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(54) **A BAG FOR HOLDING A CORRESPONDING MATERIAL**

(57) A bag (10) for holding a corresponding material; in particular waste material, especially waste material of a building site or the like, which is made of a corresponding polymer-based film and comprises a bag body (12) adapted to house said material, and a first and a second handles (18 and 20), transversally spaced apart from one another and longitudinally projecting from said bag body (12), said first and second handles (18, 20) are respectively formed by corresponding and opposite portions (17, 19 and 21, 23) of the respective front wall (14) and rear wall (16) of the bag body, which extend from the respective upper edge (144, 164) thereof; said portions (17, 19 and 21, 23) for the extension of the respective front wall (14) and rear wall (16) are directly mutually connected, at the corresponding outermost, in particular upper, edges, in use, (171, 191, 211, 231). Said first and second handles (18, 20) are transversally spaced apart from the corresponding side edge, in particular from both side edges (121, 122), of said bag body (12), i.e., from the corresponding side edges (141, 161 and 142, 162) of said front wall (14) and rear wall (16).

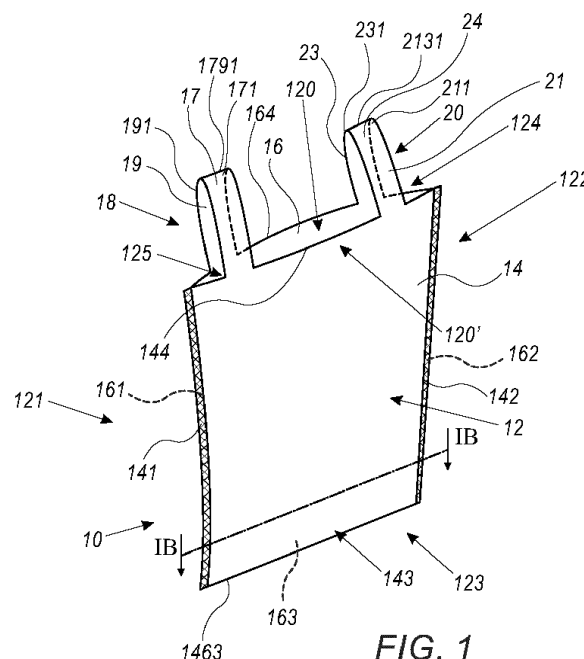


FIG. 1

Description

[0001] The present invention relates to a bag for holding a corresponding material and a process, in particular to make said bag.

[0002] Bags are known, which are specially intended for holding a corresponding waste material of a building site or the like, in which said bag is made in corresponding polymer-based film, i.e., in polyethylene, and without handles.

[0003] In this case, gripping the bag by the user, also in view of the significant weight to be lifted, is particularly challenging.

[0004] Bags with handles are also known, which bags have their respective handles exactly at the side flanks of the bag.

[0005] However, in this case to, if the volume to be contained is high, gripping the bag is as challenging.

[0006] Furthermore, with the polyethylene bags known so far, it is not possible to obtain sufficiently robust handles, i.e., having a suitable distribution of the stresses in the bag body, such as to allow carrying out the transport of a material that has a particularly high weight.

[0007] Furthermore, already-known said bags have the flanks of the bag, or the bottom of the same, which are provided with a corresponding bellows, which involves an unsuccessful closing sealing at said zones and a consequent higher fragility of the same bag, with high risk of breakage when the bag is full, and related drawbacks for the user of the same.

[0008] Furthermore, with the monolayer polyethylene bags known so far, there is a waste of virgin material, with consequent problems from an ecological point of view.

[0009] Therefore, with the present invention it is desired to propose a new and alternative solution to the solutions known so far, and in particular we propose to obviate one or more of the drawbacks or problems referred to above and/or to satisfy one or more needs referred to above, and/or in any case felt in the art, and in particular deducible from the above.

[0010] Thus, a bag for holding a corresponding material, in particular waste material, especially waste material, or rubble, of a building site or the like is provided; said bag being made of a corresponding polymer-based film; said bag comprising a bag body adapted to house said material, said bag body having a front wall and a rear wall, mutually opposite, and being open, especially superiorly, in use; characterized in that said front wall and rear wall are directly connected to one another, at respective side and bottom edges of said bag; and in that said bag has a first and a second handles transversally spaced apart from one another and longitudinally projecting from said bag body, said first and second handles being respectively formed by corresponding and opposite portions of the respective front wall and rear wall, which extend from the respective upper edge thereof, said extending portions of the respective front wall and

rear wall being directly mutually connected, at the corresponding outermost, in particular upper, edges, in use; said first and second handles being transversally spaced apart from the corresponding side edge, in particular from both side edges, of said bag body, i.e., from said corresponding side edges of said front wall and rear wall.

[0011] In this manner, a bag is obtained, which is particularly robust and which allows an easy grip of the same bag by the user, while providing for an advantageous, in particular substantially homogeneous, distribution, of the stresses which from said handles propagate along the corresponding walls of the bag, thus achieving an important material holding capacity.

