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(54) **Supply roll of synthetic foil**

(57) Supply roll (1) of synthetic foil (2). The foil is provided with two longitudinal edges, and has a width. The synthetic foil is provided with rows of transverse perforations (3) which are regularly spaced apart. Each row extends over the entire width of the foil. Supply roll of synthetic tubular foil, the tubular foil being provided with two longitudinal edges (7,8). The synthetic tubular foil is provided with rows of transverse perforations which are regularly spaced apart. Each row extends over the entire width of the tubular foil, a transverse weld (4,5) being arranged on either side of every other row

of transverse perforations at a short distance thereof. Each transverse weld extends over the width of the tubular foil. Supply roll of synthetic centerfold foil, the centerfold foil being provided with two longitudinal edges. The synthetic centerfold foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extends over the entire width of the foil. A transverse weld is arranged on either side of each row of transverse perforations at a short distance thereof. Each transverse weld runs from one longitudinal edge of the centerfold foil up to a short distance from the other longitudinal edge of the foil.

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Description

[0001] The present invention relates to a supply roll of synthetic foil, intended for manufacturing air-filled bags from it.

[0002] Such air-filled bags made of synthetic foil are used for filling empty spaces, for instance in packagings, as shock reducing cushions, as packaging protection for fragile goods. Usually these air-filled bags are made by supplying an unprocessed elongate foil from a supply roll to a machine which processes said foil, depending on the kind of foil on the roll, by for instance providing transverse and longitudinal welds and perforations, the machine also being provided with means that are able to inflate the bags. Such machines are not only complex but also expensive and require regular servicing. In general two kinds of foil can be distinguished. The first is tubular foil, and the second is centerfold foil which compared to the tubular foil is open at one longitudinal edge.

[0003] It is an object of the present invention to provide a supply roll of synthetic foil with which a simple machine can make air-filled bags.

[0004] To that end the present invention provides a supply roll of synthetic foil, the foil being provided with two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil. By providing rows of transverse perforations in the supply roll of foil, the machine for manufacturing air-filled bags need not be provided with means for arranging rows of transverse perforations in the foil, as a result of which the machine can have a more simple construction and can thus be cheaper.

[0005] In an embodiment of a supply roll according to the invention a transverse weld is arranged on either side of every second, third or fourth, or following (preferably every second) row of transverse perforations at a short distance thereof. With such a supply roll air can be introduced into the foil via a row of transverse perforations which is not provided with a transverse weld on either side, for several bags to be formed at a time, preferably two each time, after which only a transverse weld has to be provided on either side of the row of perforations which previously was not provided with a transverse weld on either side. As a result a machine for making air-filled bags of a foil supplied via said supply roll, can have a simple design. Preferably each transverse weld extends over the width of the foil. As a result a machine for making air-filled bags provided via such a supply roll, is of an extremely simple construction.

[0006] In another embodiment of a supply roll according to the invention a transverse weld is arranged on either side of each row of transverse perforations at a short distance thereof. The introduction of air in such a foil can take place by making a hole in the foil with the help of a hollow needle of small dimensions, and subsequently introducing air via the hollow needle. The hole

made by the needle may be welded closed by heat. Preferably each transverse weld extends over the width of the foil. As a result a machine for making air-filled bags supplied via such a supply roll has an extremely simple construction.

[0007] Instead of extending over the width of the foil, each transverse weld may run from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil. For airtight sealing of the bags it will then be necessary that the machine for making air-filled bags from such a supply roll of foil, is provided with means for arranging a longitudinal weld extending between the ends of the transverse welds spaced from the edges of the foil.

[0008] In a preferred embodiment of a supply roll according to the invention a detectable means is situated next to each row of transverse perforations. Said detectable means may be detected by detection means provided on the machine for making air-filled bags from foil supplied from a supply roll, and thus furnish information about the positioning of the foil, in particular the rows of transverse perforations or transverse welds present in the foil. As a result the machine is able to very accurately and reproducibly perform further processing of the foil supplied from the supply roll.

