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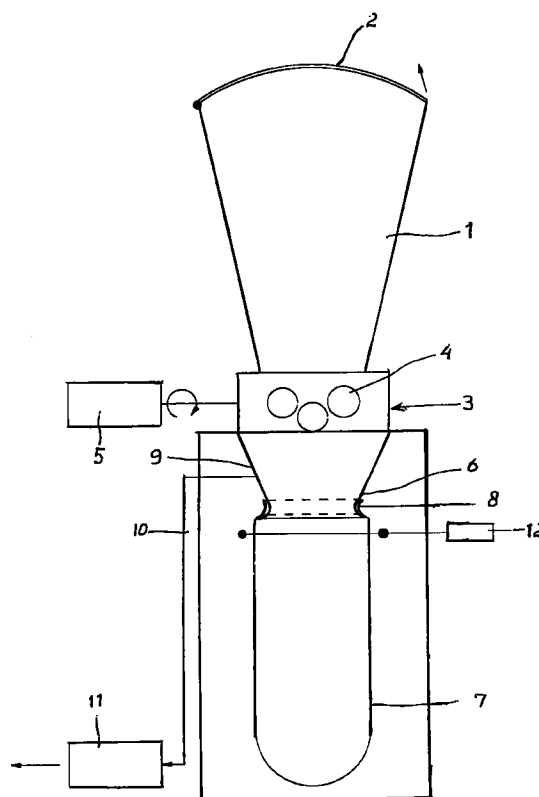
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(54) Method and device for processing waste

(57) Method of processing waste in which the waste is brought into plastic bags (7). Immediately after or during bringing the waste into the bag the air is sucked from it so that the waste is compressed on account of external overpressure, whereupon the bag is hermetically closed. The waste can be reduced before it is brought into the bag (7). The device for applying the method consists of a waste chute (1) for receiving waste. The waste chute is mounted above a shredder (3) for shredding the waste, said shredder being provided with means (6) for receiving a bag (7). A suction device (10, 11) is present for sucking air from the bag. Further, a sealing device (12) is present for hermetically closing the bag after having sucked the air from it.



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Description

The invention relates to a method for processing waste and to a device for applying said method, in which the waste is packed in bags of a flexible material, a plastic material in particular, and is subsequently discharged.

Large amounts of voluminous waste arise particularly, but not exclusively, in the catering industry such as cafeterias and such places where packed foods are offered to the client. In most cases, this waste is put in plastic bags. Since said garbage will contain leftovers, it can be stored in the business itself only for a few days, unless it is cooled. However, the release of unpleasant smells can not always be prevented. Generally, cooled storage will entail many difficulties and costs and thus one will frequently provide for discharge of the waste. Therefore, large companies having many outlets provide for the discharge themselves by having a vehicle collect the waste several times a week. Obviously, this involves considerable costs.

The object of the invention is to largely remove the difficulties indicated and to that end provides for a method, characterized in that immediately after or during putting waste into a bag, the air will be sucked from the bag, so that the waste in the bag will be compressed on account of the external overpressure, whereupon the bag will be sealed hermetically.

By sucking the air from the bag, degradation or getting mouldy of the food leftovers will hardly occur in the sealed bag. This will be a consequence of the fact that during sucking air from the bag, a part of the moisture in the bag will evaporate and be also sucked off.

By proper closure of the bag, the storage period of the bag in the business can be prolonged without difficulty. Because of the fact that by removing the air from the bag, the waste in the bag will be compressed, the bag will take up a much smaller volume. This entails the fact that a vehicle needs to drive to a certain business less frequently, while it can still pick up all waste produced in the past period of time, due to the fact that the waste takes up less space.

The waste will mainly consist of very flexible plastic materials such as trays and the like, which will not cause any problems when air is sucked from the bag. However, the bag might contain a number, be it limited, of harder and stiffer objects as well. On sucking the air from the bag, in which the bag will be compressed by the external overpressure, such objects could cause small cracks in the bag.

In order to remove this difficulty, it can be provided for, that the waste is shredded before it is brought into the plastic bag.

The invention also relates to a device for applying the method described above. Such a device will particularly consist of a waste chute for receiving waste, said waste chute being releasably mounted above a shredder for reducing the waste, said shredder being provided with means for receiving a plastic bag and being

provided within a suction device for sucking air from the bag, while further, means are provided for hermetically sealing the bag after having sucked the air from it.

