

⑫

EUROPEAN PATENT SPECIFICATION

④⑤ Date of publication of patent specification: **28.08.85**

⑤① Int. Cl.⁴: **B 65 D 30/24**

②① Application number: **83901407.3**

②② Date of filing: **25.04.83**

③⑧ International application number:
PCT/NO83/00015

③⑦ International publication number:
WO 83/04239 08.12.83 Gazette 83/28

⑤④ **VALVE OF PLASTIC OR PLASTIC COATED PAPER AND THE METHOD OF PRODUCING SAME.**

③⑩ Priority: **28.05.82 NO 821811**

④③ Date of publication of application:
30.05.84 Bulletin 84/22

④⑤ Publication of the grant of the patent:
28.08.85 Bulletin 85/35

③④ Designated Contracting States:
AT BE CH DE FR GB LI LU NL SE

⑤⑧ References cited:
DE-A-1 918 652
SE-A- 214 706
US-A-2 651 451

⑦③ Proprietor: **NORSK HYDRO A/S**
Bygdoy Allé 2
N-Oslo 2 (NO)

⑦② Inventor: **BJORKE, Hans**
Kongsbergvn. 34
N-3670 Notodden (NO)
Inventor: **BOGEN, Oddvar**
N-3680 Lisleherad (NO)

⑦④ Representative: **Wilhelms, Rolf E., Dr. et al**
WILHELMS & KILIAN Patentanwälte Eduard-
Schmid-Strasse 2
D-8000 München 90 (DE)

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

Courier Press, Leamington Spa, England.

Description

The present invention concerns the actual valve of a valve bag of plastic or paper where the tube shaped valve is made from plastic coated paper and the valve according to the invention is fitted with a number of slits in the valve wall in order to make the valve spill free.

The invention also concerns the production of the valve and the positioning of it.

It is an express problem that the valve in valve bags is not tight. When the bag is put down, this will result in some of the goods in the bag being spilled through the valve. The spill can be so considerable as to cause a noticeable shortage of goods and also a mess around the bags.

The spill problem is particularly evident if the substance in the bag is dry and in addition is easily movable (spherical particles) or if the substance is a granulate which is particularly easily spilled.

Through the ages various attempts have been made to remedy this, and in this connection several more or less acceptable solutions have been found.

West German application No. 1,918,652 laid open for inspection, for instance, mentions the use of fringe valves and also a solution to the spill problem by turning part of the cuff back into the valve by 180°. Further, the valve should have a transversal slit which is approximately as long as the outer diameter of the filler spout.

The use of fringe valves has been well known for some time, where the fringes are longitudinally located on the innermost part of the valve, i.e. that part of the valve which is the farthest inside the bag (e.g. SE—A—214 706 and US—A—2651451).

The advantage of this valve design is that when the filler spout is retracted after the filling is completed, the fringes will be pulled back a little with the filler spout and will become intertangled due to the pressure of the substance. This will stop the spill of the goods.

It could be said that this measure has solved the spill problem during storage of the goods effectively, and accordingly that it would not be necessary to continue work on this problem.

The measure has, however, the disadvantage that it is efficient for valves of paper but not for valves of plastic or plastic coated paper. This will be explained further.

If the same fringe valve principle is used in connection with plastic valves, the fringes have the disadvantage that they do not settle in the valve in the same favourable manner as for paper valves, and thereby the tightening becomes incomplete.

Attempts have been made to make plastic valves from a thicker foil without a satisfactory result. It has been attempted to use thinner foil, but this has not been successful either. As an experiment attempts have been made to use valves in which the fringes were wider or narrower, longer or shorter, but even this has not

given the desired result. The problem of spill of the goods has evidently not found a solution through these steps.

However, according to the present invention, it has become evident that if the fringes of the valve are not slit all the way, but a small brim which keeps the fringes together is left at the innermost edge of the valve, this will solve the spill problem. Accordingly, it could be said that the valve has changed from being a fringe valve to becoming a lengthwise slit valve in which the previous fringes form strips of the valve material.

This design with lengthwise slits and where the fringes end in a small brim at the innermost edge of the valve, has proved to limit the spill of the goods effectively. The design also has the advantage of being produced in a continuous process and it simplifies the production of the valve cuff and the fitting into the bag during the production process.

The invention is according to the following claims.