[0012] A process of making a bag for holding a corresponding material, in particular for holding a waste material, especially a waste material, or rubble, of a building site or the like is also provided; in which a tubular body in corresponding polymer-based film is expected to be made; characterized in that, in said tubular body, or film corresponding longitudinal portions are defined, which are adapted to define corresponding holding bags, which respective longitudinal portion is defined through corresponding first and second junctions, in particular in the form of heat seals, obtained transversally, throughout the whole transversal extension of said tubular body, or film and adapted to join said facing flaps thereof to one another, at which, or inside which first and second transversal junctions corresponding separation means, in particular a first and a second cuts, or possibly a first and a second pre-cuts, are provided, which separation means, i.e., said first and second cuts, or possibly said first and a second pre-cuts, are transversally extended and are adapted to allow the separation of said longitudinal portion from said tubular body, and in which said tubular body, or film at the respective longitudinal portion a corresponding die cutting, or shaped cutting, of both said opposite flaps is provided, such as to define, in the same longitudinal portion, a respective bag body, with respective mouth for accessing the internal space thereof, and corresponding first and second handles, transversally spaced apart from one another and longitudinally projecting from said bag body, and which said first and second handles are adapted to be spaced apart from the corresponding side edge, in particular from both side edges, of said bag body, and in particular longitudinally spaced apart from said separation means, i.e., from said first and second cuts, or possibly said first and a second pre-cuts.

[0013] In this manner, in a particularly easy manner, a bag is obtained, which is particularly robust and which allows an easy grip of the same bag by the user, while providing for an advantageous, in particular substantially homogeneous, distribution, of the stresses, which from said handles propagate along the corresponding walls of the bag, thus achieving an important material holding capacity by the same bag.

[0014] This and other novel aspects, or respective advantageous implementations, are however set forth in

the attached claims, the specific technical characteristics of which can be found, together with corresponding advantages obtained, in the following description, illustrating in detail a merely exemplary, non-limiting embodiment of the invention, and which is made with reference to the attached drawings, in which:

- Fig. 1 illustrates a schematic, perspective view of a preferred implementation of a bag according to the present invention;
- Fig. 2 illustrates a schematic, cross-sectional view, taken according to the line IB-IB of Fig. 1, of the preferred implementation of a bag according to the present invention;
- Fig. 3 illustrates a schematic sectional view of the preferred implementation of a film for bag according to the present invention;
- Fig. 4A illustrates a schematic top plan view of an implementation of a tubular film to make the preferred implementation of a bag according to the present invention;
- Fig. 4B illustrates a schematic, cross-sectional view of the implementation of a tubular film to make the preferred implementation of a bag according to the present invention;

[0015] In the attached figures 1 to 2, a preferred implementation 10 of a bag for holding a corresponding material is illustrated; in particular waste material, especially waste material, or rubble, of a building site or the like.

[0016] Preferably, as best seen from the following of the present description, said bag 10 is made of a corresponding polymer-based film.

[0017] The bag 10 comprises, as illustrated, a bag body 12, in particular, as illustrated, having opposite side edges 121, 122 a bottom edge 123 and an upper edge 124, and is adapted to house, i.e., to define a corresponding internal space 120 for housing said material.

[0018] As illustrated, said bag body 12 has a large front wall 14 and a large rear wall 16, mutually opposite, and it is open, especially superiorly, in use, in 125.

[0019] Advantageously, said bag body 12 has a front wall 14 and a rear wall 16, which are directly connected, at respective side 141, 161 and 142, 162 and bottom 143, 163 edges.

[0020] In this manner, a bag can be obtained, which is particularly robust and such as to support, in use, a significant weight.

[0021] With further advantage, said bag 10 has a first and a second handles 18 and 20, transversally spaced apart from one another and longitudinally projecting from said bag body 12, which first and second handles 18, 20 are respectively formed by corresponding and opposite portions 17, 19 and 21, 23 of the respective front wall 14 and rear wall 16, which extend from the respective upper edge 144, 164 thereof.

[0022] With advantage, said extending portions 17, 19

and 21, 23 of the respective front wall 14 and rear wall 16 are directly mutually connected, at the corresponding outermost, in particular upper, edges, in use, 171, 191, 211, 231.

5 **[0023]** With further advantage, as illustrated, which said first and second handles 18, 20 are transversally spaced apart from the corresponding side edge, in particular from both side edges 121, 122, of said bag body 12, i.e., from said corresponding side edges 141, 161 and 142, 162 of said front wall 14 and rear wall 16.

10 **[0024]** In this manner, an easy grip of the bag by the user is obtained, while maintaining an important material holding capacity and providing, at the same time, for an advantageous, in particular substantially homogeneous, distribution, of the stresses, which from said handles propagate along the corresponding walls of the bag.

15 **[0025]** In this manner, a bag can be obtained, which allows carrying a significant weight, in particular a weight of about 20-25 kg.

