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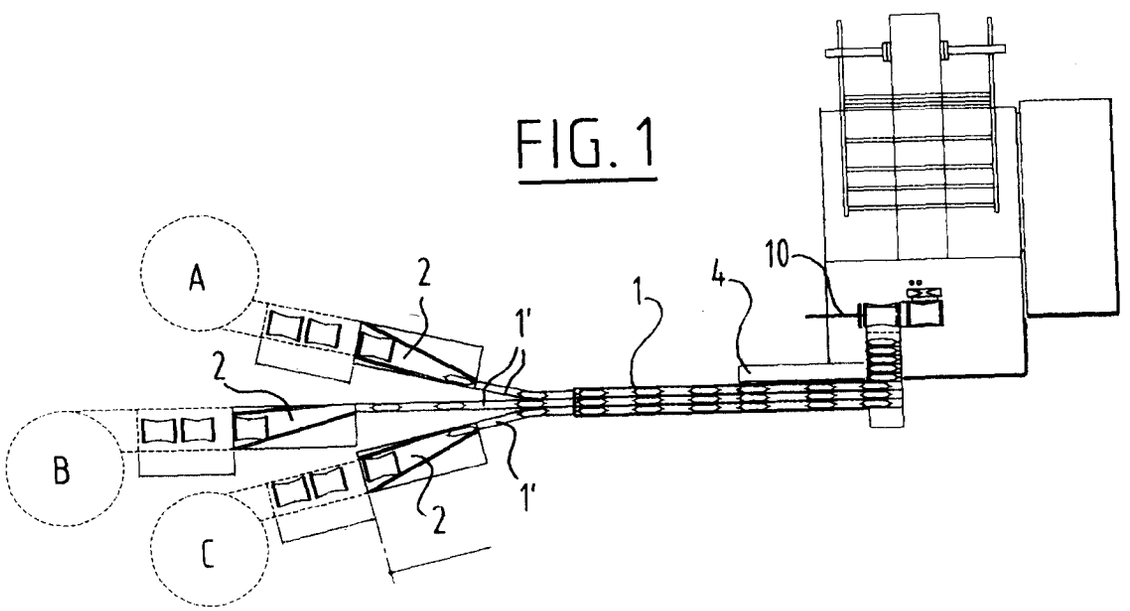
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(54) Device for packaging in a rigid and stacked manner a plurality of separate objects

(57) The invention relates to a packaging device for packaging in a rigid and stackable manner a plurality of separate, thin, limp objects, for instance filled bags, with an open filling tube, means for placing a packing means at one end round the filling tube (7), supply means for supplying objects for packaging at the other end of the filling tube, and a pressing member (8) which can be carried from said other end into the filling tube, wherein the sectional dimensions of the filling tube are chosen slightly smaller than those of the objects for packaging, whereby the packing means with the objects packed therein has sufficient rigidity to be placed upright, so that instructions for use and specifications can be printed on the packing means.

FIG. 1



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Description

The invention relates to a packaging device. The invention relates in particular to packaging of separate, thin, limp objects. Because they have insufficient stiffness of their own such objects can be packed in cardboard boxes but can also be packed a number at a time in outer packaging sacks for presentation to the consumer. The packaging device described here is a response to the wish to package the products ordered or stacked in a compact, flexible and form-retaining packaging. The current methods of achieving this, for instance for crisp bags, require much labour and sometimes complicated means.

It is the object of the invention to provide a device wherein such limp objects, for instance bags filled with powder or granular product or crisp bags, can be packed in a less expensive packing means and wherein the packing means filled with bags still has a sufficient stiffness of its own that the means can for instance be placed in standing position and for instance offered for sale. Because the packing means with the objects packed therein has a sufficient stiffness to be placed standing upright, instructions for use and specifications can be printed on the packing means which can be read by the potential buyer. A significant advantage of the packaging obtained in this manner is that less packaging material is required, which results in environmental advantages and possible material savings.

The above stated objectives are achieved with a packaging device for packaging in a rigid and stackable manner a plurality of separate, thin, limp objects, for instance filled bags, with an open filling tube, means for placing a packing means at one end round the filling tube, supply means for supplying objects for packaging at the other end of the filling tube, and a pressing member which can be carried from that other end into the filling tube, wherein the sectional dimensions of the filling tube are chosen slightly smaller than those of the objects for packaging.

Further advantages and features of the invention will become apparent with reference to the description of the drawings. In the drawing:

Fig. 1 shows a top view of the packaging device according to the invention,

Fig. 2 shows a standing side view of the device of fig. 1, and

Fig. 3 shows a standing front view of the device of fig. 1.

From a number of supply devices (vibrating basin, tube etc.) A, B and C via three separate conveyor belts 1' connected thereto the objects for filling, bags of crisps, are carried up to a central conveyor 1. The number of feed conveyors can be varied depending on the capacity and the number of desired different products. In the feed conveyors connecting onto supply devices A, B and C the bags lie flat on the conveyor, on which conveyor the bags can also be deformed via a device or brought back to shape, for instance via a roller.

