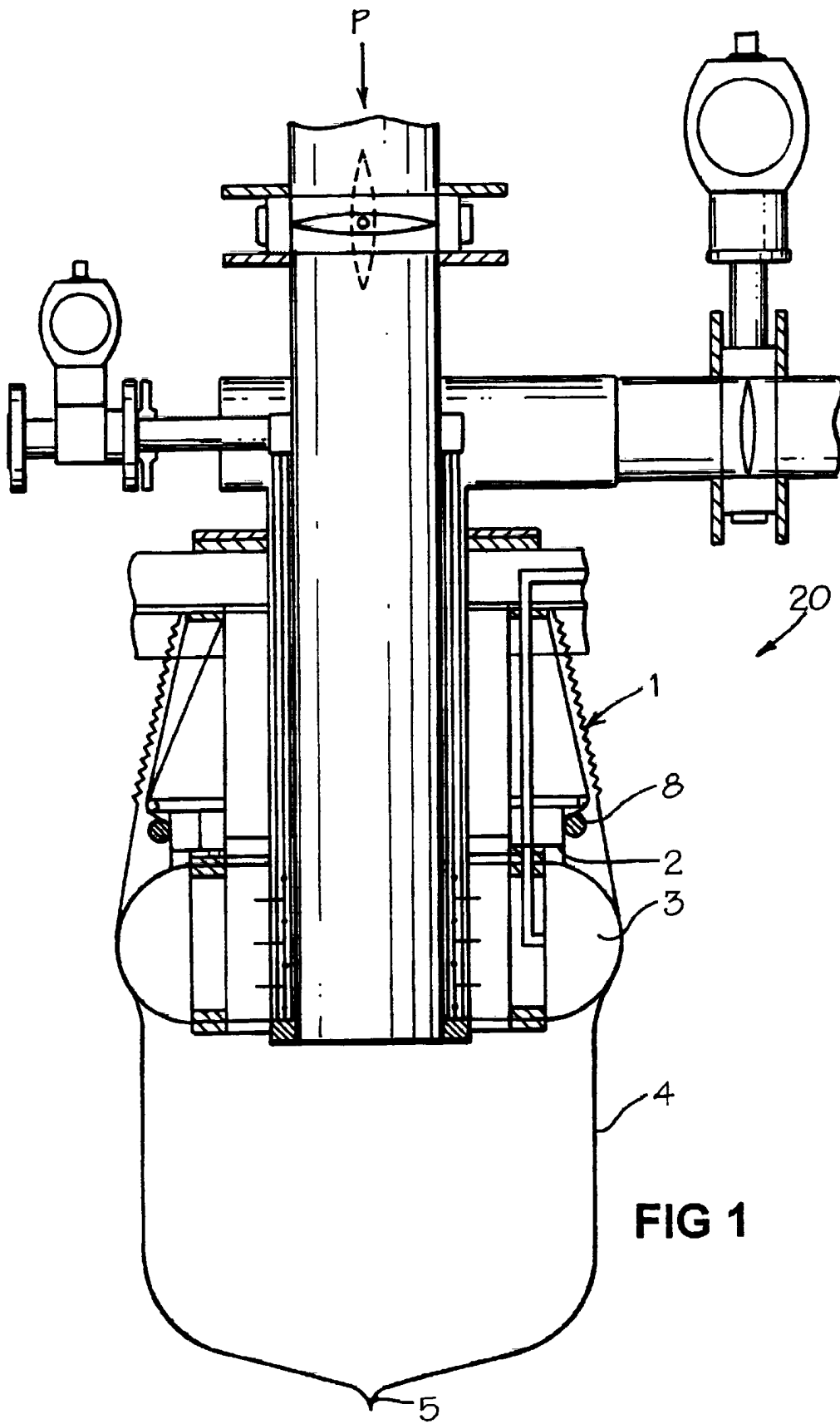
[0008] While replacing the carrier (1) the inflatable rubber ring band (3) is not inflated. It has been found that with this operating procedure a continuous packaging system has been created, whereby no interruption of the dust free and gas tight sealing arises.

[0009] The exchangeable carrier (1) has preferably been manufactured from cardboard or synthetic material that can be recycled. These carriers can separately be loaded with the synthetic tube foil and ready to use delivered to the user for use on his packaging machine.