20 **[0026]** Advantageously, the film, at said first and second handles 18, 20, i.e., of said portions 17, 19 and 21, 23 thereof, has a density, or thickness, larger than the one the same film has at said bag body 12, i.e., of said front wall 14 and rear wall 16 thereof. In particular, the film, at said first and second handles 18, 20, i.e., of said portions 17, 19 and 21, 23 thereof, has a density, or thickness, larger than the one the film has at the prevailing part of the surface extension of said bag body 12, or the prevailing parts of the surface extension of said front wall 14 and rear wall 16.

30 **[0027]** With further advantage, as can be seen from said figures, the film, at said first and second handles 18, 20, i.e., of said portions 17, 19 and 21, 23 thereof, has a density, or thickness, which is larger than the one the film has at one part of the surface extension of the same bag body 12, which is larger than the half thereof, i.e., that the film has at corresponding parts of said front wall 14 and rear wall 16 which are larger than half the surface, especially longitudinal, extension thereof.

35 **[0028]** Advantageously, as can be seen from the corresponding figures 1 and 2, in accordance with a preferred implementation 10 of bag, said side edges 141, 161 and 142, 162, of said front wall 14 and rear wall 16 of the bag, are joined to one another, in particular are heat-sealed to one another.

40 **[0029]** As can be seen from the corresponding figures 1 and 2, advantageously, in accordance with said preferred implementation 10 of bag, said upper edges, in use, 171, 191, 211, 231 of said portions 17, 19 and 21, 23, defining said first and second handles 18, 20 of the bag, are mutually connected through a respective common folding line 1791, 2131.

45 **[0030]** In an advantageous manner, as can be seen from the corresponding figures 1 and 2, in accordance with said preferred implementation 10 of bag, said bottom edges 143, 163, of said front wall 14 and rear wall 16 of the bag, are mutually connected through a common folding line 1463.

[0031] Advantageously, as can be seen from said figures, the bag 10 has a width ranging between 50 cm and 80 cm, preferably between 60 cm and 70 cm, particularly preferably of about 67 cm.

[0032] Advantageously, the bag 10 has an overall length, including said first and second handles 18, 20, which ranges between 80 cm and 100 cm, preferably between 85 cm and 95 cm, particularly preferably which is of about 91 cm.

[0033] In an appreciably advantageous manner, as can be seen from said figures, the respective one of, or both, said first and second handles 18, 20, in particular the respective outwardly-facing side edge 18', 20', has a distance d from the corresponding side edge 121, 122 of said bag body 12, which ranges from 10 to 15 cm, preferably which is of about 12 cm.

[0034] Advantageously, as can be seen from said figures, said first and second handles 18, 20, i.e., the respective inwardly-facing side edge 18'', 20'', has a distance d'', from the other handle 20, 18, i.e., from the opposite side edge 20'', 18'' thereof, which ranges between 16 cm and 36 cm, preferably between 20 cm and 32 cm, particularly preferably of about 26 cm.

[0035] As can be seen from said figures, advantageously, said first and second handles 18, 20, i.e., the corresponding portions 17, 19 and 21, 23 thereof, have a width "w" ranging between 6 cm and 14 cm, preferably between 8 cm and 12 cm, particularly preferably of about 10 cm.

[0036] With appreciable advantage, as can be seen from the same figures, said first and second handles 18, 20, i.e., the corresponding portions 17, 19 and 21, 23 thereof, have a length l, which ranges between 18 cm and 32 cm, preferably between 20 cm and 28 cm, particularly preferably of about 23-24 cm.

[0037] Advantageously, as can be seen from said figures, the film 11 defining said bag 10, in particular defining said front wall 14, rear wall 16, and portions 17, 19 and 21, 23 of said first and second handles 18, 20, is in recyclable material.

[0038] As can be seen from Fig. 3, advantageously, the film 11 defining said bag 10, in particular defining said front wall 14, rear wall 16, and portions 17, 19 and 21, 23 of said first and second handles 18, 20, is composed of a plurality of layers, in particular comprising an outer layer 11', i.e., a layer which is intended to remain in use outside of the bag, or which defines the outer surface of the bag, and one or more inner layers 11'', 11''', for example, as illustrated, two inner layers. However, it is understood that according to further embodiments the number of layers of the film may be different from the three layers illustrated herein.

[0039] In a particularly advantageous manner, said outer layer 11', is made of polyethylene, in particular medium- and/or high-density polyethylene, while the respective inner layer 11'', 11''' is made of low-density polyethylene and in recycled polymeric material, in particular said recycled polymeric material is in a percentage rang-

ing between 20% and 95% by weight of the material composing the corresponding inner layer 11'', 11''', preferably in a percentage ranging between 80% and 90% by weight, of the material composing the corresponding inner layer 11'', 11'''.