[0009] The present invention further relates to a supply roll of synthetic tubular foil, the tubular foil being provided with two longitudinal edges, and having a width, which synthetic tubular foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of every other row of transverse perforations at a short distance thereof, each transverse weld extending over the width of the foil.

[0010] The present invention further relates to a supply roll of synthetic centerfold foil, the centerfold foil being provided with two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of each row of transverse perforations at a short distance thereof, each transverse weld running from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil.

[0011] The present invention further relates to a synthetic tubular foil, the tubular foil being provided with two longitudinal edges, and having a width, which synthetic tubular foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of every other row of transverse perforations at a short distance thereof, each transverse weld extending over the width of the foil.

[0012] Furthermore the invention relates to a synthetic centerfold foil, the centerfold foil being provided with

two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of each row of transverse perforations at a short distance thereof, each transverse weld running from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil.

[0013] Some embodiments of the present invention will be elucidated below by way of example on the basis of the drawings, in which:

Figure 1 schematically shows a supply roll of foil for manufacturing air-filled bags from it;

Figure 2A shows a schematic top view of an embodiment of a supply roll of foil according to the present invention, the foil being a tubular foil;

Figure 2B shows a schematic cross-section of the tubular foil according to figure 2A;

Figure 3A shows a schematic top view of an embodiment of a supply roll of foil according to the present invention, the foil being a centerfold foil; and

Figure 3B shows a schematic cross-section of the tubular foil according to figure 3A.

[0014] The present invention relates to a supply roll of synthetic foil 2 which is wound around a central axis 1, as schematically shown in figure 1. In the example shown the central axis 1 has a circular cross-section, but it will be clear that the cross-section of the central axis 1 may also have other shapes, such as for instance a polygon shape. Such a supply roll of synthetic foil is particularly meant for making air-filled bags from it. Said air-filled bags are for instance used for filling empty spaces, for instance in packagings. The elongate foil 2 is supplied from the supply roll to a machine which further processes said foil and inflates the foil for manufacturing air-filled bags.

[0015] Mainly two kinds of foils are used to that end. The first is tubular foil 2', as schematically shown in cross-section in figure 2B, and the second is centerfold foil 2", as schematically shown in figure 3B, which compared to tubular foil 2' is open at one longitudinal edge 8".

[0016] The foil 2', 2" is provided with two longitudinal edges 7', 8'; 7", 8" (figure 2A, 3A). Furthermore the foil 2', 2" has a width which is adjusted to the final dimension of the air-filled bags.

[0017] In figure 2A an embodiment of a synthetic tubular foil 2' is schematically shown. The synthetic tubular foil 2' is shown unwound from a supply roll. The synthetic tubular foil 2' is provided with rows of transverse perforations 3'₁, 3'₂, 3'₃, 3'₄, 3'₅ ... which are regularly

spaced apart. The rows of transverse perforations 3' cannot only be used for inflating the tubular foil 2', but can also be used as a line along which the bags are torn from each other in order to separate them. Each row 3' extends over the entire width of the tubular foil 2'. On either side of every other row 3'₂, 3'₄ of transverse perforations a transverse weld 4'₂, 5'₂; 4'₄, 5'₄ has been arranged at a short distance thereof. The distance preferably is as short as possible as the material in between a transverse weld 4', 5' and the accompanying row of transverse perforations 3' in essence is not useful material. In this exemplary embodiment each transverse weld extends over the width of the tubular foil 2'. In order to accurately indicate the position of the tubular foil 2', in particular the position of the rows of transverse perforations and the transverse welds, in a machine for manufacturing air-filled bags, a detectable means 9'₁, 9'₃, 9'₅, is situated next to every other row of transverse perforations 3'₁, 3'₃, 3'₅. Said detectable means 9' may be suitable to be detected by optical, magnetic or other means which are present in the machine. Filling the bags with air may be take place here by making a hole in the tubular foil 2' with the help of a hollow needle of small dimensions, and subsequently introducing air via the hollow needle. The hole made by the needle may be welded closed by heat.