For further explanation of the invention, reference is made to Fig. 1 in which

Figure 1 shows a flattened, tube shaped fringe valve viewed from above, in which the characterizing feature is that the fringes are slit all the way, while

Figure 2 shows a lengthwise slit, flattened and tube shaped valve according to the invention, viewed from above, in which a small brim is left at the innermost edge of the valve which keeps the "fringes" together. These "fringes" will in the following be referred to as strips.

Figure 3 shows the position of the valve in the bag where the valve, because it is located inside the bag and not visible from the outside, is drawn by dot-and-dash lines. The slits (6) are also drawn by dot-and-dash lines.

Figure 1 shows a fringe valve of a known design of the prior art in which the valve wall (1) of paper at one end is slit lengthwise in such a way as to form a fringe part with hanging loose fringes (2). The fringes are divided from each other by the slitting, and the cut (3) forms the separation between the fringes. The fringes (2) are fastened at their rear end to the valve (1).

As previously mentioned, Figure 2 shows a valve of plastic or plastic coated paper according to the invention which consists of strips (5), where the strips (5) are held together at both ends of the valve wall (1). The valve wall (1) with its strips (5) constitute an entity and is here referred to as the valve.

The valve forms a pipe or a tube which is the result of extruding or gluing or welding of a plane foil of plastic or of plastic coated paper across the adjoining ends of the foil in the longitudinal direction of the foil.

The wall thickness of the foil is preferably in the range of from 80 to 120 μ , but it may be thicker or thinner.

The width of the strips will be more or less optional, but as a rule it will depend on the width of the bottom of the bag in such a way that the

narrower the bottom of the bag is, the narrower will the strips be, and vice versa. Usually, the width of the strips will be in the range of from 5 to 15 mm, but they may also be narrower or wider. The strips (5) are at their rear end a continuous part of the valve wall (1), divided by slits (6). At their forward end the strips are held together by means of a brim (7) which also constitutes part of the valve wall.

The object of this brim (7) is to hold the strips (5) together, and thereby to prevent them from being pulled back separately into the valve when the filler spout is retracted after the filling is completed. In order to serve its purpose, the brim (7) must have certain tensile strength so that it has a gathering effect on the strips (5). In practice it has proved that a brim width of approx. 2 mm is sufficient to achieve the desired effect. The brim width may, however, be somewhat larger for thinner foils or somewhat smaller for thicker foils.

Figure 3 shows the bag (8) with its folded and flattened bottom section (9). This part of the bag is known and is not part of the invention. The valve (1) is shown by a dot-and-dash line glued firmly below the intersecting layers of the bag and entirely covered by an outer layer of plastic foil or foil of plastic coated paper (10).

By the described valve a spillfree design has been achieved.

The inventive conception has, moreover, not led to any changes in the existing equipment or in the work procedures, as the valve with its strips is produced continuously in the same equipment as before and is fitted into the bag in a subsequent continuous operation.

Claims

1. A tube shaped valve (1) for a bag (8) of plastic or paper where the valve is of plastic foil or plastic coated paper and has a number of slits (6) in the longitudinal direction of the valve, characterized in that the slits are limited to both sides by the valve wall (1), but in such a manner that the valve wall (1) at the forward side of the slits ends in a brim (7).

2. Valve according to claim 1, characterized in that the brim (7) has a width of from 1 to 7 mm, but is preferably between 1,5 and 3,0 mm wide.

3. Valve according to claim 1, characterized in that the slits are between 20 and 100 mm long, but preferably have a length of from 30 to 60 mm.

4. Method of producing a tube shaped valve of plastic or plastic coated paper according to claims 1, 2 and 3, characterized in that in a continuous process the valve is divided into slits of suitable length, preferably from 30 to 60 mm long by means of roller knives or fixed knives with a repetitive movement and furthermore, that the slits end in a brim (7) of the valve wall (1) where the brim (7) has a width of somewhere between 1 and 7 mm, but is preferably between 1,5 and 3,0 mm wide, and that the valve is subsequently passed across one end of the bag and attached there in such a way that the free section with the

valve strips (5) remains inside the bag untouched by the attaching medium.