[0040] Advantageously, said layers 11', 11'', 11''', composing the film of the bag, have their respective fibres extending according to a corresponding longitudinal direction, with the fibres of the different layers being provided in the film oriented by an angle with respect to the fibres of the adjacent or overlapping layer, i.e., with the fibres of the different layers which are arranged mutually crossed.

[0041] In this manner, the strength of the bag is improved.

[0042] Advantageously, said outer layer 11' has a thickness that ranges between 10% and 15% of the thickness of the same film 11.

[0043] With advantage, the film has a thickness ranging between 100 μ m and 125 μ m.

[0044] From the figures 4A and 4B, an advantageous process can be seen to make a respective bag 10 for holding a corresponding material; in particular for holding a waste material, especially a waste material, or rubble, of a building site or the like.

[0045] In practice, the process provides for making a tubular body 22, in corresponding polymer-based film 11, in particular through a corresponding extrusion step, and a subsequent step of ballooning said tubular body, or film 22, having opposite and facing flaps 221, 222, in a single tubular body to one another, i.e., mutually connected through common longitudinal folding lines 223, 224.

[0046] Advantageously, as illustrated, in said tubular body, or film 22, corresponding longitudinal portions 24 are defined, which are adapted to define corresponding holding bags 10, which respective longitudinal portion 24, is defined through corresponding first and second junctions, in particular in the form of heat seals, 261, 261, obtained transversally, in particular throughout the whole transversal extension of said tubular body, or film 22 and adapted to join said facing flaps 221, 222 thereof to one another.

[0047] In an appreciably advantageous manner, at which, or inside which, first and second transversal junctions 261, 261, corresponding separation means 281, 282 are provided, in particular a first and a second cuts, or possibly a first and a second pre-cuts, these latter for example being in the form of weakened separation lines, in particular in the form of through perforations obtained in said tubular film and alternating with continuous, unperforated, zones of the same film.

[0048] Said separation means 281, 282, i.e., said first and second cuts, or possibly said first and a second pre-cuts, are transversally extended, in particular throughout the whole transversal extension of said tubular body, or film 22, and are adapted to allow the separation of said longitudinal portion 24 from said tubular body 22, i.e., to allow the separation of the respective longitudinal portion

24, from the respectively adjacent longitudinal portions 24, 24.

[0049] As is clear from the figures, said separation means 281, 282, i.e., said first and second cuts, or possibly said first and a second pre-cuts, to allow the separation of the respective longitudinal portion 24, from the respectively adjacent longitudinal portions 24, 24, are transversally extended, in particular throughout the whole transversal extension of said tubular body, or film 22, and are obtained in an intermediate, i.e., longitudinal intermediate, zone, of the corresponding joining or heat-sealing transversal strips 261, 261 between the opposite flaps 221, 222 of the film or tubular body 22.

[0050] With further advantage, in said tubular body, or film 22, at the respective longitudinal portion 24, a corresponding die cutting, or shaped cutting, 30, of both said facing flaps 221, 222, is provided, such as to define in the same longitudinal portion 24, a respective bag body 12, with respective mouth for accessing the internal space 120 thereof and corresponding first and second handles 18 and 20, transversally spaced apart from one another and longitudinally projecting from said bag body 12, and which said first and second handles 18, 20 are adapted to be spaced apart from the corresponding side edge, in particular from both side edges 121, 122, of said bag body 12, i.e., from said corresponding side edges 141, 161 and 142, 162 of said front wall 14 and rear wall 16 of the same bag, and in particular longitudinally spaced apart from said separation means, i.e., from said first and second cuts, or possibly said first and a second pre-cuts, 281, 282.

[0051] As illustrated in said figures 4A and 4B, advantageously, in practice, the bag 10, obtained through the process, comprises opposite side edges 121, 122, a bottom edge 123 and an upper edge 124, and is adapted to house said material. Said bag body 12 has a front wall 14 and a rear wall 16, mutually opposite and directly connected at respective side 141, 161 and 142, 162 and bottom 143, 163, edges, and open, especially superiorly, in use, in 125.

[0052] With appreciable advantage, as can be seen from said figures, in practice, said first and second handles 18, 20 of the bag 10, obtained through the process, are respectively formed by corresponding and opposite portions 17, 19 and 21, 23 of the respective front wall 14 and rear wall 16, which extend from the respective upper edge 144, 164 thereof. Said portions 17, 19 and 21, 23 for the extension of the respective front wall 14 and rear wall 16 are directly mutually connected, at the corresponding outermost, in particular upper, edges, in use, 171, 191, 211, 231.

[0053] Advantageously, as can be seen from said figures 4A and 4B, said die cutting, or shaped cutting, 30 comprises a first cut 301 that has respective first and second lengths 301a, 301b, preferably at least partially extending mutually parallel and defining the opposite inner edges of said first and second handles 18, 20, and a third length 301c, which extends between, and from,

said first and second lengths 301a, 301b, and which defines the part of the upper edge 120' of the bag body 12 that extends between said inner edges of said first and second handles 18, 20, i.e., which defines a corresponding portion of the mouth of the bag.