[0018] In figure 3A a further embodiment of the synthetic foil according to the present invention is shown. The foil is a synthetic centerfold foil 2", and is provided with rows of transverse perforations 3"₁, 3"₂, 3"₃, 3"₄, 3"₅, ... which are regularly spaced apart. Each row 3" extends over the entire width of the centerfold foil 2". On either side of each row of transverse perforations 3" a transverse weld 4"₁, 5"₁; 4"₂, 5"₂, 4"₃, 5"₃; 4"₅, 5"₅ has been arranged at a short distance thereof. Each transverse weld 4", 5" runs from one longitudinal edge 7" of the centerfold foil 2" up to a short distance from the other longitudinal edge 8" of the centerfold foil 2". In this case filling the centerfold foil 2" with air may take place by inflating the foil 2" from the open side 8" of the centerfold foil 2". The airtight sealing of the bags subsequently takes place by means of a longitudinal weld (indicated in figure 3A by a stripe-dot line 6") extending between the ends of the transverse welds 4", 5". Although not shown it is also possible here to arrange detectable means on the centerfold foil 2".

[0019] By using supply rolls, or foils according to the present invention, machines for making air-filled bags can be designed in a more simple and cheaper manner.

Claims

1. Supply roll of synthetic foil, the foil being provided with two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width

- of the foil.
2. Supply roll according to claim 1, a transverse weld being arranged on either side of every second third or following row of transverse perforations at a short distance thereof, preferably every second row. 5
 3. Supply roll according to claim 1, a transverse weld being arranged on either side of each row of transverse perforations at a short distance thereof. 10
 4. Supply roll according to claim 2 or 3, each transverse weld extending over the entire width of the foil.
 5. Supply roll according to claim 2 or 3, each transverse weld running from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil. 15
 6. Supply roll according to any one of the preceding claims, a detectable means being situated next to each row of transverse perforations. 20
 7. Supply roll according to claim 1, 2, 3, 4 or 6 referring to any one of the claims 1-4, the foil being a tubular foil. 25
 8. Supply roll according to claim 1, 2, 3, 5 or 6 referring to any one of the claims 1, 2, 3 or 5, the foil being a centerfold foil. 30
 9. Supply roll of synthetic tubular foil, the tubular foil being provided with two longitudinal edges, and having a width, which synthetic tubular foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of every other row of transverse perforations at a short distance thereof, each transverse weld extending over the width of the foil. 35 40
 10. Supply roll according to claim 9, a detectable means being situated next to each row of transverse perforations. 45
 11. Supply roll of synthetic centerfold foil, the centerfold foil being provided with two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of each row of transverse perforations at a short distance thereof, each transverse weld running from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil. 50 55
 12. Supply roll according to claim 11, a detectable means being situated next to each row of transverse perforations.
 13. Synthetic tubular foil, the tubular foil being provided with two longitudinal edges, and having a width, which synthetic tubular foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of every other row of transverse perforations at a short distance thereof, each transverse weld extending over the width of the foil.
 14. Tubular foil according to claim 13, a detectable means being situated next to each row of transverse perforations.
 15. Synthetic centerfold foil, the centerfold foil being provided with two longitudinal edges, and having a width, which synthetic foil is provided with rows of transverse perforations which are regularly spaced apart, and each row extending over the entire width of the foil, a transverse weld being arranged on either side of each row of transverse perforations at a short distance thereof, each transverse weld running from one longitudinal edge of the foil up to a short distance from the other longitudinal edge of the foil.
 16. Supply roll according to claim 15, a detectable means being situated next to each row of transverse perforations.