The bags can also be oriented on this conveyor, actively or passively, for instance via a ratchet stop. Via a ramp 2 (fig. 2) the bags are carried from the lying to the standing position. In the embodiment shown in fig. 2 the bags are directed horizontally with a long side although vertical placing is also possible. On conveyor 3 the standing bags are carried further and placed at a mutual desired pitch distance using an endless chain conveyor 4. This is achieved in that holding members for instance 5, 6 protrude on chain conveyor 4 in a direction perpendicularly thereof. Such a holding member forms a stop for an arriving bag, while a following holding member then pushes the bag on. The pitch distance is of course geared to the processing speed of the stacking mechanism. This latter is formed by a vertical conveyor 11 with carriers between which the bags are pushed such that only one bag is situated in each opening between the carriers. The bags are carried via this vertical conveyor from a standing to a lying position. The pusher 10 pushes the bags out of conveyor 11 into the filling tube 7. The number of pushers 10 herein determines the number of bags in the stack. This operation can be repeated a number of times. Via the vertical pressing member 8 the bags are pushed out of their initial position in filling tube 7 through the filling tube into the sack 9 situated on the bottom of the filling tube, and thus stacked in clamping manner.

As the figures show, a packing means in the form of a floppy sack 9 is arranged on the underside of filling tube 7. This sack can for instance be formed from a tubular packaging round filling tube 7; a generally known manner of intermittent filling and forming of a sack in a filling machine. The stacked bags are pressed by the pressing member into the packaging sack and thus impart to the sack a stiffness such that it can be placed upright and remains in this position.

In the filling tube are arranged guides and apertures in order to allow the gas compressed during pressing of the bags to escape.

It is further noted that instead of pressing the bags vertically downward in the filling tube as shown in fig. 1-3, it is of course also possible to carry the bags vertically upward into a filling tube placed above the device. It will further be apparent that a plurality of stacks of bags can be processed simultaneously. Parallel belts can be arranged for this purpose and a plurality of stacks can be formed in parallel per filling tube and be introduced into a single packaging sack or separately into a plurality of packaging sacks.

Claims

1. Packaging device for packaging in a rigid and stackable manner a plurality of separate, thin, limp ob-

jects, for instance filled bags, with an open filling tube, means for placing a packing means at one end round the filling tube, supply means for supplying objects for packaging at the other end of the filling tube, and a pressing member which can be carried from said other end into the filling tube, wherein the sectional dimensions of the filling tube are chosen slightly smaller than those of the objects for packaging.

2. Packaging device as claimed in claim 1, **characterized in that** the supply means contain means for placing the objects for packaging into a desired position.

3. Packaging device as claimed in claim 2, **characterized in that** the supply means contain means for moving the objects from a lying position to a standing position.

4. Packaging device as claimed in claim 3, **characterized in that** the supply means contain means for feeding the objects for packaging one by one at a desired mutual distance to the filling tube, and/or for orienting the objects for packaging and feeding them in the desired number to and into the filling tube.

5. Packaging device as claimed in claims 1-4, **characterized in that** the wall of the filling tube has apertures and guides to allow escape of air.

6. Packaging device as claimed in claims 1-5, **characterized in that** the packing means is a sack or a tight envelope of flexible material.

7. Method for packaging thin, limp objects, for instance filled bags, using a device as claimed in any of the claims 1-6, **characterized in that** the products are packed in one or more stacks mutually adjacently in a narrow sack with dimensions equal to or smaller than the product dimensions.

8. Method as claimed in claim 7, **characterized in that** the sack is formed continuously from a tubular material during filling with a number of limp products.