[0054] As can be seen from said figures 4A and 4B, advantageously, said die cutting, or shaped cutting, 30 comprises a second cut 302, which has a respective first length 302a, defining the outer edge of said first handle 18, and a second length 302c, which extends from said first length 302a, externally thereto and which defines a corresponding part of the edge 120' of the bag body 12, which is external to said first handle 18, i.e., defining a corresponding outer or side portion of the mouth of the bag.

[0055] With advantage, as can be seen from said figures 4A and 4B, said die cutting, or shaped cutting, 30 comprises a third cut 303, which has a respective first length 303a, defining the outer edge of said second handle 20, and a second length 302c, which extends from said first length 303a, externally thereto, and which defines a corresponding part of the edge 120' of the bag body 12, which is external to said second handle 20, i.e., defining a corresponding outer or side portion of the mouth of the bag.

[0056] Advantageously, as can be seen from said figures 4A and 4B, in accordance with a preferred implementation of process, said first cut 301, of said die cutting, or shaped cutting, 30, comprises respective first and second lengths 301a, 301b, defining the opposite inner edges of said first and second handles 18, 20, which extend, at least prevalently, transversally to said tubular body, or film 22, up to the respective side edge 224 thereof, and the third length 301c which extends between, and from, said first and second lengths 301a, 301b and which defines the part of the upper edge 120' of the bag body 12, that extends between said inner edges of said first and second handles 18, 20, i.e., which defines a corresponding central portion of the mouth of the bag, which third length 301c extends, at least prevalently, longitudinally to said tubular body, or film 22.

[0057] As can be seen from said figures 4A and 4B, advantageously, in accordance with the preferred implementation of process, said second cut 302, of said die cutting, or shaped cutting, 30, comprises a respective first length 302a, defining the outer edge of said first handle 18, which extends, at least prevalently, transversal to said tubular body, or film 22, up to the respective side edge 224 thereof, and a second length 302c, which extends from said first length 302a, externally thereto and which defines a corresponding part of the edge 120' of the bag body 12, which is external to said first handle 18, i.e., defining a corresponding outer or side portion of the mouth of the bag, which second length 302c extends, at least prevalently, longitudinally to said tubular body, or film 22.

[0058] In an advantageous manner, as can be seen from said figures 4A and 4B, in accordance with the pre-

ferred implementation of process, said third cut 303, of said die cutting, or shaped cutting, 30, comprises a respective first length 303a, defining the outer edge of said second handle 20, which extends, at least prevalently, transversal to said tubular body, or film 22, up to the respective side edge 224 thereof, and a second length 302c, which extends from said first length 303a, externally thereto, and which defines a corresponding part of the edge 120' of the bag body 12, which is external to said second handle 20, i.e., defining a corresponding outer or side portion of the mouth of the bag, which second length 303c extends, at least prevalently, longitudinally to said tubular body, or film 22.

[0059] Advantageously, as can be seen from said figures 4A and 4B, the tubular film 22, at respective transversal strips 23 of said longitudinal portions 24 which are adapted to define corresponding holding bags 10, in which said first and second handles 18, 20 are present, has a density, or thickness, larger than the one the same tubular film has 22, at the remaining and adjacent zones or transversal strips 25.

[0060] In this manner, advantageously robust handles can be obtained, to allow carrying out the transport of a material with a significant weight.

[0061] As is clear from said figure 4A, advantageously, the tubular film 22 at the respective longitudinal portion 24 adapted to define a corresponding holding bag 10, has a first and a second transversal strips 23, 23, longitudinally spaced apart from one another, and in which said first and second handles 18, 20 are present, which first and second transversal strips 23, 23 have a density, or thickness, that is larger than the one that said tubular film 22 has at the other and adjacent transversal zones, or strips 25, 25, 25 of the same longitudinal portion 24, which other and adjacent transversal zones, or strips 25, 25, 25, as is clear from said figure 4A, are in a number of three, one 25 of which is longitudinally interposed to said first and second strips 23, 23, while the other two strips 25 and 25 are respectively provided anteriorly and posteriorly to a respective handle strip 23, 23.

[0062] Advantageously, it can also be contemplated that said tubular film 22, at the respective side 224, at which said handles 18, 20 are subsequently cut or die-cut, to provide a density, or thickness, which is larger than the one that said tubular film 22 has at the remaining part of the same tubular film, while it is stretched, i.e., subjected to traction, in particular when exiting the extrusion head, is cooled more than the remaining part of the same tubular film 22.

[0063] As is clear from said figure 4A, advantageously, in accordance with the preferred implementation of process, the respective longitudinal portion 24, adapted to define a corresponding holding bag 10, provided in said tubular film 22 has a longitudinal length ranging between 50 cm and 80 cm, preferably between 60 cm and 70 cm, particularly preferably of about 67 cm.

