



(11)

EP 3 112 279 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.01.2017 Bulletin 2017/01

(51) Int Cl.:
B65B 67/12 (2006.01) **B65D 33/00** (2006.01)
B65F 1/00 (2006.01)

(21) Application number: **16175387.6**

(22) Date of filing: **21.06.2016**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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(30) Priority: **02.07.2015 SE 1550952**

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(54) **DEVICE FOR SECURING AND SUPPORTING A STACK OF PLASTIC BAGS, AND A GARBAGE COLLECTING DEVICE**

(57) The present invention relates to a device for securing and supporting a stack of plastic bags. The device comprises an elongated support member (16) formed of a plastic material, said member having a forward side (18) and an aft side (20); at least two fastening means (30; 62) for plastic bags arranged on the aft side of the elongated support member; and at least one attachment element (50; 60;70) extending from the support member and intended to be connected to a corresponding holder for the device and the plastic bagsThe invention furthermore relates to a garbage collecting device comprising said device.

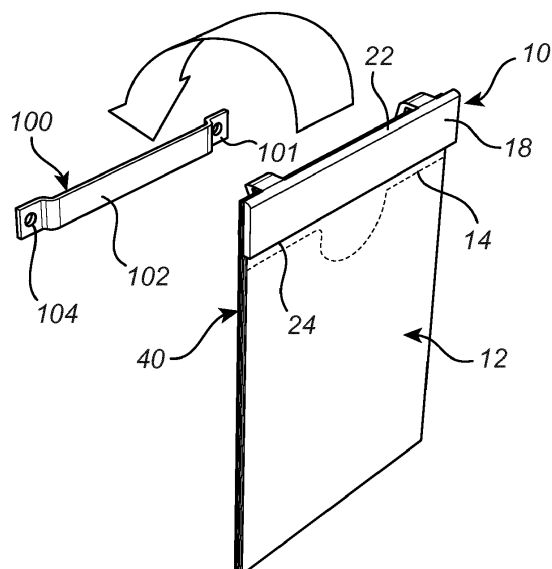


Fig. 1a

Description

Field of the invention

[0001] The present invention relates to a device for securing and supporting a stack of plastic bags and a garbage collecting device.

Background of the invention

[0002] Within public areas, buildings, trains, busses etc a considerable amount of waste material is generated. The waste material is for example different types of wrappings for food products or beverages and in order to facilitate collection and cleaning of these areas garbage containers or garbage bags are arranged at different locations.

[0003] One garbage bag device comprising a number of plastic bags arranged as a stack is disclosed in SE 508 549 C2. The disclosed garbage bag device however suffers from some drawbacks. First it has turned out that it is difficult to manufacture the device and achieve the desired final quality of the device since plastic bags are slippery which makes it difficult to fit the bags and paper board holder in the intended position. The problem becomes even more obvious when the staples that secure the plastic bags and the paper board holder together is fitted and the different layers tend to slide unintentionally. Secondly, the disclosed garbage bag device comprises several different materials, i.e. plastic bags, paperboard holder and metal staples, which makes it difficult to recycle the remaining pieces of the device. Furthermore the different materials are affected differently by the surrounding conditions.

[0004] There is consequently a need for an improved garbage bag support device that makes it possible to secure and support a number of stacked plastic bags and reduces the drawbacks described above.

Summary of the invention

[0005] The present invention, defined in the appended claims, relates to a device for securing and supporting a stack of plastic bags, and a garbage collecting device that to at least some extent fulfils the needs defined above.

[0006] The device for securing and supporting a stack of plastic bags comprises:

- an elongated support member formed of a plastic material, said member having a forward side and an aft side;
- at least two fastening means for plastic bags arranged on the aft side of the elongated support member; and
- at least one attachment element extending from the support member and intended to be connected to a corresponding holder for the device and the plastic

bags.

[0007] The device according to the invention fulfil the needs defined above since the at least two fastening means for plastic bags arranged on the aft side of the elongated support member will support and guide the plastic bags to the desired correct position in relation to each other during assembly. Furthermore, the plastic elongated support member could be recycled together with remaining plastic bags and / or remaining pieces of the device since both the device and the bags are made of the same material.

[0008] In one embodiment of the device according to the invention, the aft side of the support element is substantially flat and intended to be arranged towards the plastic bags, and the fastening means integrally formed with the support member. This embodiment provides a device that could be manufactured in an effective way as well as ensure efficient assembly of plastic bags to the device.