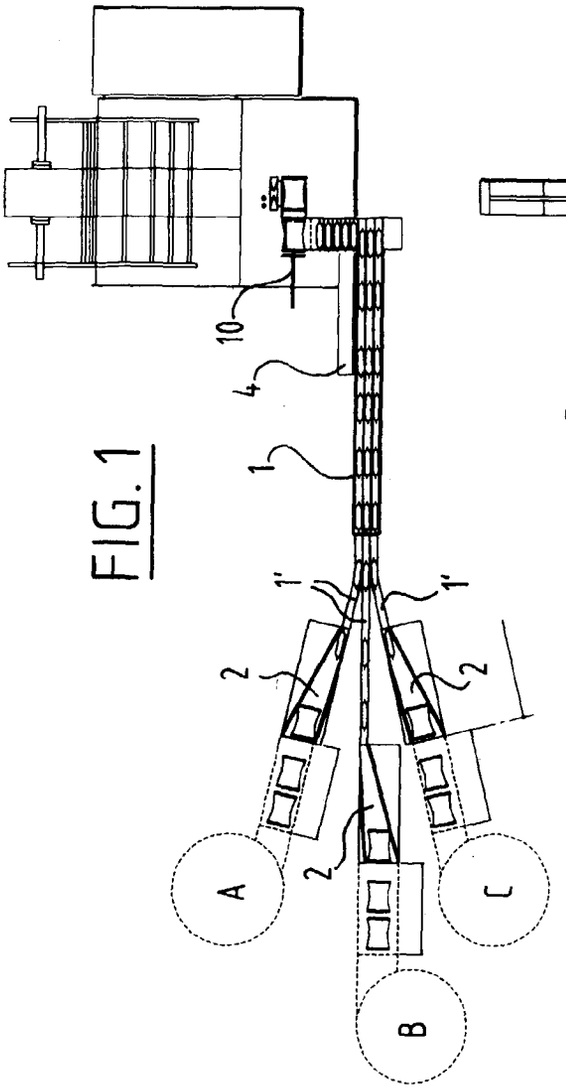


FIG. 1

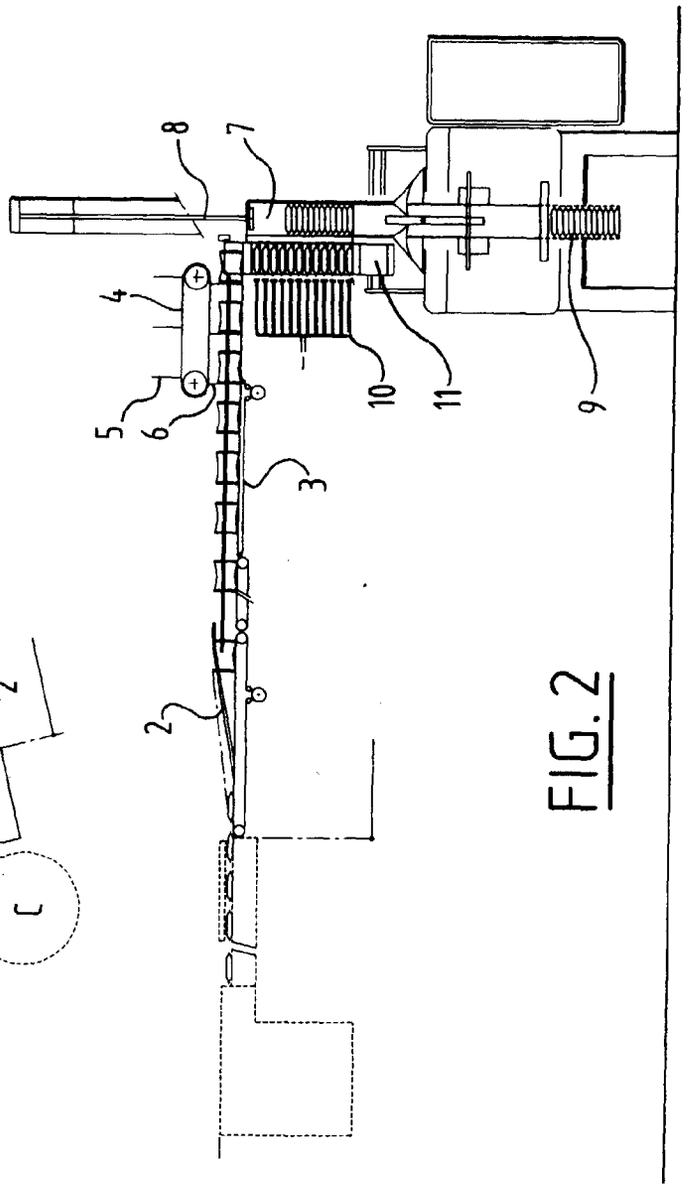


FIG. 2

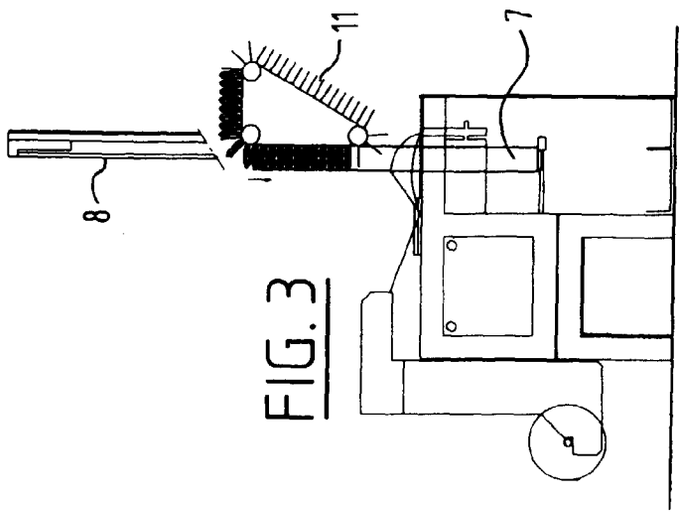


FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 97 20 1971

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 4 458 468 A (SIVILICH) 10 July 1984 * the whole document *	1	B65B5/06
Y		2-4,6	
Y	WO 94 23998 A (MATSUSIMA) 27 October 1994 * abstract; figure 1 *	2-4	
A	DE 19 27 948 U (HOFLIGER) 20 September 1965 * the whole document *	1	
X Y	EP 0 424 718 A (MAKO) 2 May 1991 * abstract; figure 1 *	7 6	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	1 October 1997	Claeys, H

CATEGORY OF CITED DOCUMENTS

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