[0064] With appreciable advantage, as is clear from said figure 4A, in accordance with the preferred imple-

mentation of process, said tubular film 22 has a transversal width, in particular in a flattened condition, which ranges between 80 cm and 100 cm, preferably between 85 cm and 95 cm, particularly preferably which is of about 91 cm.

[0065] With advantage, as can be seen from said figures 4A and 4B, said die cutting, or shaped cutting, 30, provides for in said tubular film 22, the respective one of, or both, said first and second handles 18, 20, in particular the respective outwardly-facing side edge 18', 20' thereof, at a distance "d" from the corresponding separation means, i.e., from said first and second cuts, or possibly said first and a second pre-cuts, 281, 282, for the preferred implementation of process, which ranges from 10 cm to 15 cm, and preferably which is of about 12 cm.

[0066] Advantageously, as can be seen from said figures 4A and 4B, said die cutting, or shaped cutting, 30, provides for in said tubular film 22, said first and second handles 18, 20, i.e., the respective inwardly-facing side edge 18", 20" thereof, at a distance d", from the other handle 20, 18, i.e., from the opposite side edge 20", 18" thereof, which ranges between 16 cm and 36 cm, preferably between 20 cm and 32 cm, particularly preferably of about 26 cm.

[0067] As can be seen from said figures 4A and 4B, advantageously, said die cutting, or shaped cutting, 30 provides for in said tubular film 22, said first and second handles 18, 20, with a width "w" ranging between 6 cm and 14 cm, preferably between 8 cm and 12 cm, particularly preferably of about 10 cm.

[0068] In an advantageous manner, as can be seen from said figures 4A and 4B, said die cutting, or shaped cutting, 30, provides for in said tubular film 22, said first and second handles 18, 20, with a length "l", which ranges between 18 cm and 32 cm, preferably between 20 cm and 28 cm, particularly preferably of about 23-24 cm.

[0069] Advantageously, said tubular film 22 is in recyclable material.

[0070] As is clear from said figure 3, advantageously, said tubular film 22 is composed of a plurality of layers, in particular comprising an outer layer 11', i.e., a layer which is intended to remain in use outside of the bag, or which defines the outer surface of the bag, and one or more inner layers 11", 11"', for example, as illustrated, two inner layers.

[0071] In a particularly advantageous manner, as is clear from said figure 3, the respective, in particular both, said outer layers 11', 11" are in polyethylene and/or the respective inner layer 11"' is made of polyethylene and in recycled polymeric material, in particular said recycled polymeric material is in a percentage ranging between 30% and 70% by weight of the same inner layer 11"'.

[0072] Advantageously, as is clear from said figure 3, said outer layer 11' has a thickness that ranges between 10% and 15% of the thickness of the same tubular film 22.

[0073] Advantageously, said layers 11', 11", 11"', composing the tubular film 22, have their respective fibres extending according to a corresponding longitudinal

direction, with the fibres of the different layers being provided in the film oriented by an angle with respect to the fibres of the adjacent or overlapping layer, i.e., with the fibres of the different layers which are arranged mutually crossed.

[0074] With advantage, the tubular film 22 has a thickness ranging between 100 μm and 125 μm .

[0075] As is clear from said figure 4A, advantageously, in accordance with the preferred implementation of process, said die cutting, or shaped cutting, 30, provides for in said tubular film 22, said first and second handles 18, 20 which extend transversally up to the corresponding side edge 224 of said tubular film 22.

[0076] As can be seen from said figures, the common folding line 1463 defining the bottom of the bag is defined by the longitudinal folding line 223, connecting the opposite and facing flaps 221, 222 of the body or tubular film.

[0077] In this manner, a bag can be obtained, which is particularly robust and such as to support, in use, a significant weight.

[0078] Furthermore, as is clear from said figures, the corresponding and common outermost folding line 1791, 2131 of the respective first and second handles 18, 20 of the bag is defined by the longitudinal folding line 224, connecting the opposite and facing flaps 221, 222 of the body or tubular film, in particular which longitudinal folding line 224, as illustrated, is on the opposite side of said longitudinal folding line 223.

[0079] In this manner, a bag can be obtained, which is particularly robust and such as to support, in use, a significant weight.

[0080] In turn, the junctions or transversal seals 261, 261 directly connect said facing flaps 221 and 222 of the film or tubular body to one another.

[0081] In this manner, it is possible to make side flanks 121, 122 of the bag, which are sufficiently robust to carry heavy material, for example material that can be used in a building site or the like, or a waste material, i.e., rubble, of a corresponding building site.

[0082] In practice, as is clear from the figures, the portions of the film or tubular body defining said first and second handles 18, 20, extend, at least prevalently, transversally to said tubular body, or film 22, in particular starting from a corresponding intermediate transversal point thereof, up to the respective side edge (224) thereof.

[0083] In particular, as can be advantageously seen, in the bag 10 obtained according to the present process, the folding lines 223, 224 of the same tubular body, or film 22 define the opposite outermost edges 1463, 1791 and 2131 defining respectively the bottom of the bag 10 and the outermost edges of the handles 18 and 20 of the same bag 10.