In order to prevent that after sucking air from the bag, air will flow to the suction device through the waste chute and/or the shredder, closing means for preventing air flow to the suction means through these devices have been provided.

Said means can be represented by a lid mounted near the upper end of the waste chute. This can have the advantage, that on sucking the air from the bag, the air present in the waste chute and the shredder can be sucked off simultaneously. Owing to this, the waste leftovers possibly still present therein can be removed so that they will drop into the bag.

In order to enable a quick processing of waste, the shredder will have its bottom side be provided with a receiving portion across which the opening of a bag can be positioned, and with clamping means for clamping the top edge of the bag onto the receiving portion.

Then, the opening, communicating with the suction device for the air, will be situated between the operative parts of the shredder and the receiving portion connected to it, and said opening will be provided with a filter for preventing suction of waste remainders.

Obviously, the opening will be sufficiently large and also be arranged more or less concealed in order to prevent waste remainder from blocking said opening.

For a proper closure of the bag, after the air has been sucked from it, and without air being able to flow into the bag again, a sealing device being situated close beneath the receiving portion can be provided for.

Although in the above, one has discussed applying waste bags as they are known per se, it would also be possible to use a tube-shaped material, with a large length of which in folded or rolled-up condition being immediately above and around the receiving portion. After applying two spaced apart sealing seams, the material of the bag can be cut between the sealing seams and the material can be pulled down so that a subsequent bag is obtained. The known devices can be applied as well, in which a tube which is formed from a flat sheet of plastic material by means of a mandrel, and which is processed further in the way described above.

All these possibilities will be apparent to the expert and will need no further explanation.

The invention is further explained by way of the drawing, diagrammatically showing a side view of a device according to the invention.

The device comprises a waste chute 1, that can be closed-off at the top by means of the lid 2 being pivotally connected to the waste chute 1.

The shredder 3 having its operative parts 4 driven by means of a motor 5 connects to the bottom edge of the waste chute 1. At its bottom end, the shredder 3 is provided with the receiving portion 6 on which the top edge of a plastic bag 7 can be clamped by means of a clamping bracket 8. The shredder 3 is also provided with an opening 9 to which a line 10 extending to a vac-

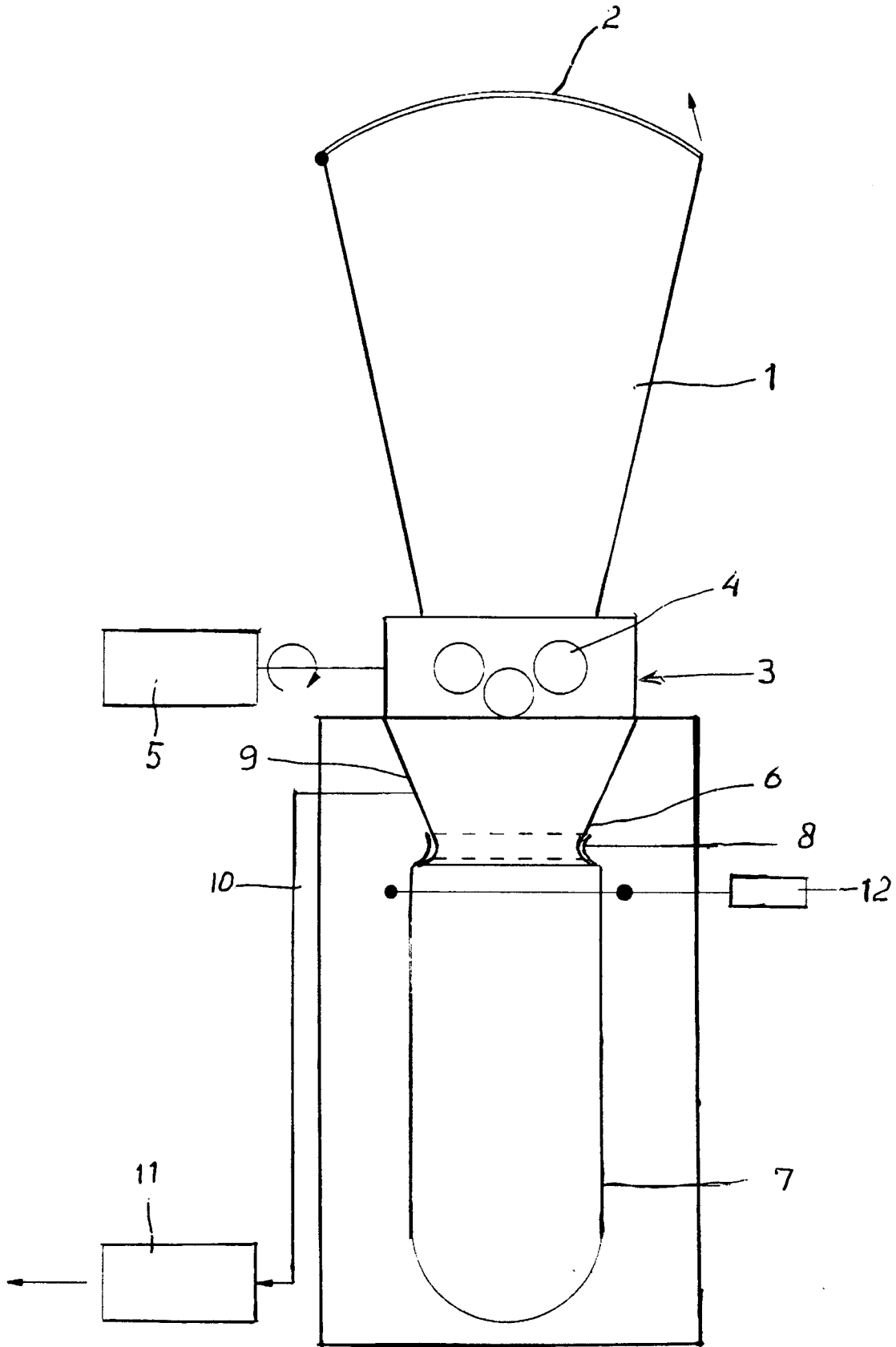
uum pump 11 connects.

