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(54) CASH MACHINE, ATM AND THE LIKE COMPRISING A BANKNOTE INTRODUCTION CONTROL DEVICE

GELDZÄHLMASCHINE, GELDAUTOMAT UND DERGLEICHEN MIT EINER BANKNOTENEINFÜHRUNGSSTEUERUNGSVORRICHTUNG

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Description

[0001] The present invention relates to a Cash Machine, ATM and the like comprising a banknote introduction control device of the type specified in the preamble of the first claim.

[0002] Distributors of banknotes or valuables are currently known, such as, in particular Cash Machines or ATMs or systems for dispensing and accepting banknotes.

[0003] They comprise a safe suitable to contain banknotes and valuables and control means suitable to dispense banknotes and valuables to an authorized user. The dispensing of banknotes and valuables takes place once the user has been identified by means of code cards or the like, and it takes place by means of a dispenser mouth, communicating with the inside of the safe, suitable to dispense banknotes or values to the external user.

[0004] Therefore, dispenser mouths are generally designed for public areas, accessible to users.

[0005] This component constitutes the end part of a dispenser channel comprising an elongated body for the passage of the banknotes and valuables entering or leaving the safe. Inside the safe, there is a dispenser where the banknotes are stored. An elongated body, in correspondence with the outer face exposed to the public, comprises a slit or the like through which the valuables and banknotes, usually grouped into bundles, are introduced.

[0006] Furthermore, the dispenser channels comprise a conveying device generally consisting of an element adapted to convey or push the banknotes along the elongated body in the direction of the customer side external mouth.

[0007] In particular, in the case of Cash Machines or ATMs, these methods of moving and dispensing banknotes are efficient and extremely common.

[0008] However, they present one drawback: they allow explosive substances to be introduced into the safe through the dispenser mouth of the automatic distributor.

[0009] In fact, one possible theft attempt perpetrated on the armoured casing of automatic dispensers of banknotes and valuables comprises that, in the same, a fluid, powder or nevertheless an explosive substance is inserted directly into the safe through the dispenser mouth.

[0010] In particular, the criminals equipped themselves with special instruments or cables having a length greater than the length of the elongated body, so as to allow the introduction of said substances passing: the external mouth, the entire elongated body and the internal opening of the safe.

[0011] Various apparatus has been developed to overcome this drawback, comprising a protective mechanical barrier suitable to prevent the introduction of gases or explosives passing through the dispenser mouth. Such protective barrier doesn't serve to prevent said actions, because it must be opened in correspondence with a disbursement of banknotes and valuables.

[0012] Such further drawback was remedied, in particular, in patent applications IT MI2004A001683 and IT MI2003A000342 and in other embodiments, again by the same applicant, with a double barrier, one in correspondence with the dispenser mouth and another in correspondence with the internal passage from and for the safe.

[0013] The two barriers are usually always closed and, in the dispensing phase, they only open one at a time, so that one of the two openings is always closed.

[0014] However, such security always adapts badly in the previously described Cash Machine, ATM models and the like. In particular, when shuttles or conveying pockets are used, connected by cables or connections needed to connect to the electronics positioned inside the safe.

[0015] Therefore, this second barrier, which closes the safe, cannot always be totally closed in correspondence with a disbursement.

[0016] Solutions to improve the safety of an ATM are also described in documents EP2648168 and EP2120222. In the first document an ATM is described having an elongated body extending out of the safe of the ATM. The elongated body which connects to the outer wall of the ATM comprises a dispensing mouth and an obstructor to close the mouth when not in use. In the second document an ATM is provided with a mouth comprising a retractable dispensing slot. The mouth is closed with a barrier when the dispensing slot is retracted.

[0017] In this situation the technical task underlying the present invention is to develop a Cash Machine, ATM and the like comprising a banknote introduction control device capable of substantially overcoming at least part of the stated drawbacks.

[0018] In the scope of said technical task it is an important object of the invention to obtain a Cash Machine, ATM and the like comprising a security device, which is secure both during the phase of dispensing and returning banknotes to the safe and which is capable of resisting in the event of attacks using significant quantities of explosives.

[0019] The technical task and specified objects are achieved with a Cash Machine, ATM and the like comprising a banknote introduction control device, as claimed in the appended claim 1.

[0020] Preferred embodiments are described in the dependent claims.

[0021] The characteristics and advantages of the invention are clarified below by the detailed description of preferred embodiments of the invention, with reference to the appended drawings, wherein:

Fig. 1 shows a diagram of a Cash Machine, ATM or the like according to the invention;

Fig. 2a illustrates a portion of Cash Machine, ATM or the like according to the invention in a first configuration;

Fig. 2b is the portion in Fig. 2a in a second config-

uration;

Fig. 2c shows the portion in Fig. 2a in a third configuration;

Figures 3a-3h show the sequence of operations performed by the banknote introduction control device according to the invention;

Fig. 4a illustrates a portion of a second embodiment of a Cash Machine, ATM or the like according to the invention in a first configuration;

Fig. 4b is the portion in Fig. 4a in a second configuration;

Fig. 4c shows the portion in Fig. 4a in a third configuration;

Fig. 5a illustrates a portion of the second embodiment of a Cash Machine, ATM or the like according to the invention in a first configuration;

Fig. 5b is the portion in Fig. 5a in a second configuration;

[0022] In this document, when measurements, values, shapes and geometrical references (such as perpendicularity and parallelism) are associated with words, such as "approximately" or other similar terms, for example "practically" or "substantially", they are to be understood as except for errors of measurement or inaccuracies resulting from production and/or manufacturing errors and, above all, except for a slight divergence from the value, measurement, shape or geometrical reference with which it is associated. For example, if said terms are associated with a value, they preferably indicate a divergence of no more than 10% of the same value.

