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71 Applicant: Lenti, Andrea
Viale Europa, 131
I-74015 Martina Franca(IT)

71 Applicant: Guarini, Paolo
Via S. Oronzo, 61
I-72015 Fasano (BR)(IT)

71 Applicant: De Pasquale, Tommaso
Via Malta, 15
I-74024 Manduria (TA)(IT)

72 Inventor: Lenti, Andrea
Viale Europa, 131
I-74015 Martina Franca(IT)

72 Inventor: Guarini, Paolo
Via S. Oronzo, 61
I-72015 Fasano (BR)(IT)

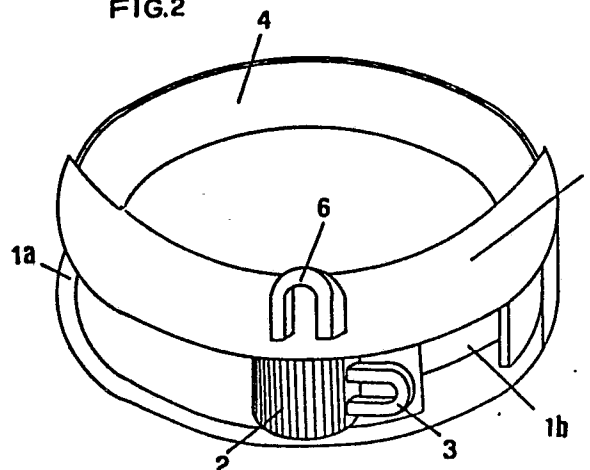
72 Inventor: De Pasquale, Tommaso
Via Malta, 15
I-74024 Manduria (TA)(IT)

74 Representative: Mascioli, Alessandro, Prof.Dr.
c/o A.N.D.I. Associazione Nazionale degli Inventori Via
Lima, 35
I-00198 Roma(IT)

54 A quick-opening closing device of the unloading mouth of big bottomless bags, containing granulated materials.

57 The device consists in a collar (1) with a reel (2), inserted in the groove (1a) thereof, that will keep, by friction, the belt (4) for the contraction of the total lower opening (5) of the bag (S) containing granulated materials, that will be quickly unloaded following to the pulling of a lace (L) applied to a hook (3) out of one piece with said reel (2), so as to determine the sliding of the belt (4) and the quick opening of the big bag (S).

FIG.2



"A QUICK-OPENING CLOSING DEVICE OF THE UNLOADING MOUTH
OF BIG, BOTTOMLESS BAGS, CONTAINING GRANULATED MATERIALS".

Andrea LENTI

5 Paolo GUARINI

Tommaso DE PASQUALE

Italy

10 The present invention concerns a quick-opening closing
device of the unloading mouth of big, bottomless bags
that contain granulated materials, comprising a contrac-
tion collar of the lower opening of said bags with block-
ing and releasing elements.

15

It is already well known that the big bags for loading
and unloading granulated materials show, at the bottom
thereof, a hopper opening being closed by rings for hook-
ing while lifting and transporting and that may be open-
20 ed for unloading.

However, the small section of the hopper causes the ma-
terial inside to take a very long time for unloading.

25 For resolving this problem, sometimes big bags are used
with a closed bottom that, when unloading, will be manu-
ally perforated; thus the working times are accelerat-
ed but, at the same time, the costs increase because the-
se bags may be used only one time.

30

Furthermore, the use of the big bags with a closed bottom
that may be perforated for unloading, represents a great

danger for the operators when the materials suddenly fall down, as well as for the need of working nearby the casting where the dust will be inhaled with very dangerous results for the health.

5

It is the aim of the present invention to realize a device for unloading the big bags being functional, un-expensive and safe for the health of the operators.

10 The aim set forth is reached by the device according to the present invention, comprising a curve or linear collar, a reel inserted in the groove of the collar with the eccentric rotation axis and releasing eyelet, a belt made out of hems or any other suitable material,
15 and a big bag provided with a lower opening of such square dimensions equal to the average dimensions of the structure and therefore without the hopper opening, because it is completely lacking the bottom.

20 The present invention will be described more in detail hereinbelow according to the drawings in which a preferred embodiment is shown.

25 Figure 1 shows a perspective view of a big bag full of material, closed at the lower end thereof by the collar device.

Figure 2 shows a perspective view of the closing device in the contraction position of the full big bag.

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Figure 3 shows the big bag open for unloading.

Figure 4 shows a perspective view of the device of figure 2 in the open position thereof.