The sealing device 12 is situated beneath the receiving portion 6. When the air has been sucked from the bag 7 by means of the pump 11 and the bag with waste has been compressed completely, the sealing device 12 is activated so that the bag is sealed off. Subsequently, air can be admitted to the shredder 3 and the waste chute 1, e.g. by the pump 11 or in another way, and the clamping bracket 8 can be disengaged, the filled bag can be removed and a new bag can be fitted.

It will be obvious, that only one possible embodiment of a device according to the invention has been illustrated in the drawing and described above and that many modifications can be made without leaving the inventive idea.

Claims

1. Method for processing waste, in which the waste is packed in bags (7) of a flexible material, a plastic material in particular, and is subsequently discharged, characterized in that immediately after or during putting waste into a bag (7), the air will be sucked from the bag, so that the waste in the bag will be compressed on account of the external overpressure, whereupon the bag will be sealed hermetically.
2. Method according to claim 1, characterized in that the waste is shredded before it is brought into the plastic bag (7).
3. Device for applying the method according to one or more of the preceding claims, characterized in that the device consists of a waste chute (1) for receiving waste, said waste chute being releasably mounted above a shredder (3) for shredding the waste, said shredder (3) being provided with means (6) for receiving a plastic bag (7) and being provided within a suction device (10, 11) for sucking air from the bag, while further, means (12) are provided for hermetically sealing the bag (7) after having sucked the air from it.
4. Device according to claim 3, characterized in that closing means (2) for preventing air flow to the suction means (10, 11) through the waste chute (1) and/or the shredder (3) have been provided.
5. Device according to claim 4, characterized in that the closing means are in the form of a lid (2) mounted at the top end of the waste chute (1).
6. Device according to one of the claims 3 - 5, characterized in that the shredder (3) has its bottom side provided with a receiving portion (6) across which the opening of a bag (7) can be positioned, and with clamping means (8) for clamping the top edge of the bag onto the receiving portion (6).
7. Device according to claim 6, characterized in that the opening (9), communicating with the suction device (10, 11) for the air, will be situated between de operative parts (4) of the shredder (3) and the receiving portion (6) connected to it, and said opening will be provided with a filter for preventing suction of waste remainders.
8. Device according to claim 6 or 7, characterized in that for closing off the bag, a sealing device (12) being situated close beneath the receiving portion (6) has been provided for.





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EUROPEAN SEARCH REPORT

Application Number
EP 96 20 1624

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	FR-A-2 418 745 (BEGHINI)	1	B65B1/26
Y	* the whole document *	2,3,6,8	

Y	US-A-3 861 117 (DEFILIPPI)	2,3,6,8	
	* the whole document *		

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65B
Place of search THE HAGUE		Date of completion of the search 6 September 1996	Examiner Claeys, H
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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