[0009] In one embodiment of the device according to the invention, the fastening means are formed as protrusions extending substantially perpendicularly from the aft side of the support member. This embodiment of the fastening means provided very good guidance for the stack of plastic bags to the intended position during assembly.

[0010] In one embodiment of the device according to the invention, the protrusions have a substantially uniform cross sectional shape and dimension along the entire length of the protrusion. This embodiment of the support element and protrusions could be produced by injection moulding and provides very good guiding of the plastic bags during assembly of the different pieces.

[0011] In one embodiment of the device according to the invention, the fastening means furthermore comprises a locking element that could be snap fitted to the protrusions to secure the stack of plastic bags to the device. This embodiment provides an efficient and reliable securing of the plastic bags to the device.

[0012] In one embodiment of the device according to the invention, the outer end of the protrusion is arranged to be melted to secure the stack of plastic bags to the device. This embodiment reduces the number of different pieces since the outer end of the protrusion is melted to secure the plastic bags to the device thereby eliminating the need for additional locking elements.

[0013] In one embodiment of the device according to the invention, the elongated support member has a first elongated edge intended to be arranged facing away from the stack of plastic bags and a second elongated edge intended to be arranged facing the stack of plastic bags.

[0014] In one embodiment of the device according to the invention, the at least one attachment element extend from the first edge backwards before it is curved downwards to be substantially parallel to the elongated support member. This embodiment is favourable since the attachment element is integrated in the support element.

The attachment element is intended to be fitted in a corresponding external holder permanently secured on a for example a wall or column.

[0015] In one embodiment of the device according to the invention, the at least one attachment element comprises a first section extending substantially perpendicularly from the first edge of the support member backwards, and a second section extending from an outer end of the first section downwards substantially parallel to the elongated support member. This embodiment is favourable since the second section could be attached in the external holder.

[0016] In one embodiment of the device according to the invention, the second section is wider close to the first section than in the lower end and an central area of the attachment element is cut out, said cut out central area has the same shape as the attachment member so that the attachment member has a substantially constant thickness around the central area. This embodiment is very favourable since a second device for securing and supporting a stack of plastic bags could be fitted above a first device for securing and supporting a stack of plastic bags device by introducing the attachment member of the second device in the space created by the cut out central area in the attachment member of the first device.

[0017] In one embodiment of the device according to the invention, the cut out central area is extending also in the first section all the way to the elongated member such that the first section is divided by a space defined between the opposite sides of the first section. This embodiment is very favourable since the space generated facilitates the fitting of a second device above the first.

[0018] In one embodiment of the device according to the invention, the at least one attachment element comprises an upper and a lower attachment device extending from the aft side of the elongated support member, said upper and lower attachment device are configured to be snap fitted to an external holder.

[0019] The invention furthermore relates to a garbage collecting device comprising a device for securing and supporting a stack of plastic bags according to the definition above and a number of plastic bags secured to the device.

[0020] The different embodiment described above could of course be combined and modified in different ways without departing from the scope of the invention that will be described more in detail in the detailed description.

Brief description of the drawings

[0021] The device for securing and supporting a stack of plastic bags and the garbage collecting device according to the invention are schematically illustrated in the appended figures.

Figure 1a illustrates a schematic perspective view of a garbage collecting device according to the in-

vention and one example of an external holder for the device.

Figure 1b illustrates one embodiment of the device for securing and supporting a stack of plastic bags in perspective.

Figure 2 illustrates the device for securing and supporting a stack of plastic bags in perspective and the tool for securing the stack of bags to the device.

Figure 3 illustrates a second embodiment of the device for securing and supporting a stack of plastic bags in perspective.

Figure 4a illustrates a section of a third embodiment of the device for securing and supporting a stack of plastic bags in perspective.

Figure 4b illustrates a stack of plastic bags secured to the device in figure 4a.

Figure 5a illustrates a third fourth embodiment of the device for securing and supporting a stack of plastic bags in perspective.

Figure 5b illustrates the fourth embodiment of the device and a stack of bags in perspective.

Detailed description of the invention

[0022] A device 10 for securing and supporting a stack of plastic bags 12 and the garbage collecting device 40 according to the invention are schematically disclosed in figure 1 together with an external holder 100.

