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(54) **ANTI-THEFT PACKAGE RECEIVING DEVICE FOR ARRANGEMENT ON A BARRIER HAVING AN OPENING**

(57) In the field of prevention of theft of packages, an anti-theft package receiving device (10) for arrangement on a barrier (11) having an opening is provided. The anti-theft package receiving device (10) comprises a front panel (15), a middle panel (16), a back panel (17) and a linkage between the middle panel (16) and the back panel (17). Each of the panels is movable between an opening closure position for closing the opening in the barrier (11) and an opening exposure position for at least enabling exposure of the opening. The linkage between the middle panel (16) and the back panel (17) is of such a nature that the back panel (17) is put from the opening exposure position to the opening closure position when the middle panel (16) is put from the opening closure position to the opening exposure position, and vice versa.

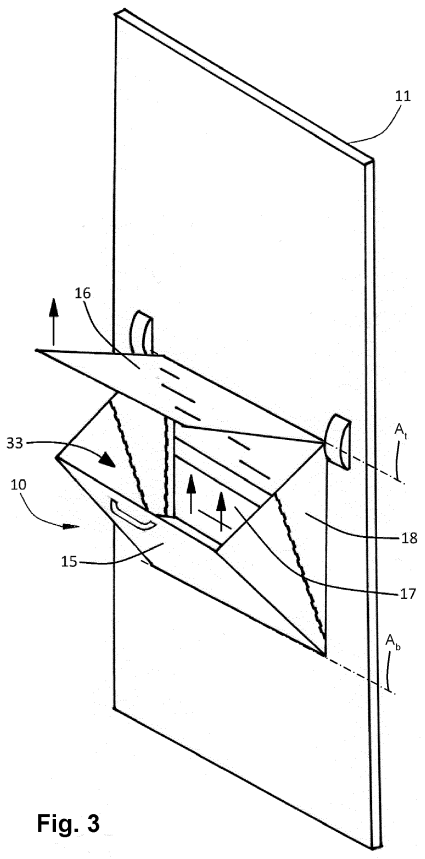


**Fig. 3**

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## Description

### FIELD OF THE INVENTION

**[0001]** The invention relates to an anti-theft package receiving device for arrangement on a barrier such as a door of a dwelling or an office. The anti-theft package receiving device functions to guarantee secure delivery of packages from one side of the barrier to the other side of the barrier, through an opening in the barrier.

### BACKGROUND OF THE INVENTION

**[0002]** Online shopping increased significantly over the last couple of years, resulting in large volumes of packages being delivered at homes and businesses. However, couriers often try to deliver packages when recipients are not present. When packages cannot be delivered, the packages can be returned and delivered another day, left at the neighbors, brought to a pick-up location or left in front of the door. This can be annoying, time-consuming and costly for multiple constituents in the supply chain. In addition, packages left in front of the door or a pick-up location are vulnerable to theft or damage.

**[0003]** Furthermore, the COVID crisis resulted in lockdown measures in many countries throughout the world. As a result, online shopping increased and a need originated for package delivery without human handover to ensure safe physical distance.

**[0004]** Therefore, a need exists for an anti-theft package receiving device to enable guaranteed and timely delivery of packages at dwellings or offices.

**[0005]** Package-receiving devices and systems and methods for facilitating package delivery or pick-up are already known in the art. Many of the known solutions incorporate a system with electronics and software applications, increasing the complexity and costs of the respective system and/or method. Furthermore, the systems can be vulnerable to power failure and hacking.

### SUMMARY OF THE INVENTION

**[0006]** The anti-theft package receiving device of the invention comprises a number of panels, namely a front panel, a middle panel and a back panel. The anti-theft package receiving device is configured to be put to different conditions, such that when the device is actually arranged on a barrier in which an opening is present, the opening in the barrier is covered by either the front panel, the middle panel or the back panel of the anti-theft package receiving device, depending on the condition of the device. The fact is that in use with such a barrier, the front panel is coupled to the barrier and can be moved from a vertical position to an angled position to form an aperture for receiving a package. The middle panel is attached to the barrier and covers the opening in the barrier when the front panel is in an angled position. With the front panel in an angled position, the middle panel can also move to an angled position. The back panel is slidably attached to the barrier and moves upwards to an opening closure position to cover the opening in the barrier or moves downwards to a position exposing the opening. A linkage is present between the middle panel and the back panel. The linkage lifts the back panel when the middle panel moves upwards to an angled position and lowers the back panel when the middle panel moves downwards to a vertical position. The linkage comprises several gear wheels to control the speed of the movement of the back panel. A package can slide through the barrier by moving the front panel to an angled position, moving the middle panel upwards to an angled position, placing the package in the aperture and then moving the middle panel downwards to a vertical position. By moving the middle panel to a vertical position, the back panel also moves downwards and the package can slide over the back panel through the opening in the barrier.

**[0007]** An advantage of the invention is that secure package delivery can be realized to a dwelling or an office without a complex system with electronics and software applications. In this respect, it is noted that package-receiving devices for arrangement on doors that do not incorporate a system with electronics and software applications are already known in the art. For example, U. S. Patent No. 10,711,516 B2 entitled "Door and Package Receiving Assembly Combination" discloses a door having an opening extending therethrough, wherein the opening is covered by a front panel or a back panel. A linkage is attached to the front panel and the back panel, so that the back panel is lifted to a closed position when the front panel moves to an angled (open) position and vice versa. No complex system with electronics or software applications is used for this package receiving device. This is an advantage of the known device, but the design of the known device is still open to improvement, as will become apparent from the following.

**[0008]** First, only relatively small packages can slide through the opening of the door. Because the front panel can only be moved in an angle of 75°, moving the front panel towards the back panel quickly reduces the space between the two panels while exposing an opening in the door. Larger packages will likely get stuck between the front panel and the back panel when the front panel is moved to the vertical (closed) position and the back panel is not lifted high enough.

**[0009]** Second, the known device cannot fully inhibit theft of packages. The front panel can be moved in a position to expose an opening in the door with the same size that was used for sliding the package through the door. Since the opening in the door is close to the floor of the dwelling or the office, the package adjacent to the back of the door may be reached through the opening. Thus a package might be removed from the dwelling or the office, via the same opening in which it was passed through the door earlier. Furthermore, the sides along the lower panel are open. This might provide a better

angle for reaching packages adjacent to the back of the door.

**[0010]** The invention provides a different design with three movable panels, i.e. the front panel, the middle panel and the back panel mentioned in the foregoing. Advantageously, a linkage is made between the middle panel and the back panel and comprises several gear wheels to control the speed of the movement of the back panel in relation to the movement of the middle panel. The advantage of this design and the linkage is that an opening in a barrier on which the anti-theft package receiving device of the invention is arranged is always covered by either the front panel, the middle panel or the back panel. This enables secure delivery of packages and mitigates the risk of theft.