[0084] Furthermore, the die cutting 30, obtained in said film or tubular body, defines on the whole a longitudinal line 301c, 302c and 303c, which is adapted to define an advantageous and easy mouth for accessing the interior of the bag.

[0085] In practice, as is clear, the technical characteristics illustrated above allow, singularly or in a respective combination, achieving one or more of the following advantageous results:

- a particularly robust bag is obtained, in particular adapted to be used to carry a heavy material, in particular a material, which can be used in a building site or the like, or a waste material, i.e., rubble, of a corresponding building site;
- an easy grip of the bag by the user is obtained, while maintaining an important material holding capacity and providing, at the same time, for an advantageous, in particular substantially homogeneous, distribution, of the stresses, which from said handles propagate along the corresponding walls of the bag;
- advantageously robust handles can be obtained, to allow carrying out the transport of a material with a significant weight;
- the bag is advantageously recyclable.

[0086] The present invention is susceptible of obvious industrial application. Furthermore, those skilled in the art will be able to devise a number of modifications and/or variations to be made to the same invention, while remaining within the scope of the inventive concept, as widely explained. Furthermore, those skilled in the art will be able to devise further preferred implementations of the invention which comprise one or more of the characteristics illustrated above of the preferred implementation referred to above, in particular, as set forth in the attached claims. Furthermore, it shall also be understood that all the details of the invention can be replaced by technically equivalent elements.

Claims

1. A bag (10) for holding a corresponding material, in particular waste material, especially waste material, or rubble, of a building site or the like; said bag (10) being made in corresponding polymer-based film; said bag (10) comprising a bag body (12) adapted to house said material, said bag body (12) having a front wall (14) and a rear wall (16), mutually opposite, and being open, especially superiorly, in use; **characterized in that** said front wall (14) and rear wall (16) are directly connected to one another, at respective side (141, 161 and 142, 162) and bottom (143, 163) edges of said bag; and **in that** said bag (10) has a first and a second handles (18 and 20), transversally spaced apart from one another and longitudinally projecting from said bag body (12), said first and second handles (18, 20) being formed by corresponding and opposite portions (17, 19 and 21, 23), respectively, of the respective front wall (14) and rear wall (16), which extend from the respective upper edge (144, 164) thereof, said portions (17, 19

and 21, 23) for the extension of the respective front wall (14) and rear wall (16) being directly mutually connected, at the corresponding outermost, in particular upper, edges, in use, (171, 191, 211, 231); said first and second handles (18, 20) being transversally spaced apart from the corresponding side edge, in particular from both side edges (121, 122), of said bag body (12), i.e., from said corresponding side edges (141, 161 and 142, 162) of said front wall (14) and rear wall (16).

2. The bag according to claim 1, **characterized in that** the film, at said first and second handles (18, 20), i.e., of said portions (17, 19 and 21, 23) thereof, has a density, or thickness, larger than the one the film has at said bag body (12), i.e., of said front wall (14) and rear wall (16) thereof; in particular the film at said first and second handles (18, 20), i.e., of said portions (17, 19 and 21, 23) thereof, has a density, or thickness, larger than the one the film has at the prevailing part of the surface extension of said bag body (12), or the prevailing parts of the surface extension of said front wall (14) and rear wall (16); and in particular **in that** the film at said first and second handles (18, 20), i.e., of said portions (17, 19 and 21, 23) thereof, has a density, or thickness, which is larger than the one the film has at one part of the surface extension of the same bag body (12) which is larger than the half thereof, i.e., that the film has at corresponding parts of said front wall (14) and rear wall (16) which are larger than the half of the surface extension thereof.
3. The bag according to any of the preceding claims, **characterized in that** said side edges (141, 161 and 142, 162), of said front wall (14) and rear wall (16) of the bag, are joined to one another, in particular are heat-sealed to one another; and/or **in that** said upper edges, in use, (171, 191, 211, 231) of said portions (17, 19 and 21, 23), defining said first and second handles (18, 20) of the bag, are mutually connected through a respective common folding line (1791, 2131); and/or **in that** said bottom edges (143, 163), of said front wall (14) and rear wall (16) of the bag, are mutually connected through a common folding line (1463).
4. The bag according to any of the preceding claims, **characterized in that** the bag (10) has a width ranging between 50 cm and 80 cm, preferably between 60 cm and 70 cm, particularly preferably of about 67 cm; and/or **in that** the bag (10) has an overall length, including said first and second handles (18, 20), which ranges between 80 cm and 100 cm, preferably between 85 cm and 95 cm, particularly preferably which is of about 91 cm; and/or **in that** the respective one of, or both, said first and second handles (18, 20), in particular the respective outwardly-facing side

edge (18', 20'), has a distance (d) from the corresponding side edge (121, 122) of said bag body (12), which ranges from 10 to 15 cm, preferably which is of about 12 cm; and/or **in that** said first and second handles (18, 20), i.e., the corresponding portions (17, 19 and 21, 23) thereof, have a width (w) ranging between 6 cm and 14 cm, preferably between 8 cm and 12 cm, particularly preferably of about 10 cm; and/or **in that** said first and second handles (18, 20), i.e., the corresponding portions (17, 19 and 21, 23) thereof, have a length (l), which ranges between 18 cm and 32 cm, preferably between 20 cm and 28 cm, particularly preferably of about 23-24 cm.