[0023] The device 10 according to the invention is intended to be attached to the external holder 100 permanently secured on for example a wall or column. One example of an external holder 100 intended to be used in combination with the present invention is illustrated in figure 1a. The holder 100 is intended to be secured against a substantially flat area of the wall and is shaped like a curved band with flat contact areas 101 in each end of the band. The contact areas rest against the surface of the wall. The section 102 between the contact areas is extending horizontally substantially parallel to the wall at a distance from the wall such that a space is generated between the section and the wall. The height of the band is substantially constant along the band. The dimensions of the holder could however be modified in different ways.

[0024] The garbage collecting device 40 according to the invention comprises a number of plastic bags 12. During use, the bag in the front of the stack is filled with waste material and, when the bag is full, removed and collected in larger garbage bags or bins. When all bags in the stack have been used, the remaining pieces of the garbage collecting device are disposed and replaced by a new garbage collecting device.

[0025] The plastic bags have a forward and aft sheet of plastic film bounded to each other around the side and bottom edge. Preferably the sheets are folded along the side edges such that the space within the plastic bag is increased without requiring that the width of the garbage collecting device is increased. Both the forward and aft

sheet is in the illustrated embodiment secured in the device 10 for securing and supporting a stack of plastic bags. A perforation 14 is formed in each layer across the entire width of the bag close to the lower edge of the support and securing device 10 to make it easier to open the bag as well as remove the filled bag from the garbage collecting device. At least two holes, not visible in the figure, are formed in the plastic bags in order to facilitate the assembly of the bags to the support and securing device. The holes are arranged at predetermined positions corresponding to the position of fastening means for plastic bags arranged on device 10 for securing and supporting plastic bags. The bags are either secured together to a stack of bags or assembled individually. The illustrated bags have a rectangular shape but the design of the bags could be modified in several ways without departing from the scope of the invention.

[0026] A first embodiment of the device 10 for securing and supporting a stack of plastic bags is illustrated in figure 1, 1b and 2. The device comprises an elongated support member 16 formed of a rigid material. The support member 16 is intended to be arranged along the top edge of the plastic bags 12. The support member 16 has a forward side 18 that is visible when the garbage collecting device 40 is fitted in the holder and an aft side 20 that is facing the forward side of the plastic bags in the stack of bags 12. The forward side could have different designs, decorations or text while the aft side 20 is substantially flat to provide support to the stack of plastic bags. The support member has a first substantially straight elongated edge 22 intended to be arranged facing away from the stack of plastic bags, i.e. facing upwards when the garbage collecting device is attached to the external holder, and a second substantially straight elongated edge 24 intended to be arranged facing the stack of plastic bags, i.e. facing downwards when the garbage collecting device is attached to the external holder. Two substantially straight 26 sides are extending between the first and second edge.

[0027] The device 10 for securing and supporting a stack of plastic bags furthermore comprises at least two fastening means 30 for plastic bags arranged on the aft side 20 of the elongated support member 16. The fastening means are arranged at a distance from each other to ensure a rigid securing between the bags and the device. The number of fastening means could be increased to further improve the strength in the connection.

[0028] The fastening means are formed as protrusions 32 extending substantially perpendicularly from the aft side of the support member. The protrusions have a length exceeding the expected thickness of the stack of plastic bags 12 such that at least a small section of the protrusions extend outside the stack of plastic bags. The protrusions preferably have the same cross sectional shape and a substantially uniform cross sectional shape and dimension along the entire length of the protrusion to provide the desired guidance to the plastic bags during assembly of the garbage collecting device. In the illus-

trated embodiment the cross section is substantially circular.

[0029] Each fastening means 30 furthermore comprises a locking element 31, illustrated in figure 4a and 4b, that could be fitted to the protrusions to secure the stack of plastic bags to the device. The locking element 31 is designed to be fitted to the protrusion and locked in the desired position on the protrusion 32. The locking element 31 has a shape and dimension exceeding the holes for the protrusions in the plastic bags to secure the bags in the intended position. The locking elements 31 have a locking element body 33 with a recess 34 or passage with a shape and size corresponding to the cross sectional shape and size of the protrusions so that the locking element could be fitted on the protrusion. The locking element is either secured in the intended position by a tight fitting between the protrusion and the recess or passage in the locking element, or by a male - female fitting. The male - female fitting could be embodied as a recess in one of the elements and a corresponding protrusion that snap into the locking position once the locking element is in the intended position.