**[0011]** Another advantage of the design of the invention is that larger packages can be received through a barrier. The middle panel is movable in a wide angle, and the linkage can optimize the speed of the back panel in relation to the movement of the middle panel. This creates more space for larger packages to slide through the barrier.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0012]** The invention will now be explained in greater detail with reference to the drawings, in which equal or similar parts are indicated by the same reference signs, and in which:

FIG. **1,** FIG. **2,** FIG. **3** and FIG. **4** shows a front side of a door and an anti-theft package receiving device in accordance with an embodiment of the invention arranged on the door, for different conditions of the device;

FIG. **5** shows a back side of the door and the anti-theft package receiving device;

FIG. **6** is a cross-sectional view of the anti-theft package receiving device taken along line *40-40* in FIG. **5,** in which an inner frame of the device can be seen;

FIG. **7** is a cross-sectional view of the anti-theft package receiving device taken along line *50-50* in FIG. **1;** and

FIG. **8** also is a cross-sectional view of the anti-theft package receiving device taken along line *50-50* in FIG. **1.**

## DETAILED DESCRIPTION OF EMBODIMENTS

**[0013]** The invention will be described in more detail hereinafter with reference to the figures: FIGs **1** through **8.** A door **11** is shown, which is of generally conventional design, having a front side **12** and a back side **13.** The door **11** has an opening **14** extending through the front side **12** and the back side **13.** Further, an anti-theft package receiving device **10** is shown, which comprises a front panel **15,** a middle panel **16** and a back panel **17,** wherein each of said panels **15, 16** and **17** is coupled to the door **11.** The opening **14** in the door **11** is covered by the front panel **15,** the middle panel **16** or the back panel **17,** depending on a condition of the anti-theft package receiving device **10,** as will now be explained.

**[0014]** The front panel **15** is coupled to the door **11** via two triangular components **18** on both the right side and the left side. Hinges can be used to attach the triangular components **18** to each other, the front panel **15** and an inner frame **30** of the anti-theft package receiving device **10** located within the door **11.** FIG. **4** depicts the movement of the front panel **15.** When the front panel **15** is in a vertical (closed) position, the triangular components **18** are folded towards the middle of the door **11.** When the front panel **15** moves towards an angled (open) position, the triangular components **18** unfold towards the sides of the door **11.** The front panel **15** is also coupled to the door **11** via a lower round bar **19** attached to the bottom of the front panel **15,** wherein a central axis of the bar **19** constitutes a hinge axis of the front panel **15,** i.e. a bottom hinge axis $\mathbf{A_b}$ in the anti-theft package receiving device **10** as indicated in FIG. **3.** The lower round bar **19** is coupled to the door **11** via a small hole **20** on the right side and the left side of the inner frame **30.** The hole **20** is a bit bigger compared to the diameter of the lower round bar **19,** which allows the bar **19** to move a bit towards the front side **12** and the back side **13** of the door **11.** FIG. **7** depicts the movement of the lower round bar **19.** When the front panel **15** moves to an angled position, the lower round bar **19** moves towards the back side **13** of the door **11.** When the front panel **15** moves to a closed position, the lower round bar **19** moves towards the front side **12** of the door **11.** This small movement of the lower round bar **19** allows the triangular components **18** to fold inside the door **11** and the front panel **15** to be closed in a vertical position. FIG. **1** depicts the door **11** with the front panel **15** in vertical position. A sliding lock, spring lock, or something similar can be used to keep the front panel **15** in vertical position.

**[0015]** The middle panel **16** is coupled to the door **11** via an upper round bar **21** at the top of the panel **16,** wherein a central axis of the bar **21** constitutes a hinge axis of the middle panel **16,** i.e. a top hinge axis $\mathbf{A_t}$ in the anti-theft package receiving device **10** as indicated in FIG. **3.** The upper round bar **21** is coupled to the door **11** via a small hole on the right side and the left side of the inner frame **30.** This is best viewed in FIG. **6** and FIG. **7.** The middle panel **16** is in the middle of the inner frame **30** and can only move to an angled position at the front side **12** of the door **11.**

**[0016]** The back panel **17** is slidably attached at the back side **13** of the inner frame **30.** The back panel **17** is downwardly movable to a position exposing the opening **14** in the door **11** or upwardly movable to an opening closure position to cover the opening **14.** As can be seen in FIG. **6,** the back panel **17** can move up and down within vertical guides **22** to keep the back panel **17** attached to the door **11.**

**[0017]** A linkage **23** is made between the middle panel

**16** and the back panel **17.** As illustrated in FIG. **7,** the linkage **23** lifts the back panel **17** when the middle panel **16** moves upwards to an angled position. As illustrated in FIG. **8,** the linkage **23** lowers the back panel **17** when the middle panel **16** moves downwards to a vertical position. A package **32** can slide through the door **11** by moving the front panel **15** to an angled position, moving the middle panel **16** upwards to an angled position, placing the package **32** in the aperture **33** thus obtained and moving the middle panel **16** downwards to a vertical position. By moving the middle panel **16** downwards to a vertical position, the back panel **17** also moves downwards and the package **32** can slide through the opening **14** of the door **11.**

**[0018]** The linkage **23** may comprise several gear wheels and chains or gear racks. The gear wheels may comprise two upper gear wheels **24** attached to the left side and the right side of the upper round bar **21** coupled to the middle panel **16.** The upper gear wheels **24** are attached to the upper round bar **21** at the outside of the inner frame **30** and are interlocking with smaller first middle gear wheels **25** coupled to the outside of the inner frame **30.** The first middle gear wheels **25** are also interlocking with second middle gearwheels **26** coupled to the outside of the inner frame **30.** The second middle gears wheels **26** are connected to larger lower gear wheels **27** on the inside of the inner frame **30.** The lower gear wheels **27** may be interlocking with a chain or gear rack **28,** which is attached to the upper side of the back panel **17.**

**[0019]** More specifically, and best illustrated by FIG. **7,** when the middle panel **16** moves upwards to an angled position, the upper gear wheels **24** move counterclockwise, the first middle gear wheels **25** interlocked with the upper gear wheels **24** move clockwise, the second middle gear wheels **26** interlocked with the first middle gear wheels **25** move counterclockwise and the lower gear wheels **27** then also move counterclockwise. The chains or gear racks **28** interlocked with the lower gear wheels **27** move upwards, moving the back panel **17** upwards.

**[0020]** With the anti-theft package receiving device **10** in use, a package courier can open the front panel **15** by moving the panel **15** to an angled position. A handle **29** may be attached to the front panel **15.** When the front panel **15** is in an angled position, the courier can reach and grab the middle panel **16** and move the middle panel **16** upwards to an angled position. The middle panel **16** may comprise a notch or small hole to enable the courier to easily grasp and hold the panel **16.** When the middle panel **16** moves upwards to an angled position, the back panel **17** moves upwards and covers the opening **14** in the door **11.** The courier can place the package **32** in the aperture **33** when the middle panel **16** is moved upwards in an angled position, so that the package **32** slides down the front panel **15** and abuts the back panel **17.** When moving the middle panel **16** back to a vertical position, the back panel **17** moves downwards and the package **32** can slide over the back panel **17** through the opening **14** of the door **11.** This is illustrated in FIG. **8.** A firm and smooth piece **31** of fabric or leather, or something similar, may be attached to the back panel **17** and the inner frame **30.** When the back panel **17** moves to an angled position, the piece **31** of fabric or leather is stretched and creates a chute for sliding the packages **32** through the opening **14.** After the package **32** is delivered at the dwelling or office, the front panel **15** can be moved back to a vertical position. A sliding lock, spring lock, or something similar may be used to keep the front panel **15** in vertical position.