[0023] Furthermore, when terms such as "first", "second", "greater", "lower", "principal" and "secondary" are used, they do not necessarily identify an order, a relationship priority or relative position, but they may simply be used to distinguish different components more clearly.

[0024] Unless otherwise indicated, the measurements and data contained in this document shall be considered as carried out in International Standard Atmosphere ICAO (ISO 2533:1975).

[0025] With reference to the Figures, the Cash Machine, ATM or the like according to the invention is globally indicated with number 1.

[0026] In short, it comprises a safe 2 for containing a dispenser or a device for recycling banknotes and valuables defining an inner volume 2a, and an outer face 7.

[0027] More specifically, the safe 2 is known in itself and comprises drawers, suitable to contain the various denominations of banknotes. Furthermore, the safe 2 isn't always placed in direct contact with the outer face 7, but, in many cases, it is distant from the same by approximately half a meter.

[0028] The outer face 7 comprises means for interacting with the public of a known type, such as a screen, a keypad, a slit for introducing a card and a slit for introducing and withdrawing banknotes and valuables described below, as well as others. The Cash Machine, ATM or the like 1 comprises a conveying device 3, suitable

able to convey banknotes and valuables from the inner volume 2a to the outside and vice versa, in particular in correspondence with the outer face 7. Preferably, the conveying device 3 substantially consists of a movable body moved by special guides 10 or racks or moving belts driven, in turn, by electric motors. In many cases, the conveying device 3 is also connected by electrical connections or cables 6 to electrical and/or electronic control devices housed inside 2a the safe 2. Said electrical connection 6 consists of a cable or electrical conductors. Said cable is preferably a flat-cable, in other words, a cable of a flat type, preferably arranged with the main extension direction of the normal section preferably vertical. In this way, the cable folds over and rolls and unrolls on itself, when the conveying device extends in direction 7, passing through the opening 4.

[0029] The safe 2 normally comprises an opening 4, suitable to allow the passage of the conveying device 3 and, consequently, the transfer of banknotes and valuables from the inner volume 2a, passing the first barrier towards the second 9, placed on the external customer side.

[0030] The opening 4 is preferably crossed by an elongated body 8 defining a passage between the opening 4 and a dispenser mouth 9, placed on the outer face 7. More specifically, the elongated body 8 is a body whose dimensions are suitable to allow the transport of the banknotes, defining an inner channel 8a. Thus, the elongated body 8 is the space along which the conveying device 3 is moved.

[0031] The Cash Machine, ATM or the like 1 preferably comprises a security device 5 suitable to close, at least partially, the opening 4.

[0032] The security device comprises a first barrier, inside or outside the safe 50, for the opening of the passage 4, and a second barrier 59, suitable to close the dispenser mouth 9.

[0033] Advantageously, the first barrier 50 is ready, waiting for a dispensing request on command in: a closed configuration and in an open configuration, waiting for the passage of the shuttle, and a conveying configuration or partially closed configuration after the passage of the conveying means 3.

[0034] In the open configuration (Figures 2b, 3b, 3g), the first barrier 50 keeps the opening 4 fully open for the passage of the conveying device 3. In the closed configuration (Figures 2a, 3a, 3h), the first barrier 50 closes the opening 4 completely, or at least by 70% or better, by 80% or even better, by 90%. In the conveying configuration (Fig. 2c, 3c-3f), the opening 4, is closed and at least one auxiliary opening 4a is kept open.

[0035] The auxiliary openings 4a can comprise a first auxiliary opening 40a and/or a second auxiliary opening 40b. The auxiliary opening 4a are kept open, in the case of the first auxiliary opening 40a to not compress or sever the electrical connection 6 connected to the inner volume 2a said conveying device 3 and, in the case of the second auxiliary opening 40b so as to allow the movement of the

first portion 51 avoiding the interference of other objects, i.e.: the guides 10, within the trajectory of the first portion 51.

[0036] The first auxiliary opening 40a is preferably suitable to allow the passage of a vertical flat cable, and it is preferably in the upper part of the first barrier 50.

[0037] The second auxiliary opening 40b is preferably suitable to allow the movement of the first portion 51 avoiding the interference of other objects, i.e.: the guides 10, within the trajectory of the first portion 51. Therefore, it is preferably placed at the sides of the barrier 50.

[0038] Structurally, the first barrier 50 preferably comprises: a first portion 51 consisting of a barrier movable with respect to the opening 4, suitable to partially close the opening 4 and comprising, preferably, a slit defining the auxiliary opening 4a and at least one auxiliary portion 52 consisting of a barrier movable with respect to both the opening 4 and the first portion 51 and suitable to close the auxiliary opening 4a. The first portions 51 is preferably in proximity to the wall of the safe 2, so it can be constrained to the same wall of the safe 2 or also arranged internally on the basket or other.

[0039] The auxiliary portion 52 comprises at least a first auxiliary portion 53a.

[0040] The first auxiliary portion 53a is suitable to close the first auxiliary opening 40a, and preferably moves substantially parallel with the first portion 51 and also in the same direction.

[0041] The first auxiliary portion 53a is also preferably in proximity to the wall of the safe 2, so it can be constrained to the same wall of the safe 2 or also arranged internally on the basket or other.

[0042] The second auxiliary portion 53b is suitable to close, at least partially, the second auxiliary opening 40b, and preferably moves not parallel, more preferably substantially perpendicular, to the first portion 51 and also preferably in the same direction.

[0043] Preferably, the two portions 51 and 52 or 53 are both connected respectively by first and second moving means 51a and 52a integrated with a device adjacent to the wall, or inside the wall, of the safe 2e. The first and second moving means 51a and 52a are preferably linear actuators, preferably endless screw type.

[0044] Preferably, the second moving means 52a of the second auxiliary portion 53b are fixed on said first portion 51.