[0030] In an alternative embodiment for securing the stack of plastic bags 12 to the device 10 for securing and supporting the stack of plastic bags, the protrusions are formed of a plastic material with a predetermined melting temperature such that, once all plastic bags are fitted on the protrusions, the outer end of the protrusions are melted by a heated tool 36 and reshaped to have a diameter larger than the holes in the plastic bags thereby securing the bags on the protrusions, illustrated schematically in figure 2.

[0031] The device 10 for securing and supporting a stack of plastic bags furthermore comprises at least one attachment element 50 intended for connection of the garbage collecting device to the corresponding external holder 100 described above. The attachment element 50 could be embodied in indifferent ways. The first alternative is illustrated in figure 1b and figure 2. The attachment element 50 has a first section 52 extending substantially perpendicularly from the first edge of the support member backwards. The first section is extending outside the protrusions from the support member. From the outer end of the first section 52 a second section 53 is extending downwards substantially parallel to the elongated support member. The second section is extending at least to the lower edge of the elongated member and preferably has a length exceeding the height of the elongated member to be reliably attached to the external holder. The attachment member is wider close to the first edge than in the lower end of the member. The width of the first and second section along the first edge is formed to correspond to and fit in the external holder. The second section has substantially straight side edges arranged such that the lower end of the section has substantially half the width of the upper edge. The central area 51 of the illustrated attachment element is cut out to reduce the material required and reduce the weight of the device.

The cut out central area 51 has the same shape as the attachment member so that the remaining material of the attachment member has a substantially constant thickness around the cut out central area. Furthermore, the cut out central area is extending also in the first section all the way to the elongated member such that the first section 51 is divided by a space defined between the opposite sides of the first section.

[0032] The attachment element 50 is fitted in the external holder from above into the space formed between the wall and the section 102 to be held in the intended position in a reliable way.

[0033] If all plastic bags in the garbage collecting device fitted in the external holder are not used when the operator is intending to replace the garbage collecting device, a second garbage collecting device could be fitted above the first garbage collecting device by introducing the attachment member of the second garbage collecting device in the space created by the cut out central area 51 in the attachment member 50 of the first garbage collecting device.

[0034] In figure 3 an alternative embodiment of the attachment element 60 and protrusions 62 are illustrated. Instead of one attachment element with a wide section along the first edge of the support member two smaller attachment members 60 are used. The two smaller attachment members 60 have substantially the same shape as the previously described attachment member 50 to fit in the external holder 100 and are arranged separated from each other along the first edge to provide the required stability when attached to the holder. Furthermore, the cross sectional shape of the protrusions 62 have been redesigned to have a more oval shape.

[0035] In figure 5a and 5b a further embodiment 70 of the attachment element is illustrated. The attachment element comprises two upper 72 and three 74 lower attachment devices extending from the aft side of the elongated support member. The upper and lower attachment devices are all shaped like small hooks 76 that are intended to be snap fitted to the external holder 100 and secure the device to the holder. The upper attachment devices are arranged above the holder and the hooks extending downwards to rest against the inside surface of the holder. The lower attachment devices are intended to be arranged below the holder and the hooks extending upwards to rest against the inside surface of the holder and extend through passages formed in the stack of plastic bags. The number of upper and lower attachment devices could be changed but are at least two of each to provide a reliable securing of the garbage collecting device to the holder. The fastening means for the stack of plastic bags are not illustrated in figure 4a and 4b but preferably the type illustrated in figure 1b are used.

[0036] All embodiment of the device for securing and supporting the stack of plastic bags described above are made of a plastic material that provides the desired rigidity to the device. The elongated support member, the fastening means for the plastic bags and the attachment

element are integrally formed and manufactured in one piece, for example by injection moulding that makes it possible to manufacture the device in an effective way. The embodiments described above could be combined and modified in different ways without departing from the scope of the invention that is defined by the appended claims.

10 Claims

1. Device (10) for securing and supporting a stack of plastic bags (12), said device comprising:

an elongated support member (16) formed of a plastic material, said member having a forward side (18) and an aft side (20);
at least two fastening means (30; 62) for plastic bags arranged on the aft side of the elongated support member; and
at least one attachment element (50; 60; 70) extending from the support member and intended to be connected to a corresponding holder for the device and the plastic bags.

2. Device according to claim 1, wherein the aft side (20) of the support element is substantially flat and intended to be arranged towards the plastic bags, and the fastening means (30; 62) integrally formed with the support member.

3. Device according to claim 1, wherein the fastening means (30; 62) are formed as protrusions (32; 62) extending substantially perpendicularly from the aft side of the support member.