**[0021]** As best illustrated in FIG. **8,** the opening **14** in the door **11** is covered at all times by either the middle panel **16** or the back panel **17** to prevent access to the dwelling as well as to inhibit the stealing of any mail or packages adjacent to the back side **13** of the door **11.** The movement of the middle panel **16** and the back panel **17** are illustrated in FIG. **8** in five steps as indicated by the numbers in the grey circles.

**[0022]** It will be clear to a person skilled in the art that the scope of the invention is not limited to the examples discussed in the foregoing, but that several amendments and modifications thereof are possible without deviating from the scope of the invention as defined in the attached claims. It is intended that the invention be construed as including all such amendments and modifications insofar they come within the scope of the claims or the equivalents thereof. While the invention has been illustrated and described in detail in the figures and the description, such illustration and description are to be considered illustrative or exemplary only, and not restrictive. The invention is not limited to the disclosed embodiments. The figures are schematic, wherein details which are not required for understanding the invention may have been omitted, and not necessarily to scale.

**[0023]** Notable aspects of the invention as described in the foregoing are generally defined as follows.

**[0024]** The invention relates to an anti-theft package receiving device **10** for arrangement on a barrier **11** having an opening **14,** comprising:

- a front panel **15** couplable to a front side **12** of the barrier **11** so as to be hingable about a hinge axis $\mathbf{A_b}$ between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for enabling exposure of the opening **14** and forming an aperture **33** for receiving a package **32;**
- a middle panel **16** couplable to the front side **12** of the barrier **11** so as to be hingable about another hinge axis $\mathbf{A_t}$ between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for exposing the opening **14;**
- a back panel **17** couplable to a back side **13** of the barrier **11** so as to be movable along the barrier **11** between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for exposing the opening **14;** and
- a linkage **23** between the middle panel **16** and the

back panel **17** configured to put the back panel **17** from the opening exposure position to the opening closure position when the middle panel **16** is put from the opening closure position to the opening exposure position, and to put the back panel **17** from the opening closure position to the opening exposure position when the middle panel **16** is put from the opening exposure position to the opening closure position.

**[0025]** It may particularly be so that the linkage **23** between the middle panel **16** and the back panel **17** is configured to lift the back panel **17** when the middle panel **16** is put from the opening closure position to the opening exposure position, and to lower the back panel **17** when the middle panel **16** is put from the opening exposure position to the opening closure position. Another aspect of the linkage **23** between the middle panel 16 and the back panel **17** is that the linkage **23** comprises several gear wheels **24**, **25**, **26**, **27** to control a speed of movement of the back panel **17.**

**[0026]** Advantageously, the front panel **15** is configured to cover the middle panel **16** when both the front panel **15** and the middle panel **16** are in the opening closure position.

**[0027]** In order to have closed sides of the aperture **33** that is formed when the front panel **15** is put to the opening exposure position, it is practical if the anti-theft package receiving device **10** further comprises two foldable intermediate pieces configured to couple sides of the front panel **15** to the barrier **11,** wherein optionally each of the two foldable intermediate pieces comprises two triangular components **18** hingably coupled to each other.

**[0028]** The invention also relates to an assembly, comprising a barrier **11** having an opening **14,** and an anti-theft package receiving device **10** arranged on the barrier **11,** wherein:

- the anti-theft package receiving device **10** comprises a front panel **15,** a middle panel **16,** a back panel **17,** and a linkage **23** between the middle panel **16** and the back panel **17;**
- the front panel **15** is coupled to a front side **12** of the barrier **11** so as to be hingable about a hinge axis $\mathbf{A_b}$ between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for enabling exposure of the opening **14** and forming an aperture **33** for receiving a package **32;**
- the middle panel **16** is coupled to the front side **12** of the barrier **11** so as to be hingable about another hinge axis $\mathbf{A_t}$ between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for exposing the opening **14;**
- the back panel **17** is coupled to a back side **13** of the barrier **11** so as to be movable along the barrier **11** between an opening closure position for closing the opening **14** in the barrier **11** and an opening exposure position for exposing the opening **14;** and
- the linkage **23** between the middle panel **16** and the back panel **17** is configured to put the back panel **17** from the opening exposure position to the opening closure position when the middle panel **16** is put from the opening closure position to the opening exposure position, and to put the back panel **17** from the opening closure position to the opening exposure position when the middle panel **16** is put from the opening exposure position to the opening closure position.

**[0029]** The aspects mentioned in the foregoing in respect of the anti-theft package receiving device **10** are equally applicable to the assembly, as follows:

- the linkage **23** between the middle panel **16** and the back panel **17** is configured to lift the back panel **17** when the middle panel **16** is put from the opening closure position to the opening exposure position, and to lower the back panel **17** when the middle panel **16** is put from the opening exposure position to the opening closure position;
- the linkage **23** between the middle panel **16** and the back panel **17** comprises several gearwheels **24, 25, 26, 27** to control a speed of movement of the back panel **17;**
- the front panel **15** is arranged to cover the middle panel **16** when both the front panel **15** and the middle panel **16** are in the opening closure position; and
- the anti-theft package receiving device **10** further comprises two foldable intermediate pieces arranged to couple sides of the front panel **15** to the barrier **11,** wherein optionally each of the two foldable intermediate pieces comprises two triangular components **18** hingably coupled to each other.

**[0030]** A further practical aspect that is applicable to the assembly is that the assembly comprises a mechanism **19, 20** configured to enable limited displacement of the hinge axis $\mathbf{A_b}$ about which the front panel **15** is hingeable relative to the barrier **11.** In that way, the front panel **15** can be optimally positioned in both the opening closure position and the opening exposure position, wherein sufficient space can be present between the front panel **15** and the barrier **11** for storing the optional foldable intermediate pieces between them when the front panel is in the opening closure position.

**[0031]** Practical examples of the carrier **11** include a door and a wall.

**[0032]** Notable aspects of the invention are summarized as follows. In the field of prevention of theft of packages, an anti-theft package receiving device **10** for arrangement on a barrier **11** having an opening **14** is provided. The anti-theft package receiving device **10** comprises a front panel **15,** a middle panel **16,** a back panel **17** and a linkage **23** between the middle panel **16** and the back panel **17.** Each of the panels **15, 16, 17** is movable between an opening closure position for closing the

opening **14** in the barrier **11** and an opening exposure position for at least enabling exposure of the opening **14.** The linkage **23** between the middle panel **16** and the back panel **17** is of such a nature that the back panel **17** is put from the opening exposure position to the opening closure position when the middle panel **16** is put from the opening closure position to the opening exposure position, and that the back panel **17** is put from the opening closure position to the opening exposure position when the middle panel **16** is put from the opening exposure position to the opening closure position. In this way, the anti-theft package receiving device **10** is configured such that an advantageous effect of hindering access from a front side **12** of the barrier **11** to a back side **13** of the barrier **11** in all possible conditions of the device **10** and still enabling passage of a package **32** from the front side **12** to the back side **13** is obtained.

