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(71) Applicant: **Proindumar S.L.**
28037 Madrid (ES)

(72) Inventors:
- **Franco Munoz, Joaquin**
  28037 Madrid (ES)
- **Franco Munoz, Jesus**
  28037 Madrid (ES)

(74) Representative: **Cobas Horcajo, Susana**
Propi Tecnieurop, S.L.,
Jorge Juan, 19-3
28001 Madrid (ES)

(54) Bag feeding device for vending machines for the automatic elaboration of dried products with an undefined or granular shape

(57) The feeder is comprised by a prismatic-rectangular housing (1) containing an electric micro-motor (2) to whose exit shaft a pinion (3) is fixed which, together with a reduction transmission unit (4), moves two parallel and transverse shafts (5) emerging outside through its ends and finished with two pairs of toothed drums (6) over which respective belts (7) are fitted, with corresponding toothing and axial retention, within the housing (1) itself and externally by respective discoid flanges (8), with a diameter slightly greater than the toothed drums, to define the side support of the belts (7), which are provided with a pair of external dragging lugs (9) intended to act over the bags containing the dry product for their dragging from the loader to the preparation device.

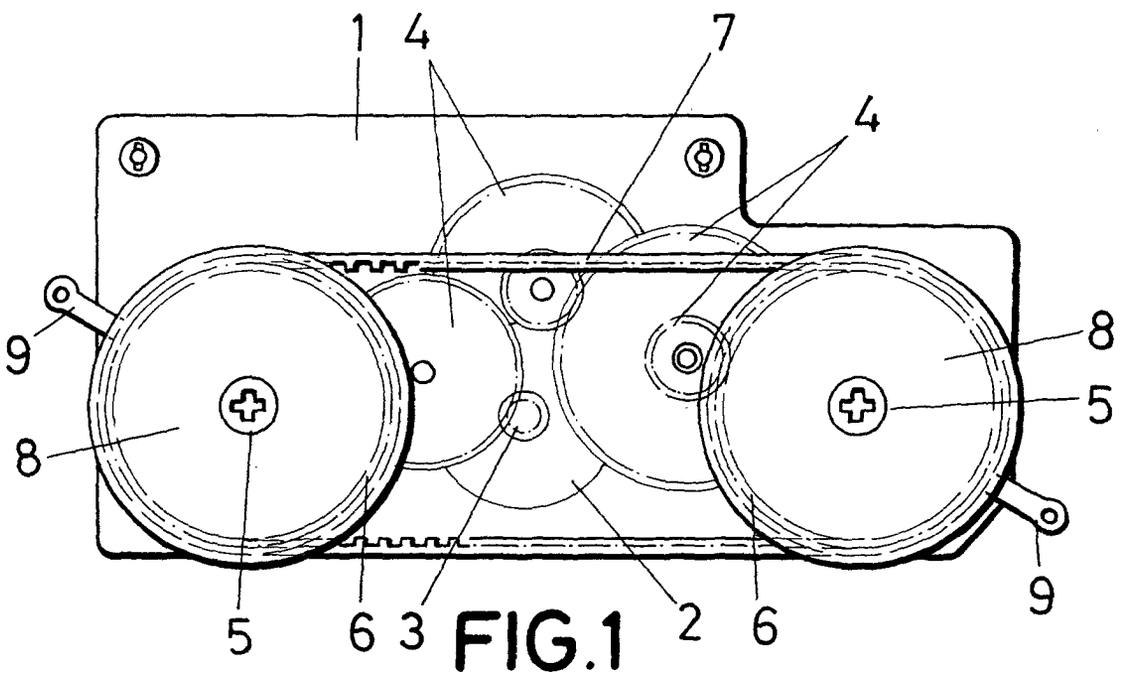

FIG.1

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a bag feeding device especially designed to be used in automatic vending machines of granulated or undefined dry products, such as popcorn, rinds, etc, whose object is to supply said bags one-by-one, from the corresponding loader to the preparation device (oven, microwave oven, ...) in which the product is prepared when the device is activated by the consumer on introducing coins for the value corresponding to the pre-established operation price.

[0002] The object of the invention is to assure that the feeding of the bags holding the dry product with a granulated or undefined shape, to the preparation device occurs properly, without pitching or lateral basculation, hence preventing blockage of said bags provoking a feeding interruption in the preparation device and in the machine operation.

BACKGROUND OF THE INVENTION

[0003] Generally speaking, automatic dispensing machines of dried products are provided with a bag loader with a suitable capacity and vertical arrangement, and with a lower pusher which gradually lifts the pile of bags as they are consumed, so that the upper end bag is opposite to a feeding device which displaces it transversally, removing it from the loader and pushing it towards the preparation device in which the dried product contained in the bag is going to be converted into the finished product, popcorns, rinds, ... by means of the expansion of the bag itself and without discharge of same.

[0004] On the other hand, there is a plurality of automatic product dispensing machines which also use feeders, like tobacco machines, which as from a vertical loader push the tobacco boxes one-by-one, in this case towards the corresponding receiving hopper.