4. Device according to claims 3, wherein the protrusions have a substantially uniform cross sectional shape and dimension along the entire length of the protrusion.

5. Device according to claims 3 or 4, wherein the fastening means furthermore comprises a locking element (31) that could be fitted to the protrusion to secure the stack of plastic bags to the device.

6. Device according to claims 3 or 4, wherein the outer end of the protrusion is arranged to be melted to secure the stack of plastic bags to the device.

7. Device according to anyone of the previous claims, wherein the elongated support member has a first elongated edge (22) intended to be arranged facing away from the stack of plastic bags and a second elongated edge (24) intended to be arranged facing the stack of plastic bags.

8. Device according to claim 7, wherein the at least one

attachment element (50; 60) extend from the first edge backwards before it is curved downwards to be substantially parallel to the elongated support member.

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9. Device according to claim 8, wherein the at least one attachment element (50) comprises a first section (52) extend extending substantially perpendicularly from the first edge of the support member backwards, and a second section (53) extending from an outer end of the first section (52) downwards substantially parallel to the elongated support member. 10
10. Device according to claim 9, wherein the second section (53) is wider close to the first section (52) than in the lower end, and an central area 51 of the attachment element is cut out, said cut out central area (51) has the same shape as the attachment member so that the attachment member has a substantially constant thickness around the central area. 15 20
11. Device according to claim 10, wherein the cut out central area (51) is extending also in the first section (52) all the way to the elongated member such that the first section 51 is divided by a space defined between the opposite sides of the first section. 25
12. Device according to claim 7, wherein the at least one attachment element (70) comprises an upper (72) and a lower (74) attachment device extending from the aft side of the elongated support member, said upper and lower attachment device are configured to be snap fitted to an external holder. 30
13. Garbage collecting device (40) comprising a device (10) for securing and supporting a stack (12) of plastic bags according to claim 1 and a number of plastic bags secured to the device. 35

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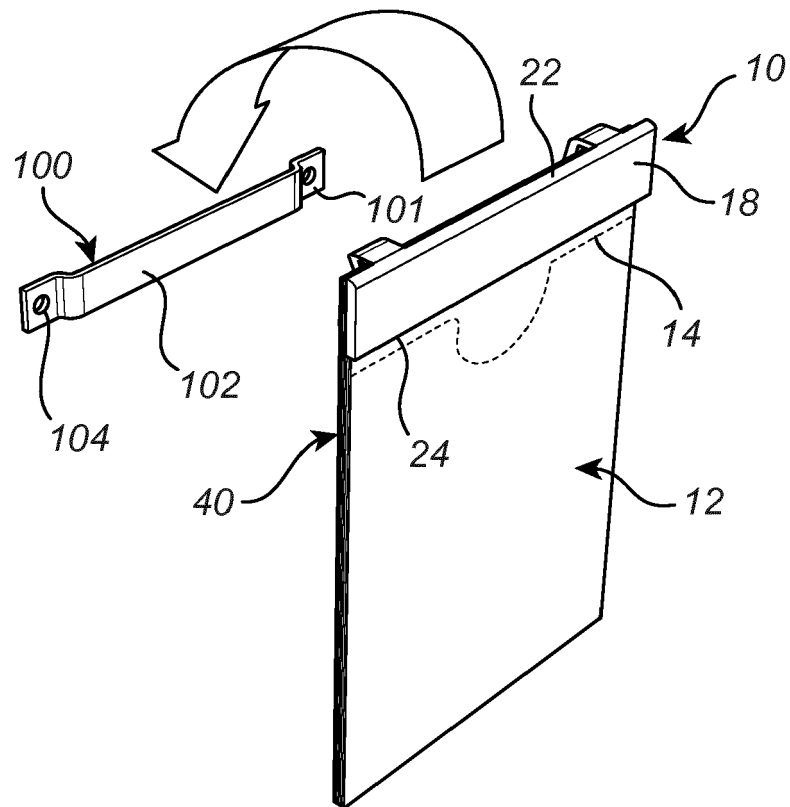