5 The figures show the quick-opening closing device of the unloading mouth of big bottomless bags comprising a curve collar 1, a reel 2 inserted in the groove 1a of collar 1 with eccentric rotation axis and releasing eye-
10 let, a belt 4 and a big bag S with lower opening 5 of such square dimensions equal to the average square dimensions.

The functioning principle of the device according to the present invention is based on the pressure that
15 the toothed reel 2 performs, with the lateral surface thereof, on the ground of the groove 1a of collar 1, when said reel rotates around the eccentric axis thereof.

20 This allows to block the belt between the ground of the groove and the lateral surface of the reel, thus preventing the opening of bag S, because the belt is mounted in such a way that the pressure performed by the same, due to the closing effect of the bag's mouth,
25 forces the reel to rotate in that sense in which the lateral surface thereof will easier get into contact with the ground 1b of the groove.

Furthermore, the lateral surface of the reel performs

a friction onto the belt due to the tothing as well as to eventual suitable roughness.

5 For obtaining the opening of the big bag S it is sufficient to apply a traction onto hook 3 by means of a lace L that may be distance-operated and that forces the reel to rotate in the sense opposite to the blocking one, i.e. in that sense in which the lateral surface thereof is far from the ground 1b of the groove 1a.

10

The device may be provided with means for allowing the application of seals for guaranteeing the closing.

15 The end of the belt may be fixed by means of a contrast lock; furthermore, the device may be provided with an eyelet 6 out of one piece with collar 1 for keeping the same connected to the bag and thus preventing the same to get lost.

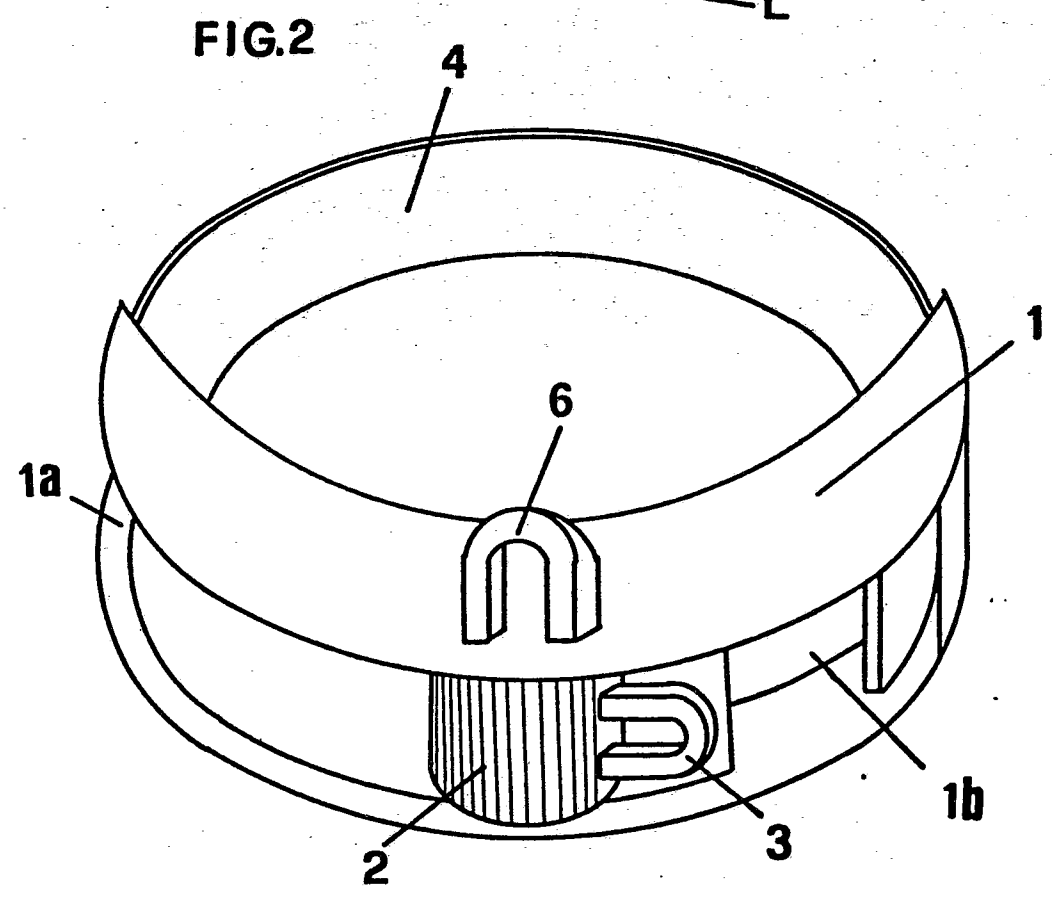
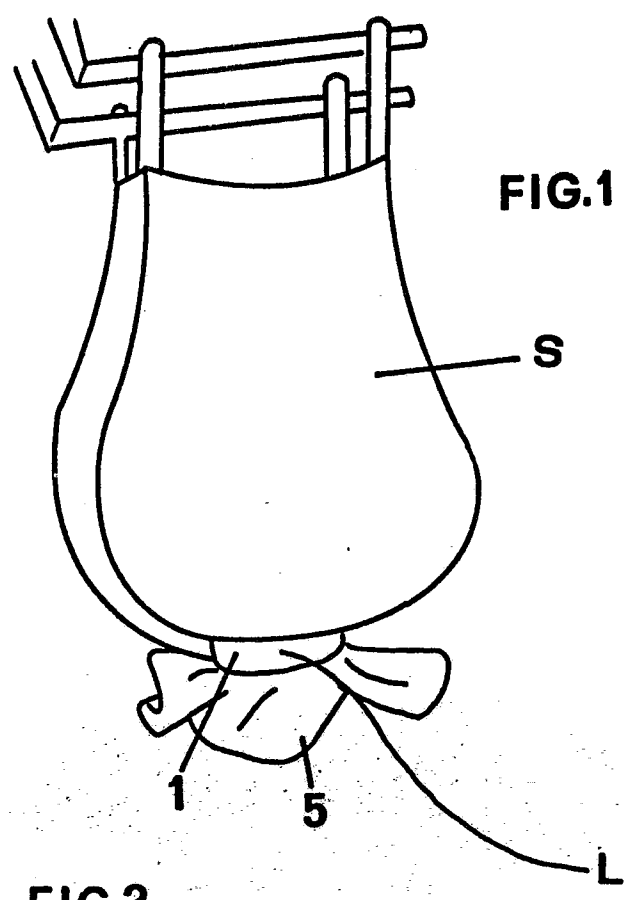
CLAIMS