[0045] The security device 5 can also comprise tampering sensor means and/or alarm means, known per se, such as, for example the ones described in the same applicant's patent EP-B-2648168 from Paragraph 17 to paragraph 55 and in Figures 1a-4 and considered incorporated herein for reference. The sensor means can be chosen, for example, among one or more of: system with photocells, accelerometers, inclination sensors, sensor along the presentation path of the banknotes, sensors on the external face of the Cash Machines, ATMs and the like. The working of Cash Machines, ATMs and the like 1, previously described in structural terms, is as fol-

lows. Said working defines an innovative security procedure for safes, Cash Machines, ATMs and the like 1.

[0046] When not in use, while no request for banknotes and valuables is being made by a user from the Cash Machine, ATM and the like 1, the first barrier 50 is in a closed configuration (Fig. 3A) and so the opening 4 is completely closed without presenting easy access points for introducing explosives or for mechanical forcing or other.

[0047] Furthermore, in such conditions, the conveying device 3 is inside the inner volume 2a and so the electrical connection 6 doesn't have to pass the opening 4. Furthermore, again, when not in use, the second barrier 59 also remains closed and closes the dispenser mouth 9.

[0048] When a user requests banknotes and valuables and performs the usual procedures for identification in front of the outer face 7 of the Cash Machine, ATM and the like 1 and the system authorizes the issue of legally requested banknotes and valuables. In this case, opportunistically, the second outer barrier 59 remains closed with the dispenser mouth 9 closed, while the first barrier 50 positions itself in an open configuration (Figures 2b, 3b), so as to allow the free passage of the conveying device 3 through the opening 4.

[0049] When the conveying device 3, carrying the banknotes and valuables, passes the opening 4 and positions itself in the elongated body 8, the electrical connection 6 also passes the opening 4.

[0050] In such conditions, while the second barrier 59 remains closed, the first barrier 50 positions itself in a conveying configuration (Figures 2c, 3c), so that the auxiliary opening 4a stays open and the electrical connection 6 between the conveying means 3 and the inner volume 2a is not interrupted. At the same time, most of the surface of the opening 4 is closed by the first portion 51. Operatively, to arrange the first barrier 50 in a conveying configuration (Fig. 2c) only the first moving means 51a are activated, which move the first portion 51, while the auxiliary portion 52 stays still.

[0051] Thus, the conveying device 3, carrying the banknotes and valuables, passes the entire elongated body 8 and reaches the second barrier 59 (Fig. 3d). The latter is thus opened (Fig. 3e) to allow the disbursement of the banknotes and valuables to the claimant. At the same time, the first barrier 50 stays in a conveying configuration (Fig. 2c) and, sealing most of the opening 4 and interposed between the conveying means 3, prevents the introduction of substances into the inner volume 4a. Substantially, during the passage of the conveying device 3 from the inner volume 2a to the dispenser mouth 9, at least one from among the second barrier 59 and the first portion 51 of the first barrier 50 is in a closed position.

[0052] Once the banknotes have been dispensed, the conveying device 3 withdraws, the second outer barrier 59 closes (Fig. 3f) and remains closed until the next disbursement, the conveying device 3 passes the elongated body 8, the first barrier 50 positions itself in an open configuration (Fig. 2b) and the conveying device 3 passes

the opening 4 (Fig. 3g) and stays in the inner volume 2a. Then, the first barrier 50 positions itself in a closed configuration (Fig. 2a). Substantially, the device returns to a state of waiting for a new disbursement (Fig. 3h).

[0053] If, during operation of the Cash Machine, ATM and the like 1, the first barrier 50 was in a conveying configuration (Fig. 2c, 4c), or also in an open configuration (Fig. 2b, 4b), and the alarm means and/or tampering sensors, such as accelerometers or optical sensor or other, serving the same Cash Machine, ATM and the like 1, signalled a state of danger or a disturbance or unjustified movement, the first barrier 50 immediately position itself in a closed configuration (Fig. 2a, 4a) regardless of the presence, or not, of the electrical connection 6 through the auxiliary opening 4a. The word "position" means that, if the barrier was in a closed configuration, it stays in this configuration, or if the barrier was in other configurations it moves and close in closed configuration.

[0054] Moreover, this closing also using rapid actuation means, such as, pyrotechnic activators and/or a piston and/or snap activators, and at the cost of breaking, or damaging the electrical connection 6 itself.

[0055] The Cash Machine, ATM and the like 1 according to the invention brings important advantages.

[0056] In fact, the same allows maximum security of the safe to be maintained in all conditions.

[0057] In particular, if the robbery attempt is carried out skilfully, also during the operations of conveying the banknotes and valuables, the double alternation of the first barrier 50 and the second barrier 59 prevents explosives from being introduced into the safe 2.

[0058] Said movable barriers, thus described, can be realized using overlapping ballistic and drill-proof steel, so as to resist robbery attempts carried out using heavy vehicles and explosives placed outside Cash Machines, ATMs or the like, keeping the safe inaccessible.

Claims

1. Cash machine, ATM and the like (1) comprising:

- a safe (2) defining an inner volume (2a),
- a conveying device (3), suitable to convey banknotes and valuables from said inner volume (2a) to the outside and / or vice versa,
- an opening (4) of said safe (2), suitable to allow the passage of said conveying device (3),
- a security device (5) suitable to close at least partially said opening (4),

and characterised in that

- said security device (5) comprises a first barrier (50) for said opening (4), said first barrier (50) comprising:

- a first portion (51) consisting of a barrier

movable with respect to said opening (4), suitable to partially close said opening (4) and comprising at least one auxiliary opening (4a),

- at least one auxiliary portion (52) consisting of a barrier movable with respect to said opening (4) and to said first portion (51) and suitable to close at least one of said auxiliary opening (4a),

- wherein said first barrier (50) is available in:

- an open configuration, in which said first barrier (50) keeps said opening (4) open for the passage of said conveying device (3), when said conveying device passes through said opening,
- a closed configuration, in which said first barrier (50) closes totally, or at least by 70%, said opening (4), when said conveying device is in the inner volume,
- a conveying configuration, in which said opening (4), is only partially closed, and an auxiliary opening (4a, 4b) is kept open, when said conveying device is in the outside.