Fig. 1a

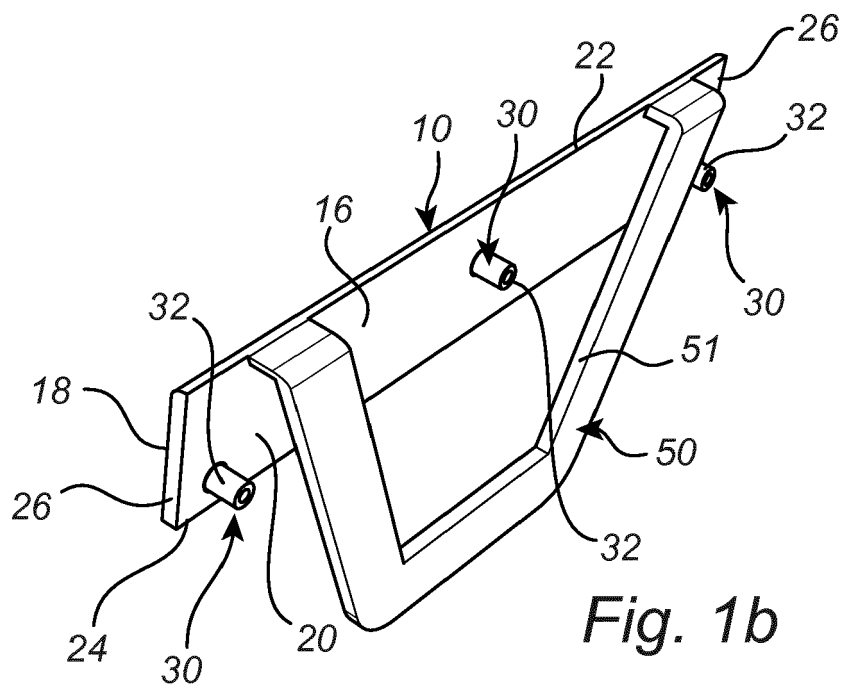
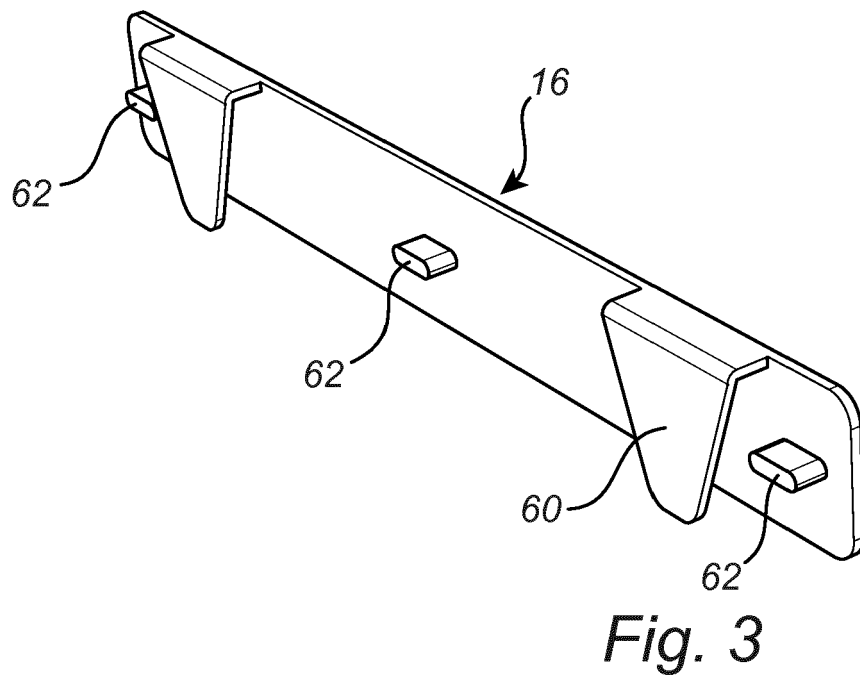
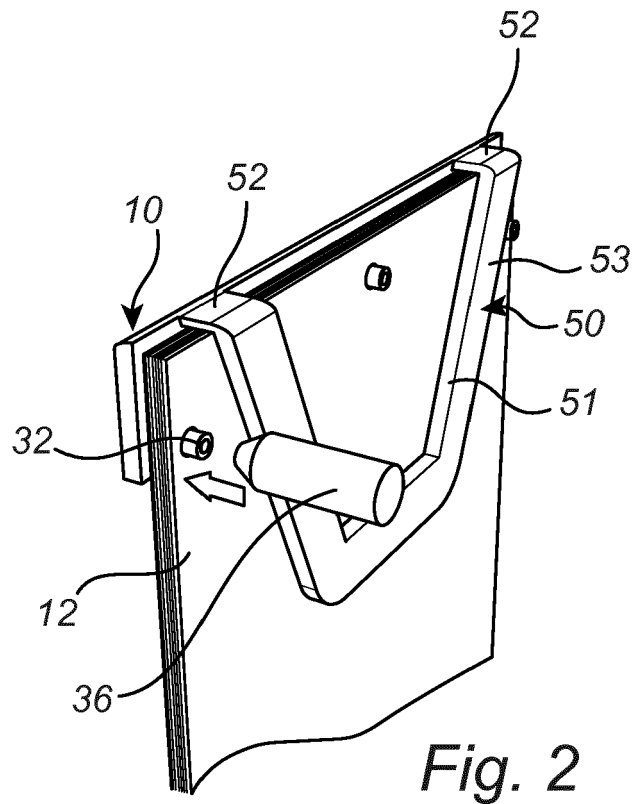