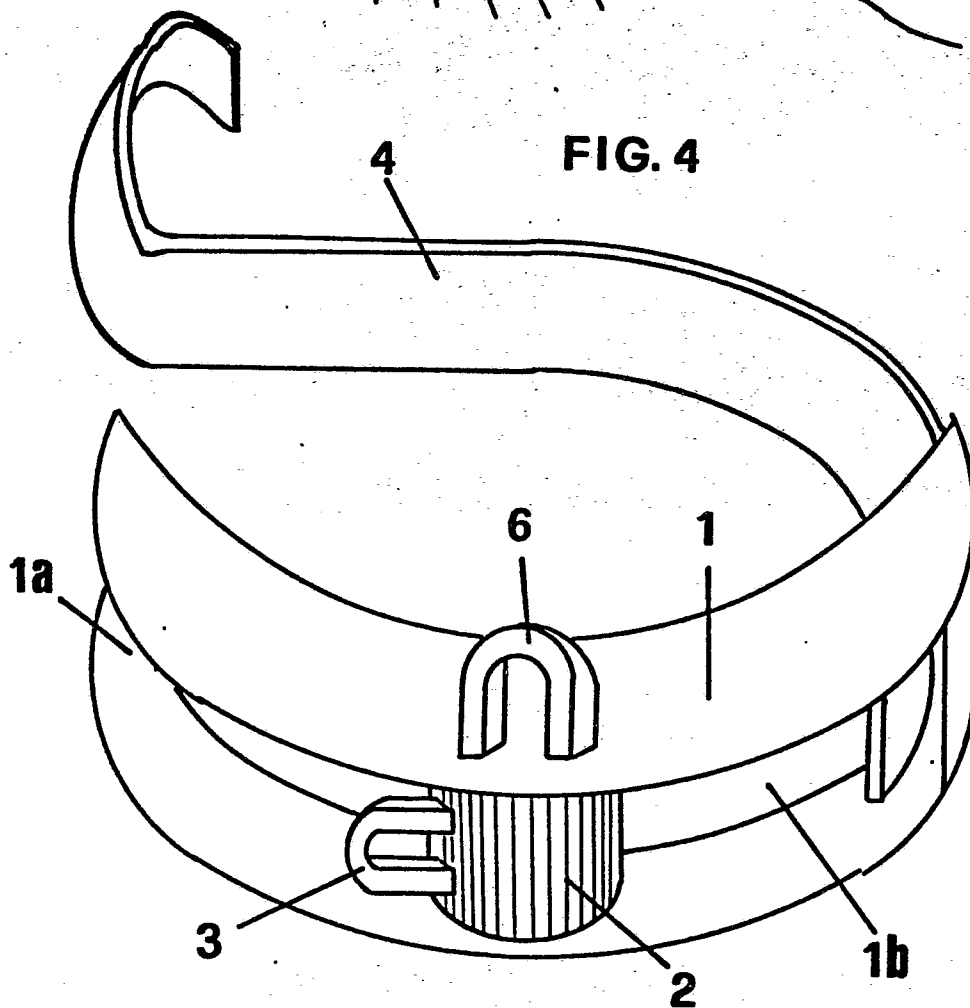
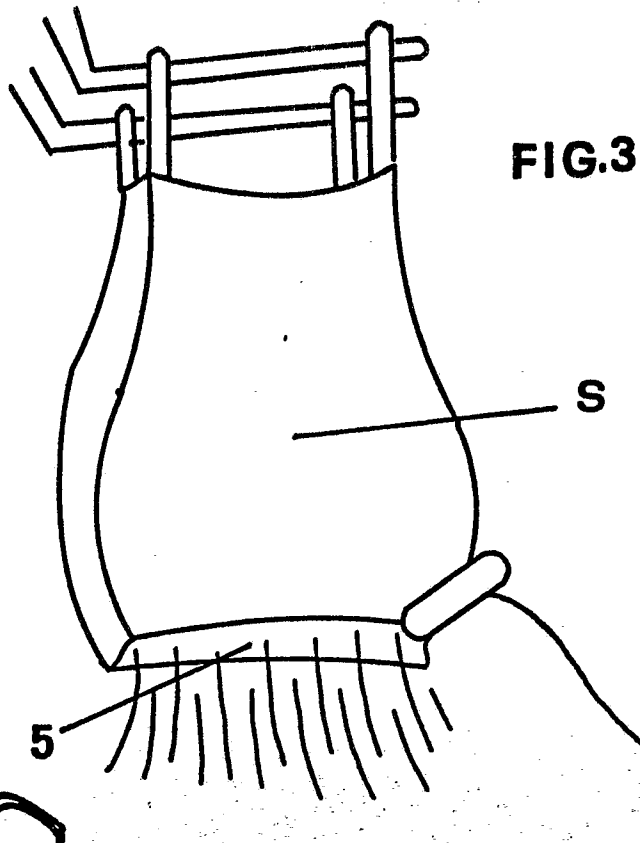
1. A quick-opening closing device of the unloading mouth
of big, bottomless bags containing granulated materials,
5 comprising an element for the contraction of the lower
part of the bags being without hopper, characterized in
a collar (1) of curvilinear shape, delimited by two la-
teral surfaces (1a) and by a ground surface (1b), and
in a reel (2) with a toothed surface, with an eccentric
10 rotation axis parallel to the generating lines of ground
(1b) of a groove (1a), so that when the same rotates it
may get in close contact with said surface so as to
block the sliding of a belt (4) that will close the bag's
inlet, while said reel may be distance rotated by means
15 of a lace (L) in that sense in which the lateral surfa-
ce (1a) gets away from the groove's ground so as to cau-
se the disengagement of the belt, and further characte-
rized in a big bag (S) with a lower opening (5) with
sqare dimensions equal to the average square dimensions.
20
2. A quick-opening closing device according to claim 1, cha-
racterized in that the collar (1) has a linear shape.
3. A quick-opening closing device according to claim 1, cha-
25 racterized in that reel (2) shows a smooth surface.
4. A quick-opening closing device according to claim 1, cha-
racterized in means for the blocking of the belt's end,
like a contrast lock.

5. A quick-opening closing device according to the precedent claims, characterized in means for applying seals and for maintaining the same device connected to the bag, like an eyelet (6).

5

6. A quick-opening closing device according to claim 1, characterized in the presence of a hook (3), out of one piece with reel (2), for the application of the distance-operated lace (L).







European Patent
Office

EUROPEAN SEARCH REPORT

0196394

Application number

EP 85 83 0079

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.4)
Y	FR-A-2 353 460 (CONVAIN) * Figures 1-5; page 2, line 32 - page 4, line 2 *	1,2,4	B 65 D 88/16
Y	US-A-2 442 266 (DAVIS) * Whole document *	1,2,4	
A	FR-A- 646 020 (CONTASSOT) * Figures 1,4 *	1	
A	GB-A- 581 017 (ALL AMERICAN AVIATION INC.) * Figures 1,2 *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			B 65 D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-11-1985	Examiner WERNER D.M.
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			