2. Cash machine, ATM and the like (1) according to at least one preceding claim, wherein said auxiliary opening (4a) comprises a first auxiliary opening (40a) suitable for allowing the passage of an electrical connection (6) from said inner volume (2a) to said conveying device (3).

3. Cash machine, ATM and the like (1) according to at least one preceding claim, wherein said first portion (51) comprises a slit defining said first auxiliary opening (40a).

4. Cash machine, ATM and the like (1) according to at least one preceding claim, wherein said auxiliary opening (4a) comprises a second auxiliary opening (40b) suitable for allowing the movement of said first portion (51) avoiding the interference of other objects within the trajectory of said first portion (51).

5. Cash machine, ATM and the like (1) according to the preceding claim, wherein said auxiliary portion (52) comprises a second auxiliary portion (53b), suitable to cover, at least partially, said second auxiliary opening (40b) and movable in direction not parallel to the trajectory of said first portion (51).

6. Cash machine, ATM and the like (1) according to the preceding claim, wherein said second auxiliary portion (53b) is movably fixed on said first portion (51).

7. Cash machine, ATM and the like (1) according to the

preceding claim, comprising first and auxiliary moving means (51a, 52a) respectively connected to said first and auxiliary portions (51, 52) and in proximity to a wall of said safe (2), said first and second moving means (51a, 52a) being suitable to move said respective portion (51, 52) independently of one another.

8. Cash machine, ATM and the like (1) according to at least one preceding claim, comprising an outer interaction side (7) with the public, a dispenser mouth (9) for said banknotes and valuables, placed on said outer side (7), and an elongated body (8), connecting said opening (4) with said dispenser mouth (9) and defining a main space along which said conveying device (3) is moved.

9. Cash machine, ATM and the like (1) according to the preceding claim, comprising a second barrier (59), suitable to close said dispenser mouth (9).

10. Cash machine, ATM and the like (1) according to at least one of the claims 2-7, comprising rapid actuation means for said auxiliary portion (52) suitable to close said auxiliary opening (4a) quickly in the event of an alarm.

11. Cash machine, ATM and the like (1) according to the preceding claim, wherein said quick actuation means of said auxiliary portion (52) are selected from pyrotechnic activators and snap activators.

12. Activation method of a cash machine, ATM and the like (1), said cash machine, ATM and the like (1) comprising,

- a safe (2) defining an inner volume (2a),
- a conveying device (3), suitable to convey banknotes and valuables from said inner volume (2a) to the outside and / or vice versa,
- an opening (4) of said safe (2), suitable to allow the passage of said conveying device (3),
- a security device (5) suitable to close at least partially said opening (4), and **characterised in that**

said security device (5) comprising a first barrier (50) for said opening (4), said first barrier (50) comprising:

- a first portion (51) consisting of a barrier movable with respect to said opening (4), suitable to partially close said opening (4) and comprising at least one auxiliary opening (4a),
- at least one auxiliary portion (52) consisting of a barrier movable with respect to said opening (4) and to said first portion (51) and suitable to close at least one of said auxiliary opening (4a), wherein said first barrier (50) is available in:

- an open configuration, in which said first barrier (50) keeps said opening (4) open for the passage of said conveying device (3), when said conveying device passes through said opening,

- a closed configuration, in which said first barrier (50) closes totally, or at least by 70%, said opening (4), when said conveying device is in the inner volume,

- a conveying configuration, in which said opening (4), is only partially closed, and an auxiliary opening (4a) is kept open, when said conveying device is in the outside,

said activation method being **characterised in that**, in conditions of non-use, said first barrier (50) is arranged in the closed configuration.

13. Activation method of a cash machine, ATM and the like (1) according to the preceding claim, wherein said cash machine, ATM and the like (1) comprises alarm means and/or tampering sensors and/or accelerometers or the like and wherein, when said means signal a condition of danger or tampering, said first barrier (50) is arranged in the closed configuration regardless of the position of said electrical connection (6).

14. Activation method of a cash machine, ATM and the like (1) according to claim 12 or 13, wherein said cash machine, ATM and the like (1) comprises an outer interaction face (7) with the public, a dispenser mouth (9) for said banknotes and valuables, placed on said outer face (7), an elongated body (8), connecting said opening (4) with said dispenser mouth (9) and defining a main space along which said conveying device (3) is moved and a second barrier (59), suitable to close said dispenser mouth (9), and wherein, during the passage of said conveying device (3) from said inner volume (2a) to said dispenser mouth (9), at least one out of said second barrier (59) and said first portion (51) is in the closed position.

Patentansprüche

1. Geldzählmaschine, Geldautomat und dergleichen (1), die Folgendes umfasst:

- einen Geldschrank (2), der ein Innenvolumen (2a) definiert,
- eine Banknoteneinführungssteuerungsvorrichtung (3), die dazu dient, die Banknoten und Wertpapiere vom genannten Innenvolumen (2a) nach außen und/oder umgekehrt zu steuern,
- eine Öffnung (4) des genannten Geldschanks

(2), die dazu dient, den Durchgang der genannten Banknoteneinführungssteuerungsvorrichtung (3) zu ermöglichen,
 - eine Sicherheitsvorrichtung (5), die dazu dient, die genannte Öffnung (4) mindestens teilweise zu schließen,

und **dadurch gekennzeichnet ist, dass:**

- die genannte Sicherheitsvorrichtung (5) eine erste Barriere (50) für die genannte Öffnung (4) enthält, wobei die genannte erste Barriere (50) Folgendes umfasst:

- einen ersten Abschnitt (51), der aus einer beweglichen Barriere gegenüber der genannten Öffnung (4) besteht und dazu dient, die genannte Öffnung (4) teilweise zu schließen und mindestens eine genannte zusätzliche Öffnung (4a, 4b) umfasst,
- mindestens einen zusätzlichen Abschnitt (52), der aus einer beweglichen Barriere gegenüber der genannten Öffnung (4) und dem genannten ersten Abschnitt (51) besteht und dazu dient, die genannte mindestens eine zusätzliche Öffnung (4a) zu schließen,

wobei die genannte erste Barriere (50) mit folgenden Konfigurationen verfügbar ist:

- eine Öffnungskonfiguration, in der die genannte erste Barriere (50) die genannte Öffnung (4) für den Durchgang der genannten Banknoteneinführungssteuerungsvorrichtung (3) offen hält, wenn die genannte Banknoteneinführungssteuerungsvorrichtung durch diese Öffnung geht,
- eine Schließkonfiguration, in der die genannte erste Barriere (50) die genannte Öffnung (4) vollständig oder mindestens zu 70 % schließt, wenn sich die genannte Banknoteneinführungssteuerungsvorrichtung im genannten Innenvolumen befindet,
- eine Konfiguration der Banknoteneinführungssteuerungsvorrichtung, wobei die genannte Öffnung (4) nur teilweise geschlossen ist und eine zusätzliche Öffnung (4a) offen gehalten wird, wenn sich die genannte Banknoteneinführungssteuerungsvorrichtung außen befindet.

2. Geldzählmaschine, Geldautomat und dergleichen (1) nach mindestens einem der vorangegangenen Ansprüche, bei der die genannte zusätzliche Öffnung (4a) eine erste zusätzliche Öffnung (40a) umfasst, die dazu dient, den Durchgang einer elektrischen Verbindung (6) vom genannten Innenvolumen

(2a) zur genannten Banknoteneinführungssteuerungsvorrichtung (3) zu ermöglichen.

3. Geldzählmaschine, Geldautomat und dergleichen (1) nach mindestens einem der vorangegangenen Ansprüche, bei der der genannte erste Abschnitt (51) einen Schlitz umfasst, der die genannte erste zusätzliche Öffnung (40a) definiert.
4. Geldzählmaschine, Geldautomat und dergleichen (1) nach mindestens einem der vorangegangenen Ansprüche, bei der die genannte zusätzliche Öffnung (4b) eine zweite zusätzliche Öffnung (40b) umfasst, die dazu dient, die Bewegungen des genannten ersten Abschnitts (51) zu ermöglichen und die Störung durch andere Gegenstände in der Bahn des genannten ersten Abschnitts (51) verhindert.
5. Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, bei der der genannte zusätzliche Abschnitt (52) einen zweiten zusätzlichen Abschnitt (53b) enthält, der dazu dient, die genannte zweite zusätzliche Öffnung (40b) mindestens teilweise zu decken und in einer nicht parallelen Richtung zur Bahn des genannten ersten Abschnitts (51) beweglich zu sein.
6. Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, bei der der genannte zweite zusätzliche Abschnitt (53b) beweglich mit dem genannten ersten Abschnitt (51) verbunden ist.
7. Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, die erste und zweite zusätzliche Bewegungselemente (51a, 52a) umfasst, die jeweils mit dem genannten ersten und zusätzlichen Abschnitt (51, 52) verbunden sind und wobei die genannten ersten und zusätzlichen Bewegungselemente (51a, 52a) in der Nähe einer Wand des genannten Geldschranks (2) dazu dienen, den genannten jeweiligen Abschnitt (51, 52) unabhängig von den anderen zu bewegen.
8. Geldzählmaschine, Geldautomat und dergleichen (1) nach mindestens einem der vorangegangenen Ansprüche, die eine Außenseite (7) für die Interaktion mit der Öffentlichkeit, eine Ausgabeöffnung (9) für die genannten Banknoten und Wertpapiere, die auf der genannten Außenseite (7) angebracht ist, und einen länglichen Körper (8), der die genannte Öffnung (4) mit der genannten Ausgabeöffnung (9) verbindet und einen Hauptbereich definiert, entlang dem die genannte Banknoteneinführungssteuerungsvorrichtung (3) bewegt wird, umfasst.
9. Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, die eine

zweite Barriere (59) umfasst, die dazu dient, die genannte Ausgabeöffnung (9) zu schließen.

10. Geldzählmaschine, Geldautomat und dergleichen (1) nach mindestens einem der vorangegangenen Ansprüche 2-7, die Schnell-Auslöseelemente für den genannten zusätzlichen Abschnitt (52) umfasst, die dazu dienen, die genannte zusätzliche Öffnung (4a) im Falle eines Alarms schnell zu schließen. 5
11. Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, bei der die genannten Schnell-Auslöseelemente für den genannten zusätzlichen Abschnitt (52) zwischen pyrotechnischen und Schnell-Auslöseelementen gewählt werden. 10 15
12. Aktivierungsverfahren für Geldzählmaschine, Geldautomat und dergleichen (1), die genannte Geldzählmaschine, Geldautomat und dergleichen (1) umfassen: 20

- einen Geldschrank (2), der ein Innenvolumen (2a) definiert, 25
- eine Banknoteneinführungssteuerungsvorrichtung (3), die dazu dient, die Banknoten und Wertpapiere vom genannten Innenvolumen (2a) nach außen und/oder umgekehrt zu steuern,
- eine Öffnung (4) des genannten Geldschrankes (2), die dazu dient, den Durchgang der genannten Banknoteneinführungssteuerungsvorrichtung (3) zu ermöglichen, 30
- eine Sicherheitsvorrichtung (5), die dazu dient, die genannte Öffnung (4) mindestens teilweise zu schließen, 35

und **dadurch gekennzeichnet ist, dass** die genannte Sicherheitsvorrichtung (5) eine erste Barriere (50) für die genannte Öffnung (4) enthält, die genannte erste Barriere (50) umfasst: 40