[0010] Fig 6 shows a carrier, preferably manufactured from cardboard or synthetic material in a schematic axial cross section. It has a number of reinforced support rings (11, 12, 13) of flanges, by which the stiffness is enlarged. The upper flange 11 has a larger outer diameter than flanges 12 and 13. The carrier is installed in the packaging machine with the help of a second inflatable rubber ring band or a other type of quick acting closure, such as De-sta-co clips of the 205USS type of a clip binding.

Claims

1. Exchange system for a supply of tube foil that has been pressed together in a zigzag shape for a packaging machine for powdery or granular materials, characterized in that the supply of pressed together tube foil on the exchangeable carrier (1) in the shape of a revolving body, whereby the tube foil (4) before mounting on to the carrier (1) is turned back so that both ends of the tube foil (4) protrude out from the underside of the carrier. 5 10
2. Exchange system according to claim 1, characterized in that the last piece (6) of tube foil (4) is clamped dust proof on the support ring (2) with an elastic ring (8) whereby the width of the support ring (2) is such that the second elastic ring can be placed next to the first elastic ring (8). 15
3. Exchange system according to claims 1 and 2, characterized in that the next loaded cylindrical carrier (1') is mounted over the last piece of tube foil (4) of the (1) preceding empty carrier (1), and is dust proof fastened with a next elastic ring (8) on the support ring (2) after rolling or sliding away the used elastic ring. 20 25
4. Exchange system according to claim 1,2 and 3, characterized in that the first part of the new tube foil (1') is used for dust proof wrapping of the last part of the preceding tube foil (1) with a new elastic ring (5'). 30
5. Exchange system according to claims 1, 2, 3 and 4, characterized in that the elastic ring (8, 8') has a oval, round or rectangular cross section. 35
6. Exchangeable carrier with tube foil, characterized in that it carries a supply of zigzag pressed together tube foil (4), of which the last piece is folded back and extends below the supply of tube foil, where as the first piece of the zigzag foil (4) sticks out from under the carrier. 40
7. Carrier according to claim 6, characterized in that it is provided with a number of reinforcement rings (11, 12, 13). 45
8. Carrier according to one or more of claims 6 and 7, characterized in that it is mounted on the packaging machine (20) by means of a second inflatable rubber ring band of other quick acting closure. 50
9. Carrier according to one or more of claims 6 through 8, characterized in that the carrier Manufactured from carton or synthetic material. 55
10. Carrier according to one or more of claims 6 through 9, characterized in that the carrier (1) is downwardly conical shaped.
11. Carrier according to one or more of claims 6 through 9, characterized in that the carrier (1) is cylinder shaped. The exchange system comprises that the last piece of tube foil that was closed during the last filling, together with the elastic ring that has been used, is wrapped in the first pack from the new supply of tube foil and can be removed without the filling head being exposed to the outside air.