Patentansprüche

1. Ein schlauchförmiges Ventil (1) für einen Beutel (8) aus Kunststoff oder Papier, wobei das Ventil aus Kunststofffolie oder kunststoffbeschichtetem Papier besteht und eine Anzahl Schlitze (6) in Längsrichtung des Ventils aufweist, dadurch gekennzeichnet, daß die Schlitze durch die beiden Seiten der Ventilwand (1) derart begrenzt sind, daß die Ventilwand (1) am vorderen Ende der Schlitze als Rand (7) endet.

2. Ventil nach Anspruch 1, dadurch gekennzeichnet, daß der Rand (7) eine Breite von 1 bis 7 mm, vorzugsweise zwischen 1,5 bis 3 mm aufweist.

3. Ventil gemäß Anspruch 1, dadurch gekennzeichnet, daß die Schlitze zwischen 20 und 100 mm, vorzugsweise von 30 bis 60 mm lang sind.

4. Verfahren zur Herstellung eines schlauchförmigen Ventils aus Kunststoff oder kunststoffbeschichtetem Papier gemäß den Ansprüchen 1, 2 und 3, dadurch gekennzeichnet, daß das Ventil in einem kontinuierlichen Verfahren in Schlitze geeigneter Länge, vorzugsweise 30 bis 60 mm, mittels Walzenmessern oder festen Messern in sich wiederholender Bewegung geteilt wird, und daß darüber hinaus die Schlitze an einem Rand (7) der Ventilwand (1) enden, wobei der Rand (7) eine Breite von etwa zwischen 1 und 7 mm, vorzugsweise zwischen 1,5 und 3 mm, aufweist, und daß das Ventil anschließend über ein Ende des Beutels gezogen und daran derart befestigt wird, daß der freie Bereich mit den Ventilstreifen (5), von dem Befestigungsmittel nicht berührt, innerhalb des Beutels verbleibt.

Revendications

1. Clapet (1) en forme de tube pour un sac (8) en matière plastique ou en papier, réalisé dans une feuille en matière plastique ou en papier revêtu de matière plastique et ayant plusieurs fentes (6) fermées dans la direction longitudinale du clapet, caractérisé en ce que les fentes sont limitées de chaque côté par la paroi du clapet (1), mais d'une manière telle que la paroi du clapet (1) se termine au niveau des extrémités avant des fentes, en une lisière (7).

2. Clapet suivant la revendication 1, caractérisé en ce que la lisière (7) a une largeur de 1 à 7 mm, mais de préférence entre 1,5 et 3,0 mm de large.

3. Clapet suivant la revendication 1, caractérisé en ce que les fentes ont une longueur comprise entre 20 et 100 mm, mais sont de préférence d'une longueur allant de 30 à 60 mm.

4. Procédé de fabrication d'un clapet en forme de tube en matière plastique ou un papier revêtu de matière plastique suivant les revendications 1 à 3, caractérisé en ce que dans un processus continu, le clapet est divisé par des fentes de

longueur appropriée, de préférence de 30 à 60 mm de long, au moyen de couteaux roulants ou de couteaux fixés animés d'un mouvement répétitif et en ce qu'en outre, les fentes se terminent au niveau d'une lisière (7) de la paroi du clapet (4), cette lisière ayant une largeur comprise entre 1 et 7 mm environ, mais de préférence d'une largeur

comprise entre 1,5 et 3,0 mm, et en ce que le clapet est ensuite passé à travers une extrémité du sac et fixé à cette dernière de telle manière que la section avec les bandes (5) du clapet reste à l'intérieur du sac dans être en contact des moyens de fixation.

5

10

15

20

25

30

35

40

45

50

55

60

65

4

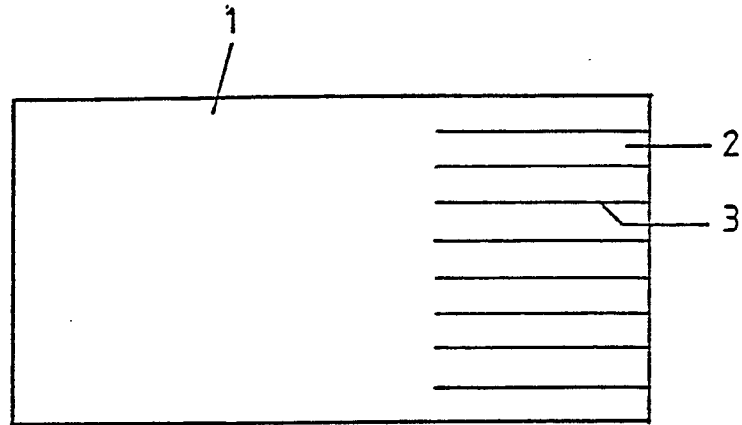


FIG. 1 (prior art)