- einen ersten Abschnitt (51), der aus einer beweglichen Barriere gegenüber der genannten Öffnung (4) besteht und dazu dient, die genannte Öffnung (4) teilweise zu schließen und mindestens eine genannte zusätzliche Öffnung (4a, 4b) umfasst, 45
- mindestens einen zusätzlichen Abschnitt (52), der aus einer beweglichen Barriere gegenüber der genannten Öffnung (4) und dem genannten ersten Abschnitt (51) besteht und dazu dient, die genannte mindestens eine zusätzliche Öffnung (4a) zu schließen, 50

wobei die genannte erste Barriere (50) mit folgenden Konfigurationen verfügbar ist: 55

eine Öffnungskonfiguration, bei der die genannte erste Barriere (50) die genannte Öffnung (4) für den Durchgang der genannten Banknoteneinführungssteuerungsvorrichtung (3) offen hält, wenn die genannte Banknoteneinführungssteuerungsvorrichtung durch diese Öffnung geht,

eine Schließkonfiguration, bei der die genannte erste Barriere (50) die genannte Öffnung (4) vollständig oder mindestens zu 70 % schließt, wenn sich die genannte Banknoteneinführungssteuerungsvorrichtung im genannten Innenvolumen befindet,

eine Konfiguration der Banknoteneinführungssteuerungsvorrichtung, bei der die genannte Öffnung (4) nur teilweise geschlossen ist und eine zusätzliche Öffnung (4a) offen gehalten wird, wenn sich die genannte Banknoteneinführungssteuerungsvorrichtung außen befindet,

wobei das genannte Verfahren **dadurch gekennzeichnet ist, dass** die genannte erste Barriere (50) bei Nichtverwendung in der Schließkonfiguration eingerichtet ist.

13. Aktivierungsverfahren der Geldzählmaschine, Geldautomat und dergleichen (1) nach dem vorangegangenen Anspruch, bei dem die genannte Geldzählmaschine, Geldautomat und dergleichen (1) Alarmanlagen und/oder Manipulationsschutz-Sensoren und/oder Beschleunigungsmesser oder dergleichen umfasst und bei dem die genannte erste Barriere (50) unabhängig von der Position der genannten elektrischen Verbindung (6) in einer Schließkonfiguration eingerichtet ist, wenn die genannten Anlagen eine Gefahrensituation oder eine Manipulation anzeigen. 30

14. Aktivierungsverfahren der Geldzählmaschine, Geldautomat und dergleichen (1) nach Anspruch 12 oder 13, bei dem die genannte Geldzählmaschine, Geldautomat und dergleichen (1) eine Außenseite (7) für die Interaktion mit der Öffentlichkeit, eine Ausgabeöffnung (9) für die genannten Banknoten und Wertpapiere, die an der genannten Außenseite (7) angebracht ist, einen länglichen Körper (8), der die genannte Öffnung (4) mit der genannten Ausgabeöffnung (9) verbindet und einen Hauptbereich definiert, entlang dem die genannte Banknoteneinführungssteuerungsvorrichtung (3) bewegt wird und eine zweite Barriere (59) umfasst, die dazu dient, die genannte Ausgabeöffnung (9) zu schließen und wobei sich während des Durchgangs der genannten Banknoteneinführungssteuerungsvorrichtung (3) vom genannten Innenvolumen (2a) zur genannten Ausgabeöffnung (9) mindestens die eine genannte zweite Barriere (59) und der genannte erste Abschnitt (51) in der Position der Schließung befindet. 55

Revendications

1. Machine de caisse, distributeur automatique et analogues (1) comprenant :

- un coffre-fort (2) définissant un volume interne (2a),
- un dispositif de convoyage (3), apte à convoyer des billets et des valeurs dudit volume interne (2a) à l'extérieur et/ou vice versa,
- une ouverture (4) dudit coffre-fort (2), apte à permettre le passage dudit dispositif de convoyage (3),
- un dispositif de sécurité (5) apte à fermer au moins partiellement ladite ouverture (4),

et caractérisé en ce que :

- ledit dispositif de sécurité (5) comprend une première barrière (50) pour ladite ouverture (4), ladite première barrière (50) comprenant :

- une première partie (51) constituée d'une barrière mobile par rapport à ladite ouverture (4), apte à fermer partiellement ladite ouverture (4) et comprenant ladite au moins une ouverture auxiliaire (4a, 4b),
- au moins une partie auxiliaire (52) constituée d'une barrière mobile par rapport à ladite ouverture (4) et à ladite première partie (51) et apte à fermer ladite au moins une ouverture auxiliaire (4a),

où ladite première barrière (50) est disponible dans :

- une configuration d'ouverture, dans laquelle ladite première barrière (50) maintient ladite ouverture (4) ouverte pour le passage dudit dispositif de convoyage (3), lorsque ledit dispositif de convoyage passe à travers ladite ouverture,
- une configuration de fermeture, où ladite première barrière (50) ferme totalement, ou au moins à 70 %, ladite ouverture (4), lorsque ledit dispositif de convoyage est dans ledit volume interne,
- une configuration de convoyage, dans laquelle ladite ouverture (4), est seulement partiellement fermée et une ouverture auxiliaire (4a) est maintenue ouverte, lorsque ledit dispositif de convoyage est à l'extérieur.

2. Machine de caisse, distributeur automatique et analogues (1) selon au moins une revendication précédente, où ladite ouverture auxiliaire (4a) comprend une première ouverture auxiliaire (40a), apte à per-

mettre le passage d'une connexion électrique (6) dudit volume interne (2a) audit dispositif de convoyage (3).

3. Machine de caisse, distributeur automatique et analogues (1) selon au moins une revendication précédente, où ladite première partie (51) comprend une lumière définissant ladite première ouverture auxiliaire (40a).