## Claims

**1.** An anti-theft package receiving device (10) for arrangement on a barrier (11) having an opening (14), comprising:

- a front panel (15) couplable to a front side (12) of the barrier (11) so as to be hingable about a hinge axis ($A_b$) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for enabling exposure of the opening (14) and forming an aperture (33) for receiving a package (32);
- a middle panel (16) couplable to the front side (12) of the barrier (11) so as to be hingable about another hinge axis (At) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for exposing the opening (14);
- a back panel (17) couplable to a back side (13) of the barrier (11) so as to be movable along the barrier (11) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for exposing the opening (14); and
- a linkage (23) between the middle panel (16) and the back panel (17) configured to put the back panel (17) from the opening exposure position to the opening closure position when the middle panel (16) is put from the opening closure position to the opening exposure position, and to put the back panel (17) from the opening closure position to the opening exposure position when the middle panel (16) is put from the opening exposure position to the opening closure position.

**2.** The anti-theft package receiving device (10) as claimed in claim 1, wherein the linkage (23) between the middle panel (16) and the back panel (17) is configured to lift the back panel (17) when the middle panel (16) is put from the opening closure position to the opening exposure position, and to lower the back panel (17) when the middle panel (16) is put from the opening exposure position to the opening closure position.

**3.** The anti-theft package receiving device (10) as claimed in claim 1 or 2, wherein the linkage (23) between the middle panel (16) and the back panel (17) comprises several gear wheels (24, 25, 26, 27) to control a speed of movement of the back panel (17).

**4.** The anti-theft package receiving device (10) as claimed in any of claims 1-3, wherein the front panel (15) is configured to cover the middle panel (16) when both the front panel (15) and the middle panel (16) are in the opening closure position.

**5.** The anti-theft package receiving device (10) as claimed in any of claims 1-4, further comprising two foldable intermediate pieces configured to couple sides of the front panel (15) to the barrier (11).

**6.** The anti-theft package receiving device (10) as claimed in claim 5, wherein each of the two foldable intermediate pieces comprises two triangular components (18) hingably coupled to each other.

**7.** An assembly, comprising a barrier (11) having an opening (14), and an anti-theft package receiving device (10) arranged on the barrier (11), wherein:

- the anti-theft package receiving device (10) comprises a front panel (15), a middle panel (16), a back panel (17), and a linkage (23) between the middle panel (16) and the back panel (17);
- the front panel (15) is coupled to a front side (12) of the barrier (11) so as to be hingable about a hinge axis ($A_b$) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for enabling exposure of the opening (14) and forming an aperture (33) for receiving a package (32);
- the middle panel (16) is coupled to the front side (12) of the barrier (11) so as to be hingable about another hinge axis (At) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for exposing the opening (14);
- the back panel (17) is coupled to a back side (13) of the barrier (11) so as to be movable along the barrier (11) between an opening closure position for closing the opening (14) in the barrier (11) and an opening exposure position for exposing the opening (14); and

- the linkage (23) between the middle panel (16) and the back panel (17) is configured to put the back panel (17) from the opening exposure position to the opening closure position when the middle panel (16) is put from the opening closure position to the opening exposure position, and to put the back panel (17) from the opening closure position to the opening exposure position when the middle panel (16) is put from the opening exposure position to the opening closure position.

**8.** The assembly as claimed in claim 7, wherein the linkage (23) between the middle panel (16) and the back panel (17) is configured to lift the back panel (17) when the middle panel (16) is put from the opening closure position to the opening exposure position, and to lower the back panel (17) when the middle panel (16) is put from the opening exposure position to the opening closure position.

**9.** The assembly as claimed in claim 7 or 8, wherein the linkage (23) between the middle panel (16) and the back panel (17) comprises several gear wheels (24, 25, 26, 27) to control a speed of movement of the back panel (17).

**10.** The assembly as claimed in any of claims 7-9, wherein the front panel (15) is arranged to cover the middle panel (16) when both the front panel (15) and the middle panel (16) are in the opening closure position.

**11.** The assembly as claimed in any of claims 7-10, wherein the anti-theft package receiving device (10) further comprises two foldable intermediate pieces arranged to couple sides of the front panel (15) to the barrier (11).

**12.** The assembly as claimed in claim 11, wherein each of the two foldable intermediate pieces comprises two triangular components (18) hingably coupled to each other.

**13.** The assembly as claimed in any of claims 7-12, comprising a mechanism (19, 20) configured to enable limited displacement of the hinge axis ($A_b$) about which the front panel (15) is hingeable relative to the barrier (11).