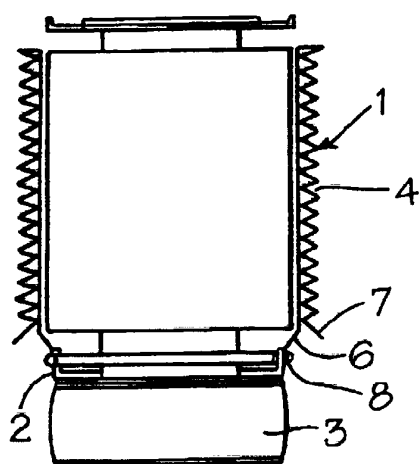


FIG 2

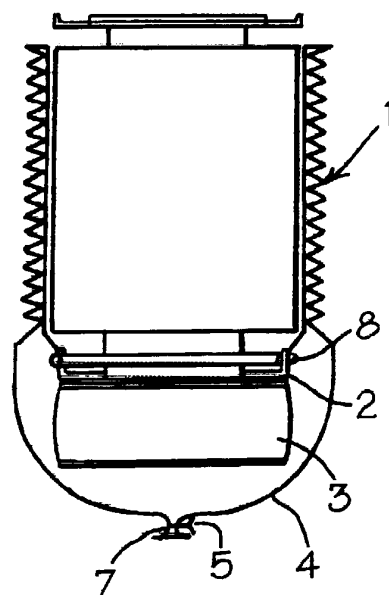


FIG 3

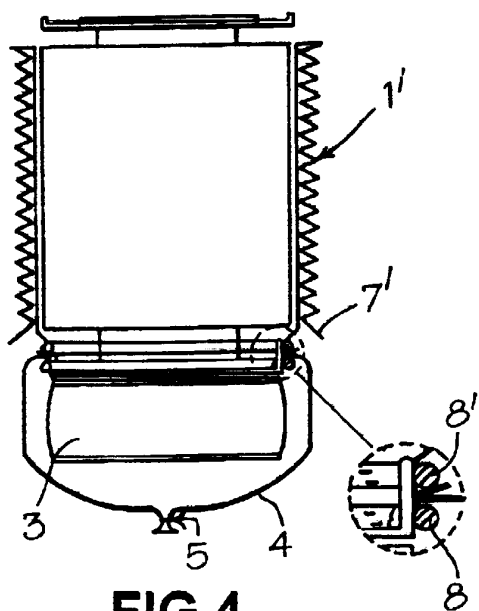


FIG 4

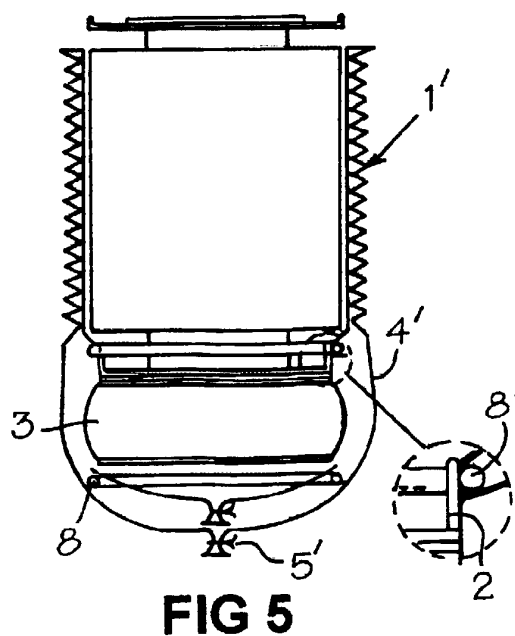


FIG 5

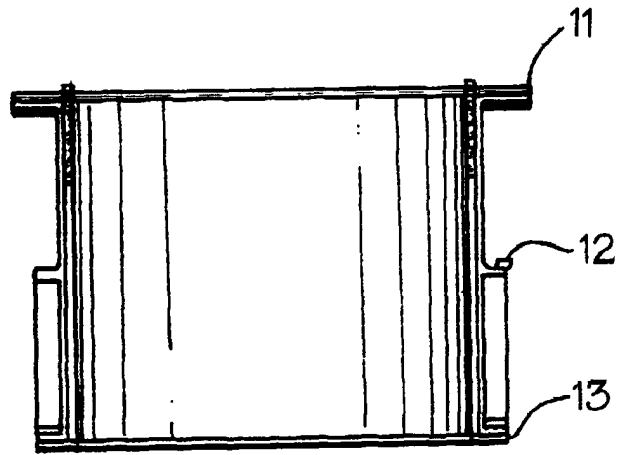


FIG 6

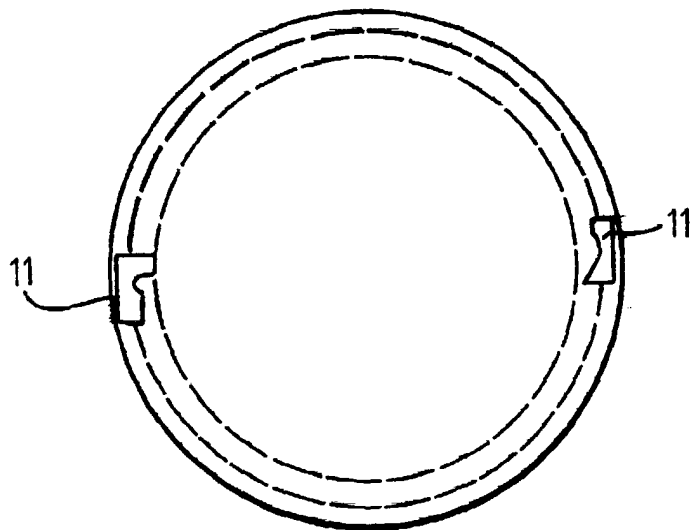


FIG 7



European Patent
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Application Number
EP 99 20 1003

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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65B B65F B01D
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 12 August 1999	Examiner Béraud, F
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 99 20 1003

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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