4. Machine de caisse, distributeur automatique et analogues (1) selon au moins une revendication précédente, où ladite ouverture auxiliaire (4b) comprend une seconde ouverture auxiliaire (40b) apte à permettre les mouvements de ladite première partie (51) en évitant l'interférence d'autres objets à l'intérieur de la trajectoire de ladite première partie (51).

5. Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, où ladite partie auxiliaire (52) comprend une seconde partie auxiliaire (53b) apte à couvrir, au moins partiellement, ladite seconde ouverture auxiliaire (40b) et mobile en direction non parallèle à la trajectoire de ladite première partie (51).

6. Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, où ladite seconde partie auxiliaire (53b) est liée de manière mobile à ladite première partie (51).

7. Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, comprenant des premiers moyens auxiliaires de manutention (51a, 52a) respectivement liés à ladite première partie auxiliaire (51, 52) et à proximité d'une paroi dudit coffre-fort (2), lesdits premiers moyens auxiliaires de manutention (51a, 52a) étant aptes à manutentionner ladite partie respective (51, 52) indépendamment l'une de l'autre.

8. Machine de caisse, distributeur automatique et analogues (1) selon au moins une revendication précédente, comprenant une face externe (7) d'interaction avec le public, un orifice de distribution (9) pour lesdits billets et valeurs, placé sur ladite face externe (7), et un corps allongé (8), reliant ladite ouverture (4) avec ledit orifice de distribution (9) et définissant un espace principal le long duquel ledit dispositif de convoyage (3) est manutentionné.

9. Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, comprenant une seconde barrière (59), apte à fermer ledit orifice de distribution (9).

10. Machine de caisse, distributeur automatique et analogues (1) selon au moins une revendication de 2 à

7, comprenant des moyens d'actionnement rapide pour ladite partie auxiliaire (52) aptes à fermer ladite ouverture auxiliaire (4a) rapidement en cas d'alarme.

11. Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, où lesdits moyens d'actionnement rapide pour ladite partie auxiliaire (52) sont choisis entre des activateurs pyrotechniques et des activateurs à pression.

12. Procédé d'activation de machine de caisse, distributeur automatique et analogues (1), ladite machine de caisse, distributeur automatique et analogues (1) comprenant :

- un coffre-fort (2) définissant un volume interne (2a),

- un dispositif de convoyage (3), apte à convoyer des billets et des valeurs dudit volume interne (2a) à l'extérieur et/ou vice versa,

- une ouverture (4) dudit coffre-fort (2), apte à permettre le passage dudit dispositif de convoyage (3),

- un dispositif de sécurité (5) apte à fermer au moins partiellement ladite ouverture (4), et **caractérisé en ce que** ledit dispositif de sécurité (5) comprend une première barrière (50) pour ladite ouverture (4), ladite première barrière (50) comprenant :

- une première partie (51) constituée d'une barrière mobile par rapport à ladite ouverture (4), apte à fermer partiellement ladite ouverture (4) et comprenant ladite au moins une ouverture auxiliaire (4a, 4b),

- au moins une partie auxiliaire (52) constituée d'une barrière mobile par rapport à ladite ouverture (4) et à ladite première partie (51) et apte à fermer ladite au moins une ouverture auxiliaire (4a),

où ladite première barrière (50) est disponible dans :

une configuration d'ouverture, dans laquelle ladite première barrière (50) maintient ladite ouverture (4) ouverte pour le passage dudit dispositif de convoyage (3), lorsque ledit dispositif de convoyage passe à travers ladite ouverture, une configuration de fermeture, où ladite première barrière (50) ferme totalement, ou au moins à 70 %, ladite ouverture (4), lorsque ledit dispositif de convoyage est dans ledit volume interne,

une configuration de convoyage, dans laquelle ladite ouverture (4), est seulement partiellement fermée et une ouverture auxiliaire (4a) est maintenue ouverte, lorsque ledit dispositif de convoyage est à l'extérieur,

ledit procédé étant **caractérisé en ce que**, dans des conditions de non utilisation, ladite première barrière (50) est disposée dans la configuration de fermeture.

5 13. Procédé d'activation de Machine de caisse, distributeur automatique et analogues (1) selon la revendication précédente, où ladite machine de caisse, distributeur automatique et analogues (1) comprend des moyens d'alarme et/ou des capteurs de manipulation et/ou d'accéléromètres ou similaires et où, lorsque lesdits moyens signalent une condition de danger ou de manipulation, ladite première barrière (50) est disposée en configuration de fermeture indépendamment de la position de ladite connexion électrique (6).

14. Procédé d'activation de machine de caisse, distributeur automatique et analogues (1) selon la revendication 12 ou 13, où ledit Machine de caisse, distributeur automatique et analogues (1) comprend une face externe (7) d'interaction avec le public, un orifice de distribution (9) pour lesdits billets et valeurs, placé sur ladite face externe (7), un corps allongé (8), reliant ladite ouverture (4) avec ledit orifice de distribution (9) et définissant un espace principal le long duquel est manutentionné ledit dispositif de convoyage (3) et une seconde barrière (59), apte à fermer ledit orifice de distribution (9), et où, pendant le passage dudit dispositif de convoyage (3) dudit volume interne (2a) audit orifice de distribution (9), au moins une entre ladite seconde barrière (59) et ladite première partie (51) est en position de fermeture.