[0005] Since the functionality of all these machines is essentially identical in relation to the feeding system, classical feeders of tobacco vending machines and similar ones have been tested for the case of automatic dispensing machines of dried products, but the results have not been very satisfactory.

[0006] This is due to the fact that said feeders are based on a housing containing an electric micro-motor and a transmission unit suitable to displace a toothed belt at least provided with one grip lug producing product movement, namely the dragging thereof in the same horizontal plane in which it is located.

[0007] This type of feeder with optimum functional results in the field of tobacco boxes or any other type of rigid product, gives problems in the case of automatic dispensing machines of dry products, due to the flexibility of the bags used in the machines and to the lack of uniformity of the product distributed inside them, so that even when on many occasions the feeder is located in a logical centred position, pitching or lateral basculation of the bags occur resulting in incorrect feeding, even producing blockages in the feeding system and consequent machine failure.

DESCRIPTION OF THE INVENTION

[0008] The feeding device proposed by the invention, satisfactorily solves the problems indicated above.

[0009] For such a purpose, said device starts from the basic structure of a conventional feeder of the type already mentioned, based on a housing containing an electric motor with its corresponding reduction transmission unit, focusing its characteristics on the fact that instead of incorporating a toothed belt, in correspondence with its middle plane, it incorporates two parallel belts located on both sides of the housing, rather far from each other, so that said belts of simultaneous activation, on being duly synchronised, act over the bag of dried product over two points, also separated from each other and symmetrical with respect to an imaginary middle point of the bag edge, assuring perfect feeder operation, eliminating even a minimum risk of bag oscillation.

DESCRIPTION OF THE DRAWINGS

[0010] To complete the description being made and to permit a better understanding of the features of the invention in accordance with a preferred embodiment thereof, this description is accompanied by a set of drawings which with an illustrative and non-limiting character, show the following:

Figure 1 shows a side elevation view of a bag feeder device for dispensers involving the automatic preparation of dry products, carried out in accordance with the object of the present invention.
Figure 2 shows a plan view of the same device.
Figure 3 shows a profile of the device illustrated in the previous figures.

PREFERRED EMBODIMENT OF THE INVENTION

[0011] According to said figures, it may be seen how the device of the invention comprises a generally prismatic-rectangular housing (1) containing an electric micro-motor (2) to whose exit shaft a pinion (3) is coupled, which together with a reduction transmission unit (4), moves two transverse and parallel shafts (5) emerging through its ends to the outside and finishing in two pairs of toothed drums (6), over which, are fitted respective belts (7), with matching teeth and retained axially, internally, by the housing (1) itself and externally by respective discoid flanges (8) with a diameter slightly greater than the toothed drums, to define a side support for the belts (7), having a pair of external drag lugs (9) intended to act over the bags containing the dry product, for their dragging from the loader to the preparation device.

[0012] The existence of two lugs (9) on each toothed belt (7) assumes that in each operational half-cycle of said belts, the dragging of a bag occurs, it being obvious that said belts may have only one lug (9), in which case a complete cycle thereof would be necessary to produce the dragging of each bag.

[0013] Anyway, and especially examining figures 2 and 3 the toothed belts (7) are rather distant from each other, as are the actuation points thereof over the rear edge of the bag containing dry product, hence, assuring optimum dragging conditions.

Claims

1. A bag feeding device for vending machines for the automatic elaboration of dried products with an undefined or granular shape, whose purpose is to drag the bags, one-by-one, from the loader supplier to the machine preparation device, and being of the type incorporating a housing containing an electric micro-motor and a reducer transmission unit to activate the drag components of said bags, **characterised in that** said drag components consist of two toothed belts (7), located on both sides of said housing (1), parallel and separated from each other, so that the drag lugs (9) on said toothed belts (7) act over points, likewise separated, on the rear edge of the bag, during dragging.

2. A bag feeding device for vending machines for the automatic elaboration of dried products with an undefined or granular shape according to claim 1, **characterised in that** the reducer transmission unit (4) transmits movement to a pair of parallel and transverse shafts (5), whose ends emerge outside the housing (1) in correspondence to its side walls, finishing in two pairs of drums (6) opposite to each other, over which the corresponding belts (7) are coupled and which remain axially retained inwards by the side walls of the housing (1), while matching with their external face said drums (6) incorporate discoid flanges (8) with a diameter slightly greater than that of said drums (6), acting as an external limit of axial retention for the toothed belts (7).