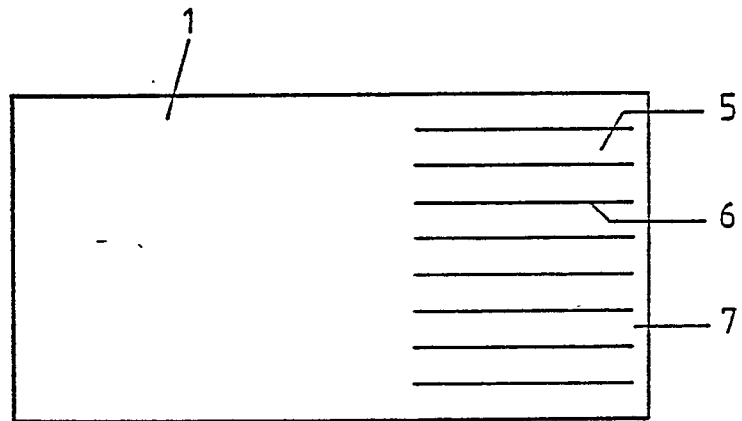


FIG. 2

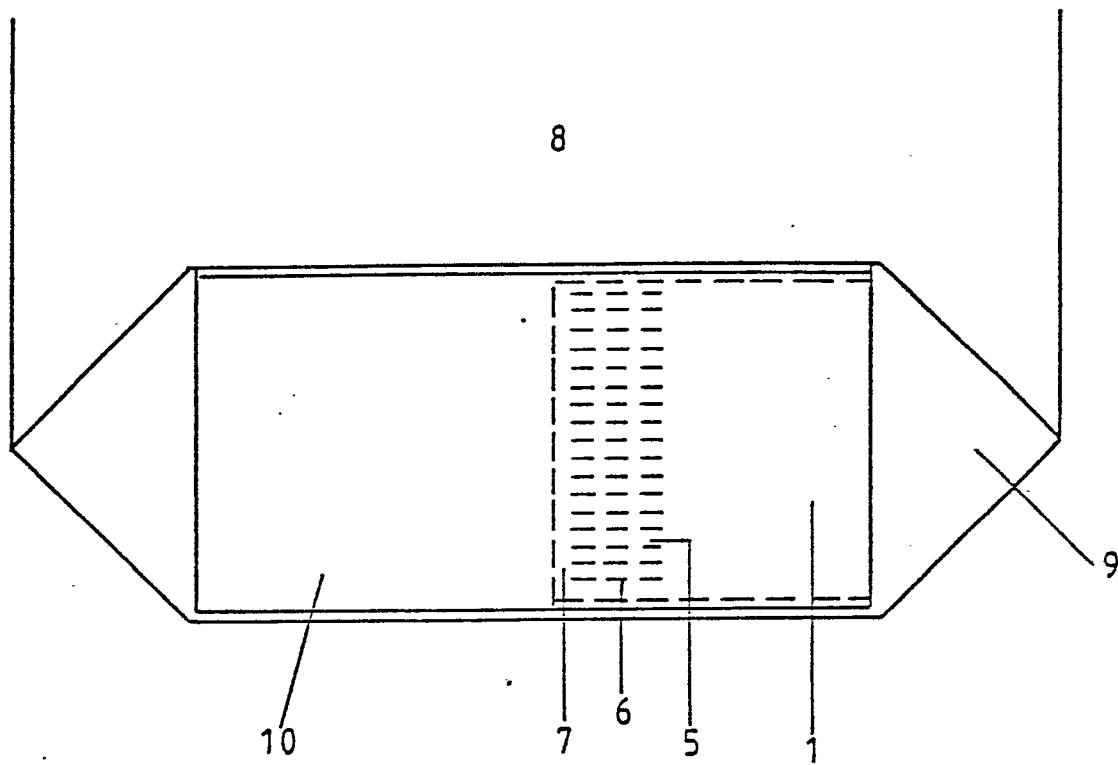


FIG. 3