**14.** The assembly as claimed in any of claims 7-13, wherein the barrier (11) is one of a door and a wall.

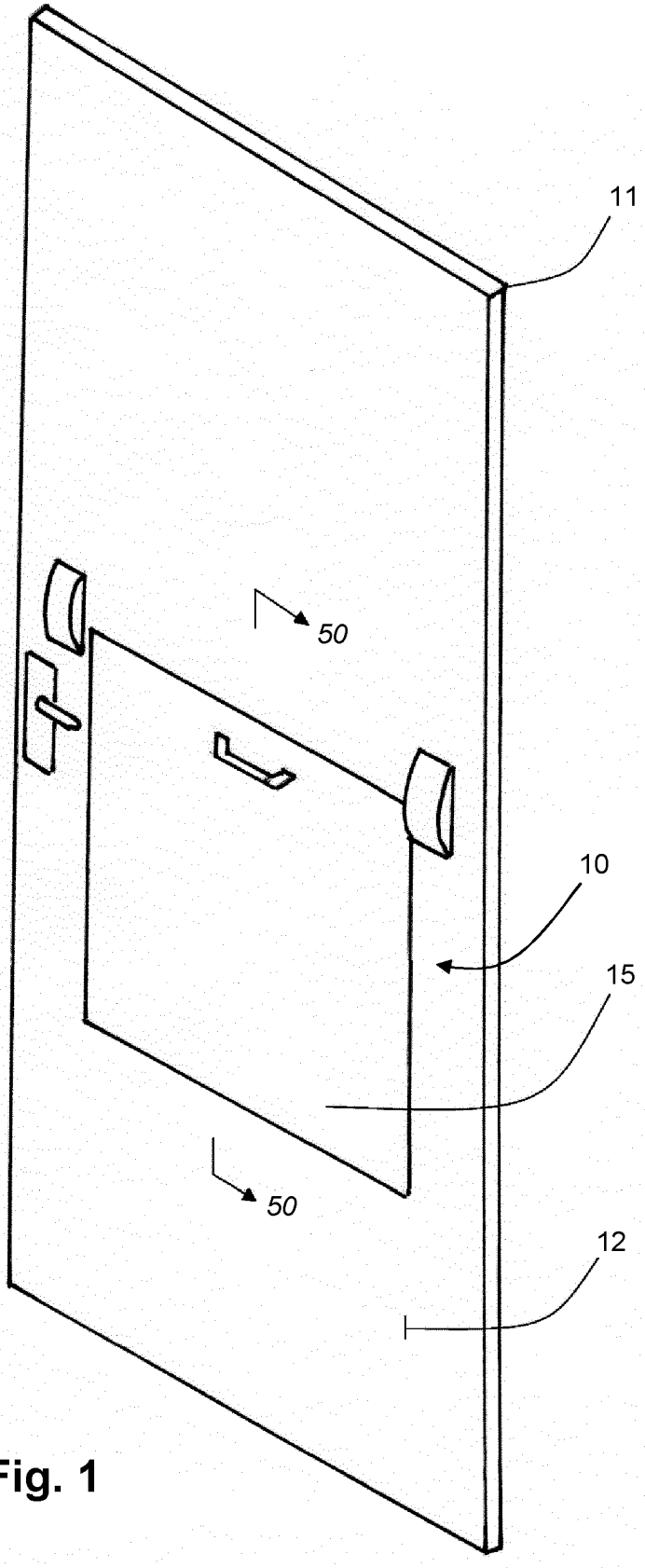


Fig. 1

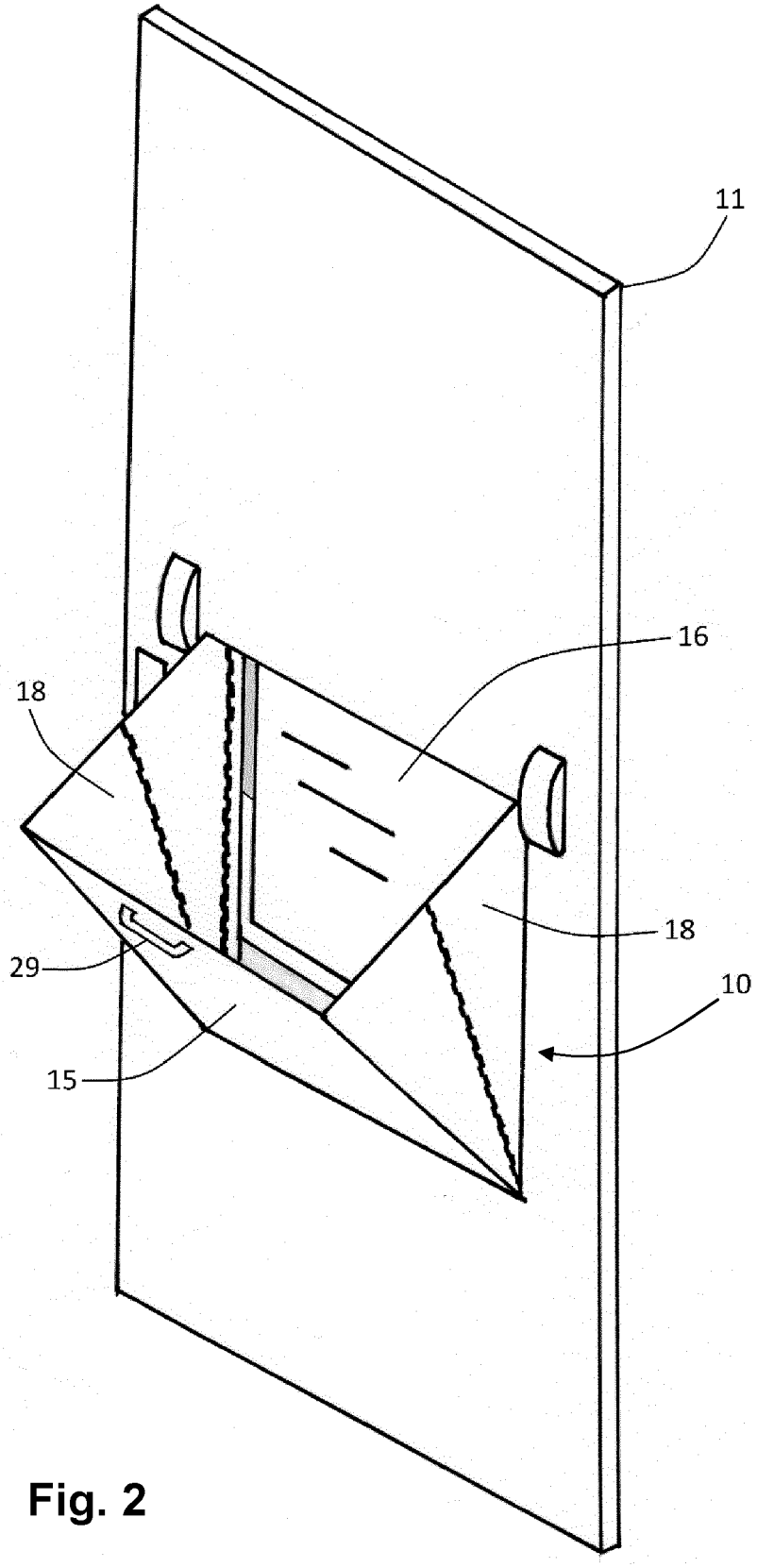


Fig. 2

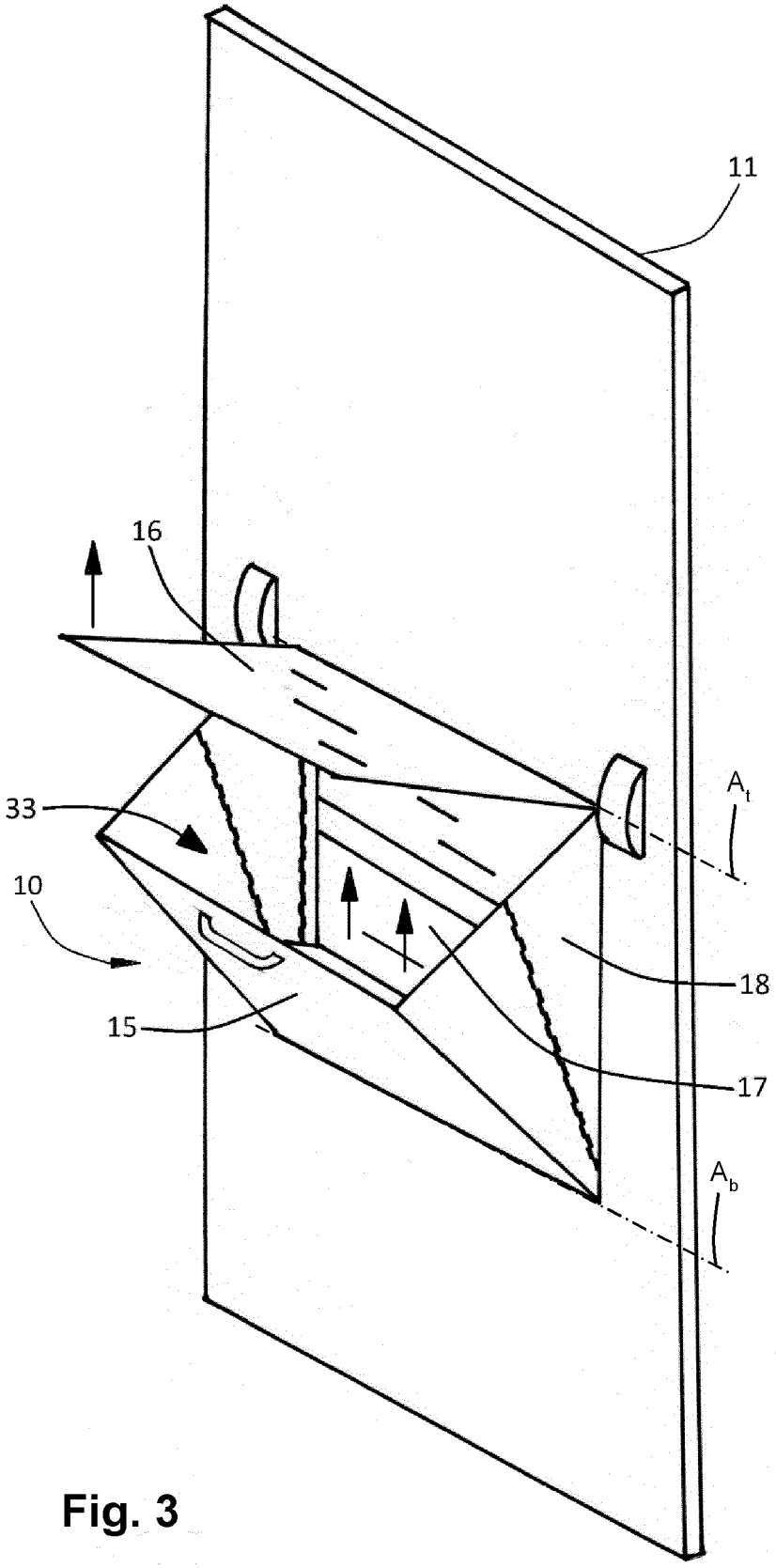


Fig. 3

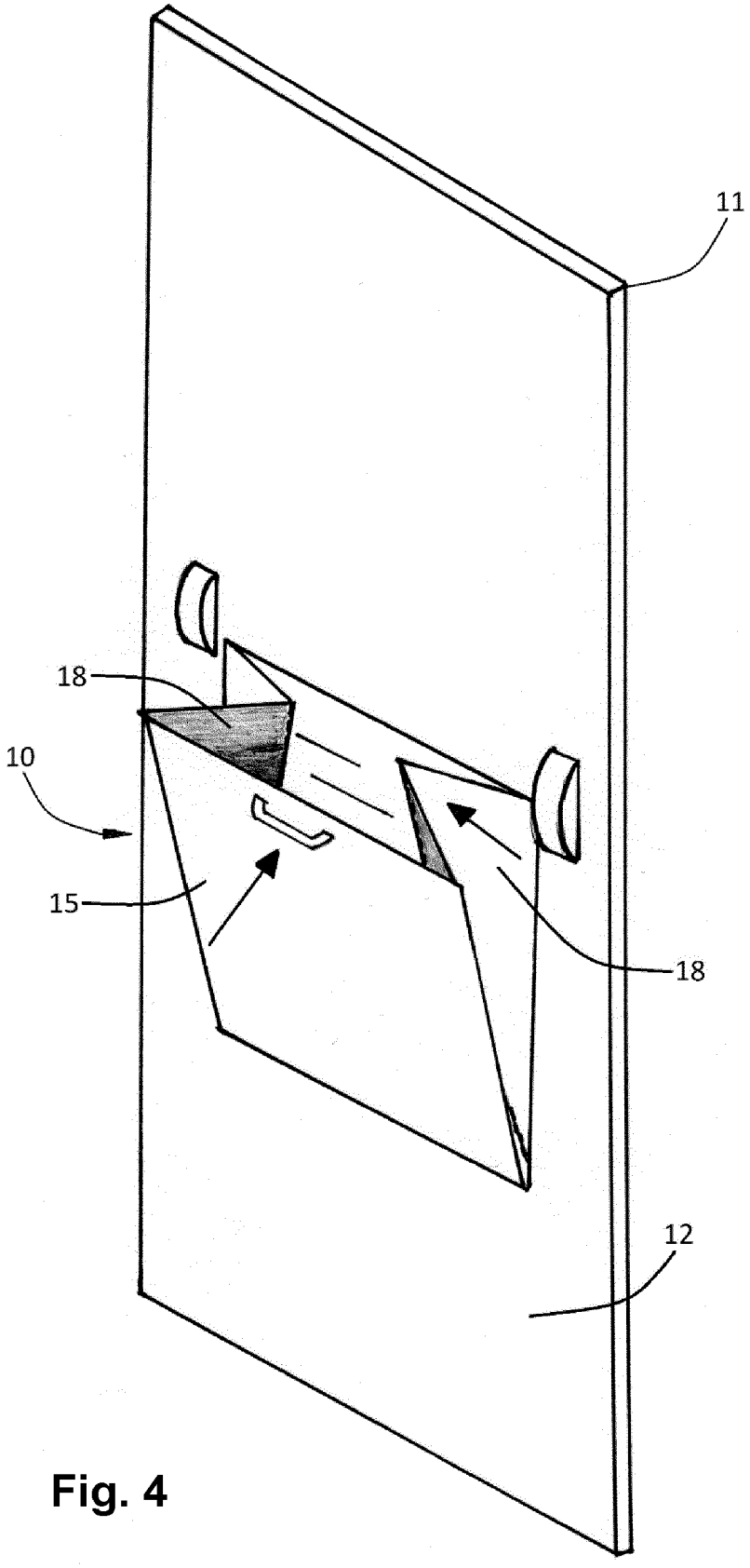


Fig. 4

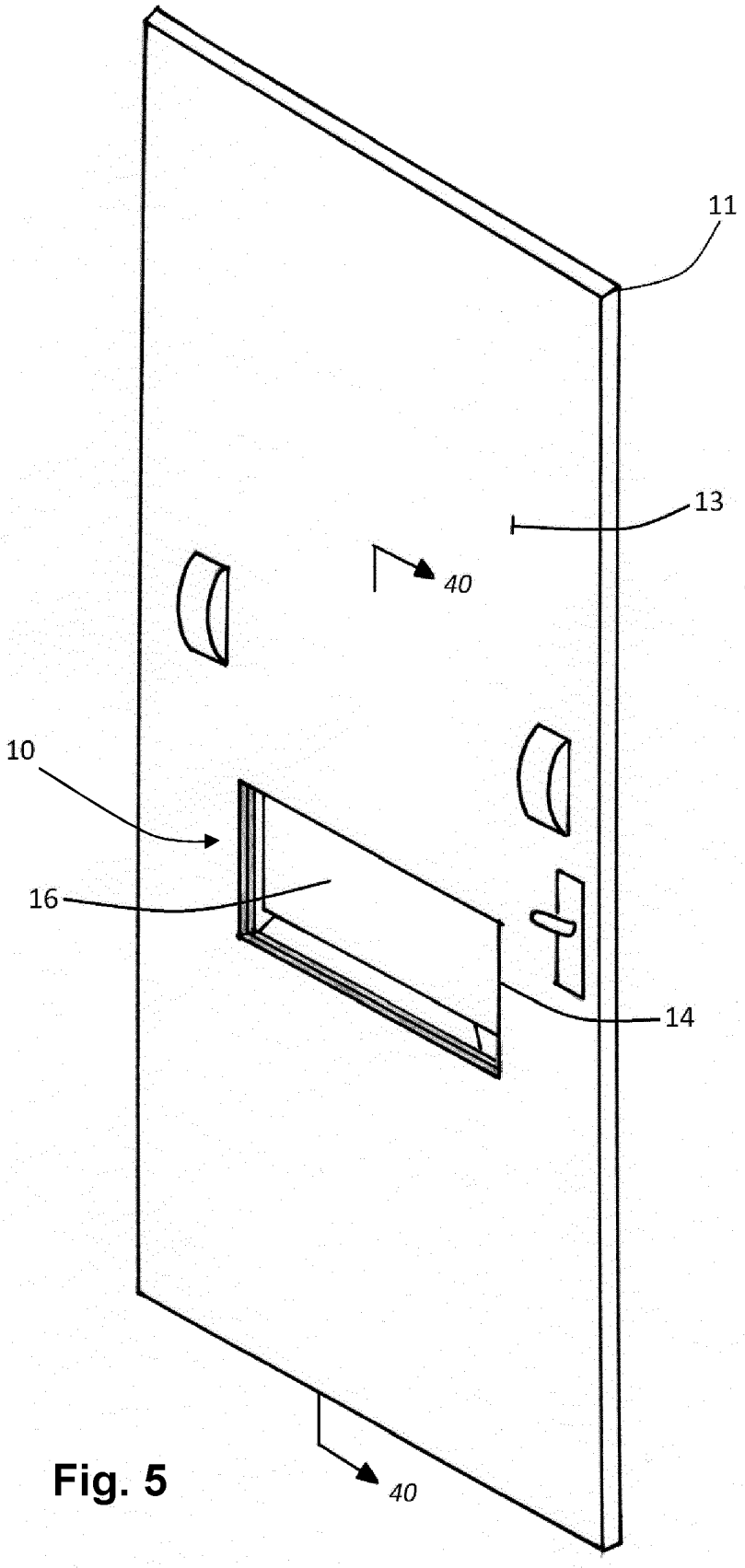


Fig. 5

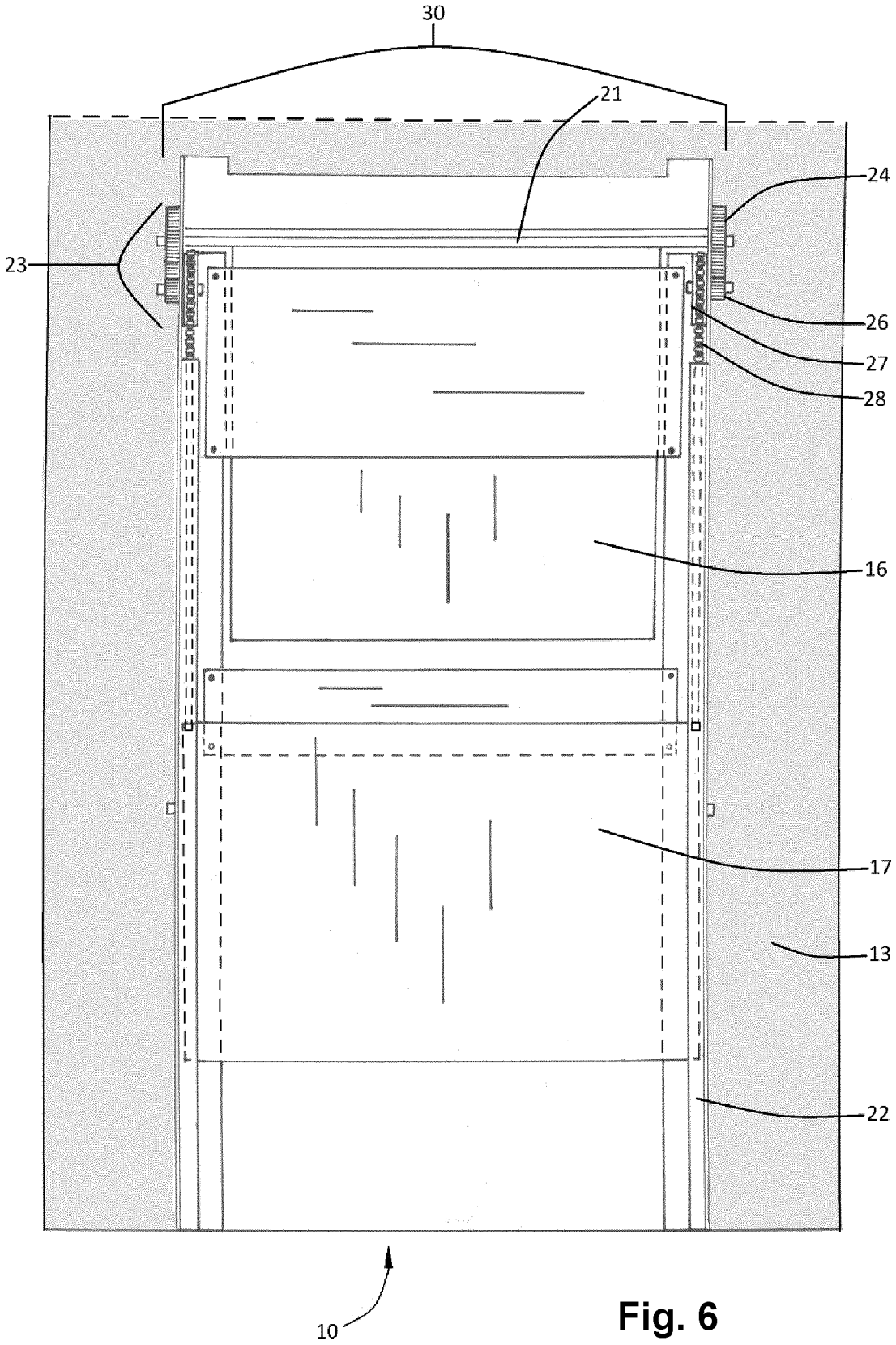


Fig. 6

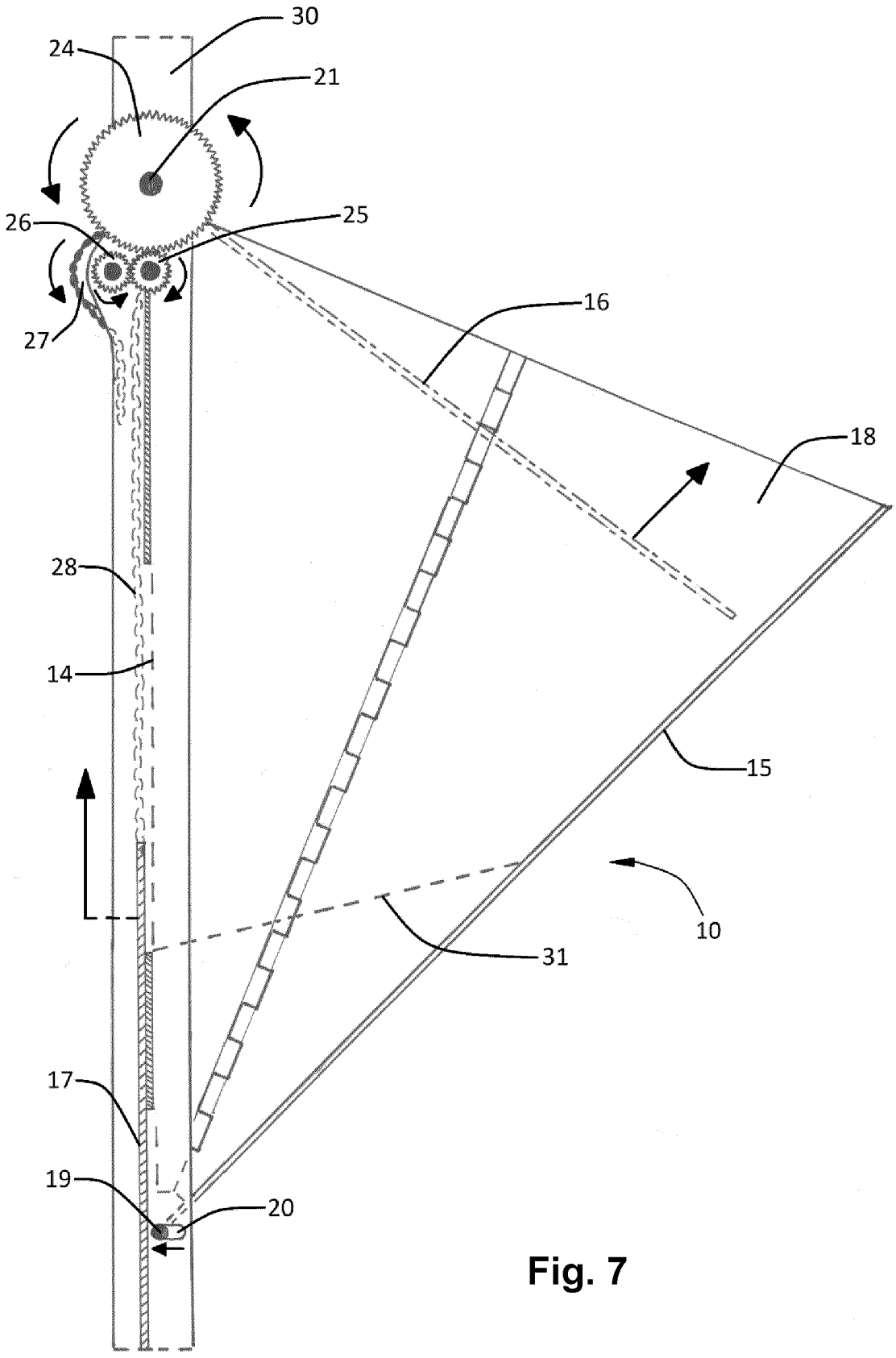


Fig. 7