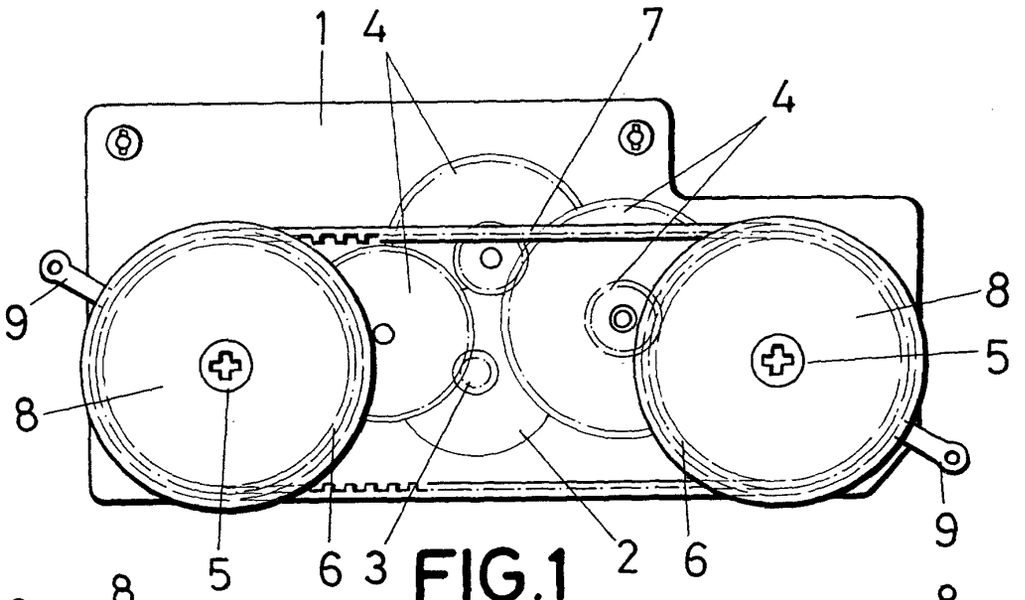

FIG.1

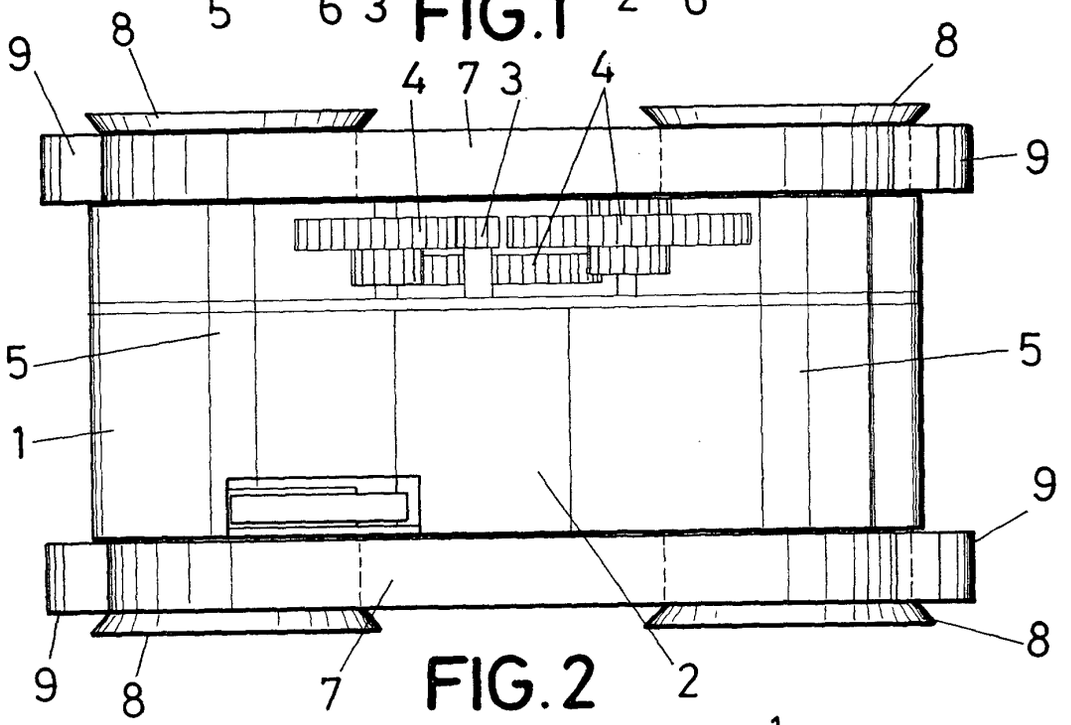

FIG.2

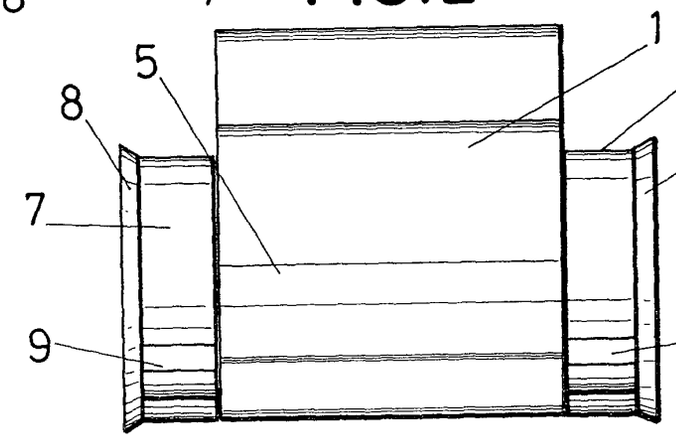

FIG.3