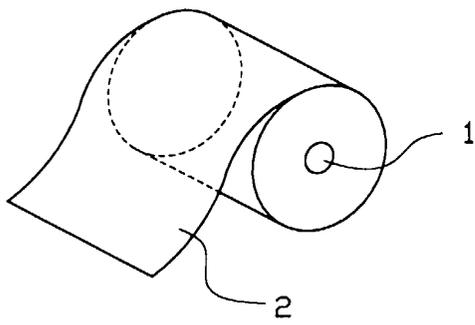


FIG. 1

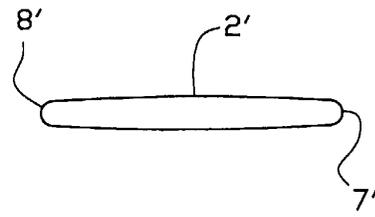


FIG. 2B

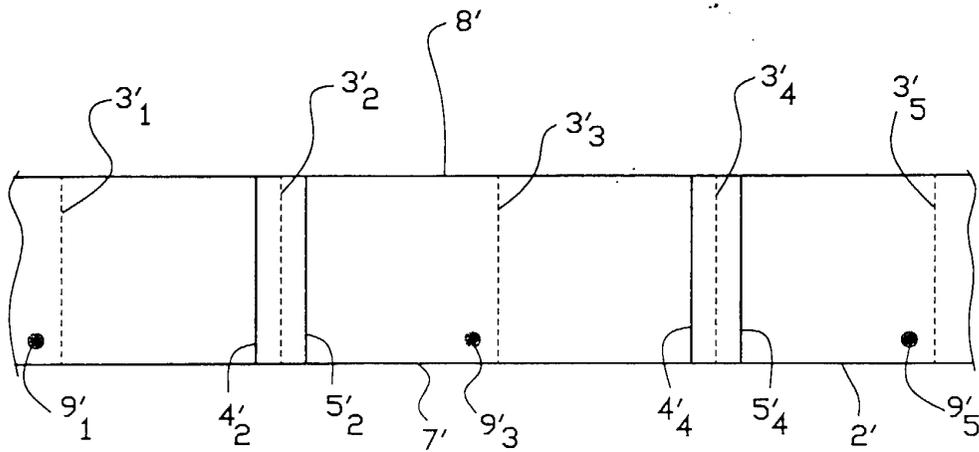


FIG. 2A

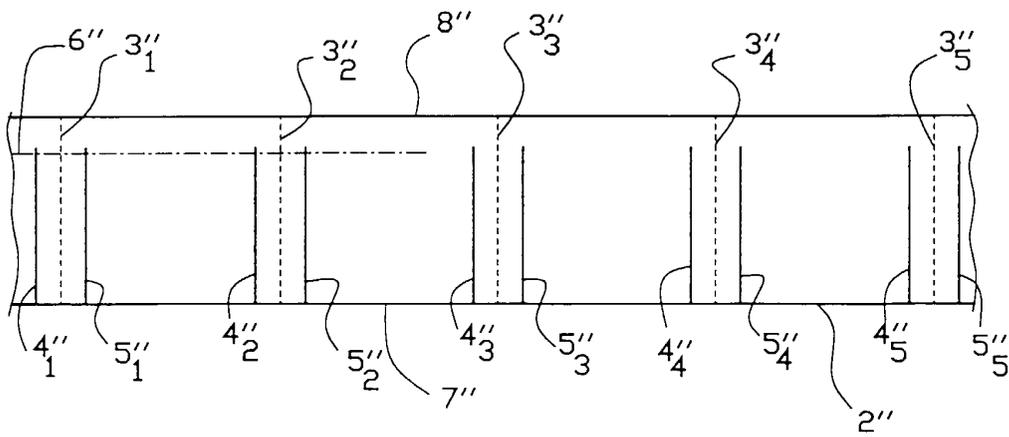


FIG. 3A

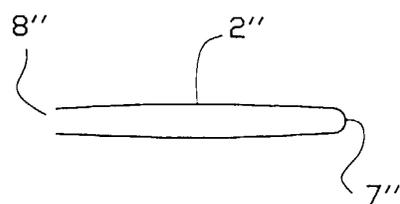


FIG. 3B



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EUROPEAN SEARCH REPORT

Application Number
EP 00 20 0214

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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		13 April 2000	Pernice, C
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