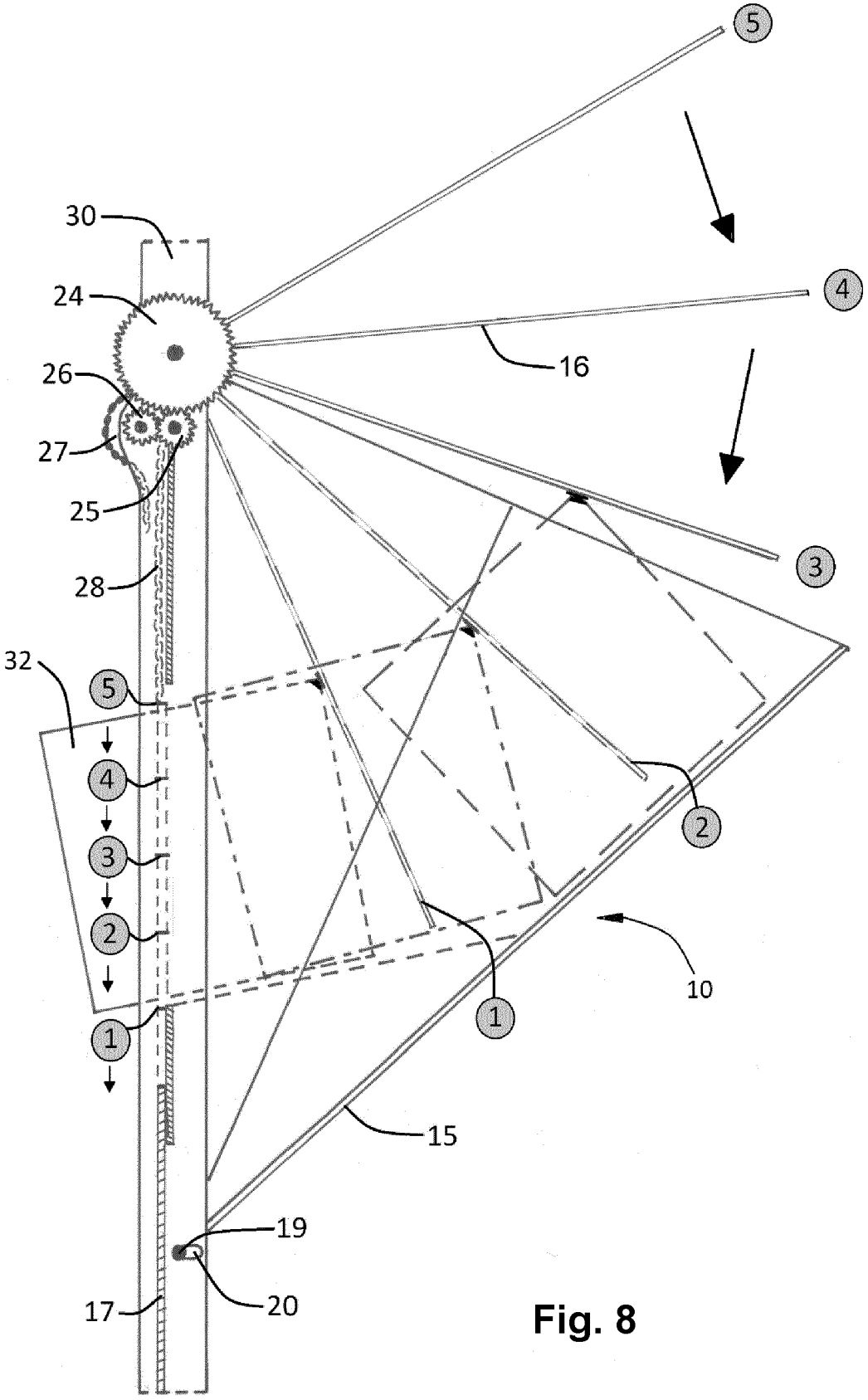


Fig. 8

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# EUROPEAN SEARCH REPORT

Application Number
EP 23 16 4232

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
| X | CN 113 565 413 A (FANG HUAI) 29 October 2021 (2021-10-29) * the whole document * | 1-4, 7-10,14 | INV. A47G29/22 |
| X,D | US 10 711 516 B2 (VANEK NICHOLAS ALEXANDER [US]) 14 July 2020 (2020-07-14) | 1,7,14 | |
| Y | * paragraphs [0019] - [0029]; figures * | 5,6,11, 12 | |
| Y | CN 206 737 770 U (PIAO KEXIN; PIAO YINGZI) 12 December 2017 (2017-12-12) * figures * | 5,6,11, 12 | |
| A | GB 1 339 154 A (CROZIER H E) 28 November 1973 (1973-11-28) * page 1, line 87 - page 3, line 13; figures * | 1,7 | |
| | | | TECHNICAL FIELDS SEARCHED (IPC) |
| | | | A47G<br>E06B |

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 2 August 2023 | Van Bastelaere, Tiny |

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02-08-2023

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---|---|---|
| CN 113565413 A | 29-10-2021 | NONE | |
| US 10711516 B2 | 14-07-2020 | NONE | |
| CN 206737770 U | 12-12-2017 | NONE | |
| GB 1339154 A | 28-11-1973 | NONE | |

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

## REFERENCES CITED IN THE DESCRIPTION

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### Patent documents cited in the description


- US 10711516 B2 **[0007]**