Fig. 1b



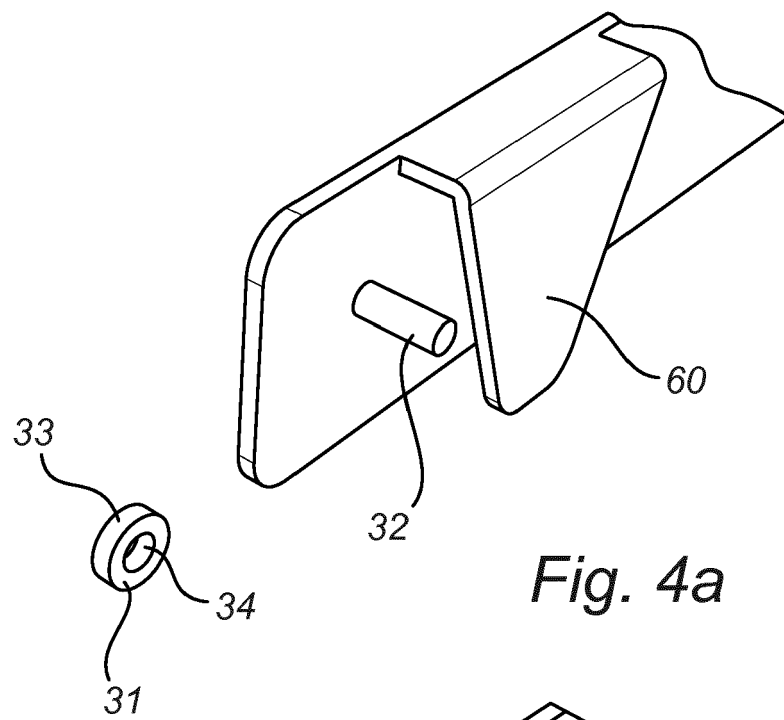


Fig. 4a

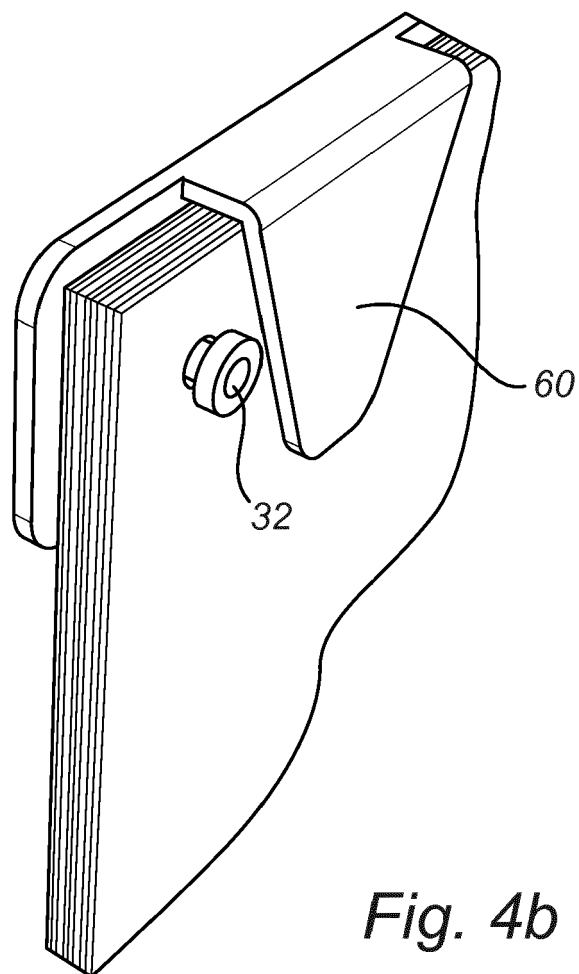


Fig. 4b

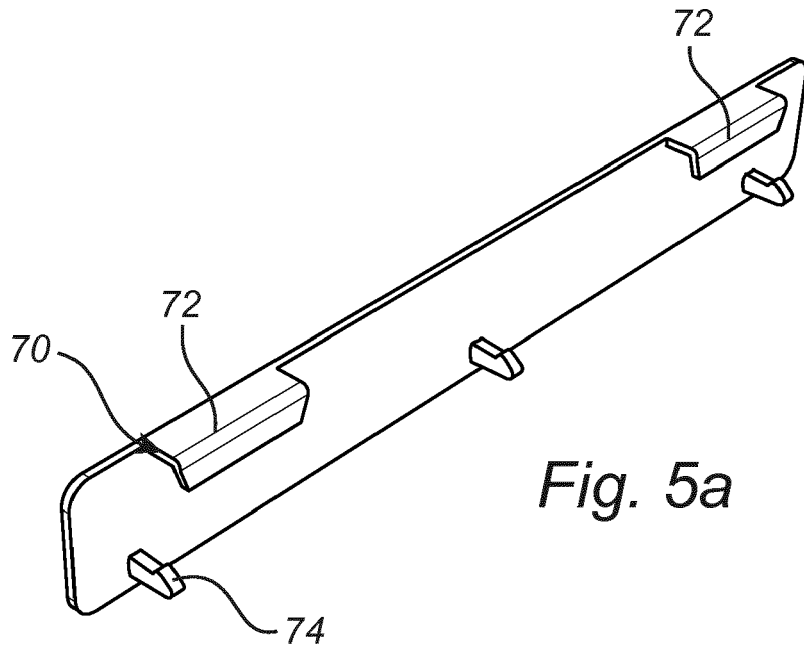


Fig. 5a

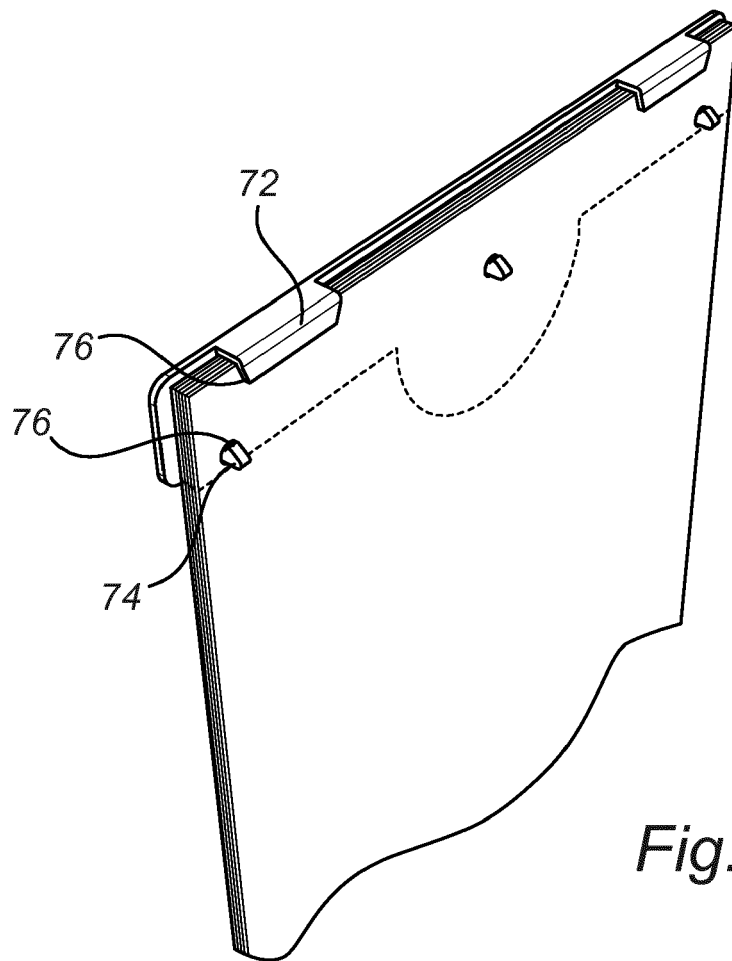


Fig. 5b



EUROPEAN SEARCH REPORT

Application Number
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 November 2016	Examiner Luepke, Erik
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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