5. The bag according to any of the preceding claims, **characterized in that** the film (11) defining said bag (10), in particular defining said front wall (14), rear wall (16), and portions (17, 19 and 21, 23) of said first and second handles (18, 20), is in recyclable material.
6. The bag according to any of the preceding claims, **characterized in that** the film (11) defining said bag (10), in particular defining said front wall (14), rear wall (16), and portions (17, 19 and 21, 23) of said first and second handles (18, 20), is composed of a plurality of layers, in particular comprising an outer layer (11'), and one or more inner layers (11'', 11''').
7. The bag according to claim 6, **characterized in that** said outer layer (11'), is made of polyethylene, in particular medium- and/or high-density polyethylene, while the respective inner layer (11'', 11''') is made of low-density polyethylene and in recycled polymeric material, in particular said recycled polymeric material is in a percentage ranging between 20% and 95% by weight of the material composing the corresponding inner layer (11'', 11'''), preferably in a percentage ranging between 80% and 90% by weight, of the material composing the corresponding inner layer (11'', 11''').
8. A process of making a bag (10) for holding a corresponding material; in particular for holding a waste material, especially a waste material, or rubble, of a building site or the like; wherein a tubular body (22) made of a corresponding polymer-based (11) is expected to be made, said tubular body, or film (22) having opposite and facing flaps (221, 222), in a single tubular body to one another, i.e., mutually connected through common longitudinal folding lines (224, 224); **characterized in that**, in said tubular body, or film (22) corresponding longitudinal portions (24) are defined, which are adapted to define corresponding holding bags (10), which respective longitudinal portion (24) is defined through corresponding first and second junctions, in particular in the form of heat seals, (261, 261) obtained transversally,

throughout the whole transversal extension of said tubular body, or film (22) and adapted to join said facing flaps (221, 222) thereof to one another, at which, or inside which first and second transversal junctions (261, 261) corresponding separation means (281, 282) are provided, in particular a first and a second cuts, or possibly a first and a second pre-cuts, which separation means (281, 282), i.e., said first and second cuts, or possibly said first and a second pre-cuts, are transversally extended and are adapted to allow the separation of said longitudinal portion (24) from said tubular body (22), and in which said tubular body, or film (22) at the respective longitudinal portion (24) a corresponding die cutting, or shaped cutting, (30), of both said facing flaps (221, 222) is provided, such as to define, in the same longitudinal portion (24), a respective bag body (12), with respective mouth (125) for accessing the internal space (120) thereof and corresponding first and second handles (18 and 20), transversally spaced apart from one another and longitudinally projecting from said bag body (12), and which said first and second handles (18, 20) are adapted to be spaced apart from the corresponding side edge, in particular from both side edges (121, 122), of said bag body (12) and in particular longitudinally spaced apart from said separation means, i.e., from said first and second cuts, or possibly said first and a second pre-cuts, (281, 282).

9. The process according to claim 8, **characterized in that** said first and second junctions, in particular in the form of heat seals, (261, 261), are obtained throughout the whole transversal extension of said tubular body, or film (22).

10. The process according to any of the preceding claims 8 and 9, **characterized in that** the portions of the film or tubular body (22) defining said first and second handles (18, 20), extend, at least prevalently, transversally to said tubular body, or film (22), in particular starting from a corresponding intermediate transversal point thereof up to the respective side edge (224) thereof.

11. The process according to any of the preceding claims 8 to 10, **characterized in that** the folding lines (223, 224) of the same tubular body, or film (22) define the opposite outermost edges (1463, 1791 and 2131) defining the bottom of the bag and the outermost edges of the handles (18 and 20) of the same bag (10), respectively.

12. The process according to any of the preceding claims 8 to 11, **characterized in that** said separation means (281, 282), i.e., said first and second cuts, or possibly said first and a second pre-cuts, to allow the separation of the respective longitudinal portion

(24), from the respectively adjacent longitudinal portions (24, 24), are transversally extended, in particular throughout the whole transversal extension of said tubular body, or film (22), and/or are obtained in an intermediate, i.e., longitudinal intermediate, zone, of the corresponding transversal joining or heat-sealing strips (261, 261) between the opposite flaps (221, 222) of the film or tubular body (22).

13. The use of a bag according to any of the preceding claims 1 to 7, i.e., of a bag obtained by the process according to the claims 8 to 12, for housing a heavy material, in particular a material, which can be used in a building site or the like, or a waste material, i.e., rubble, of a corresponding building site.