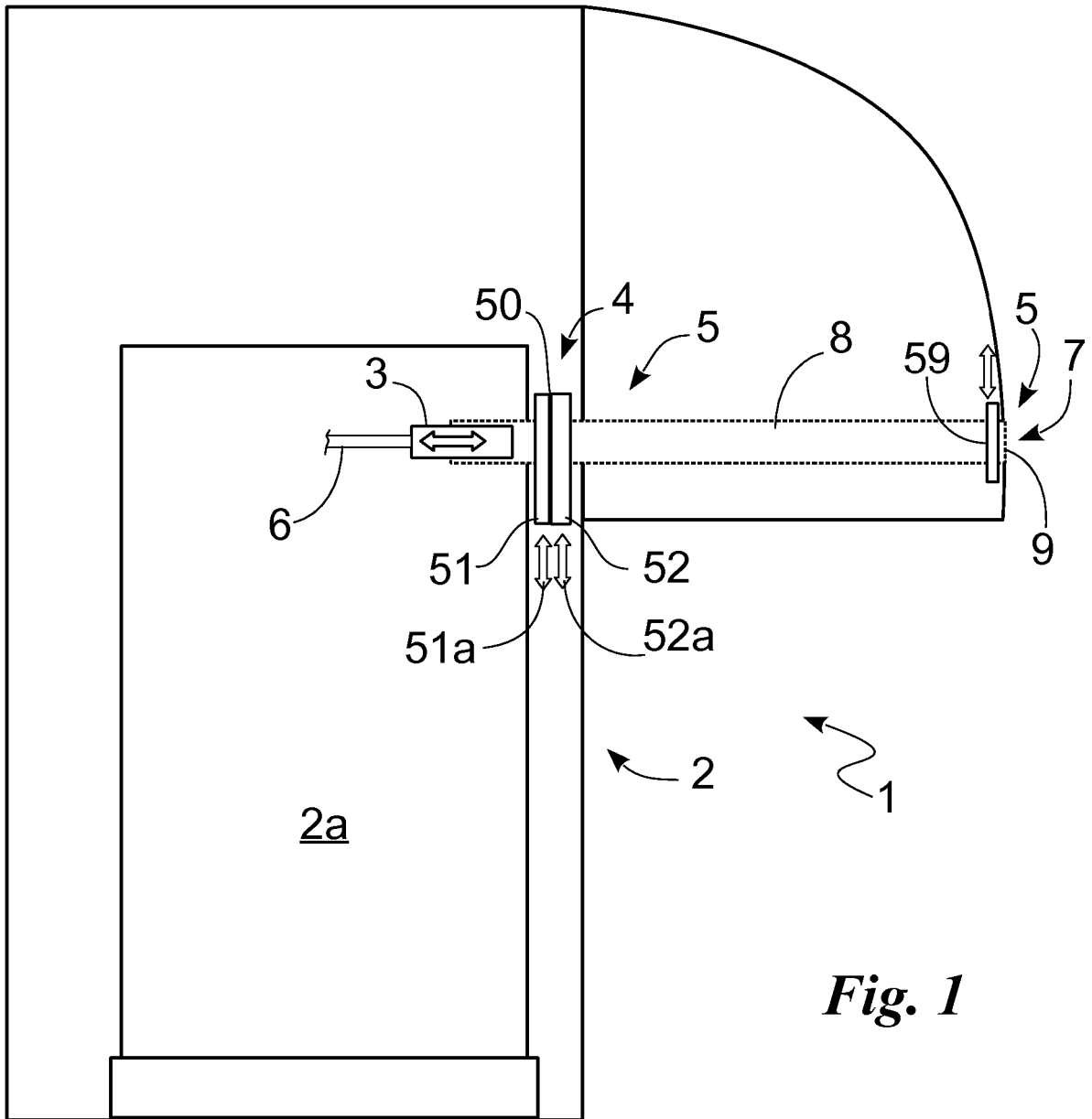


Fig. 1

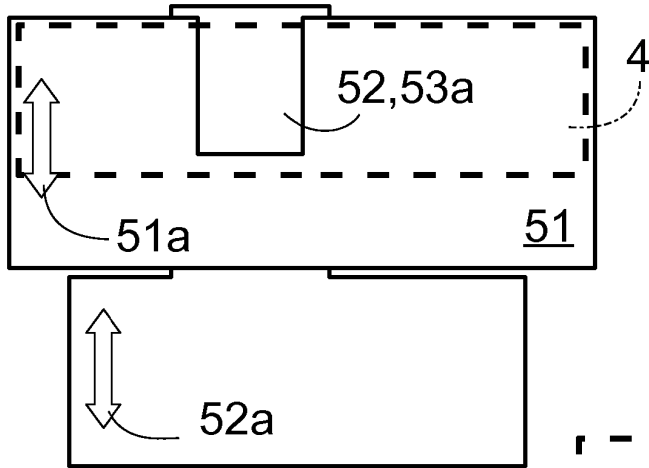


Fig. 2a

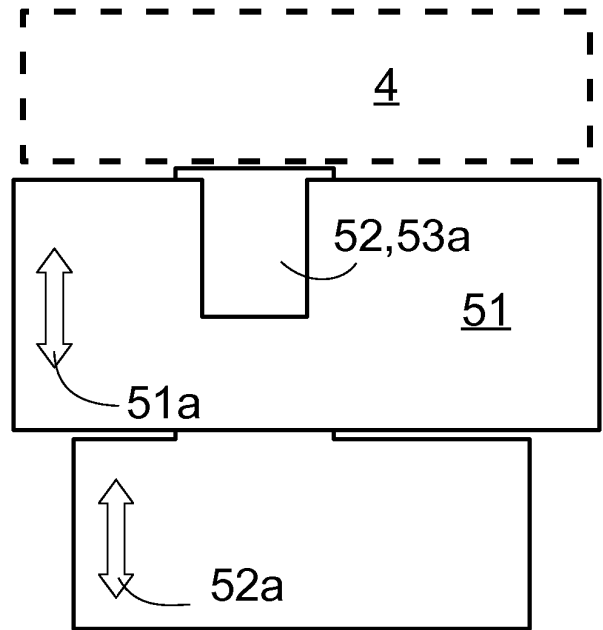


Fig. 2b

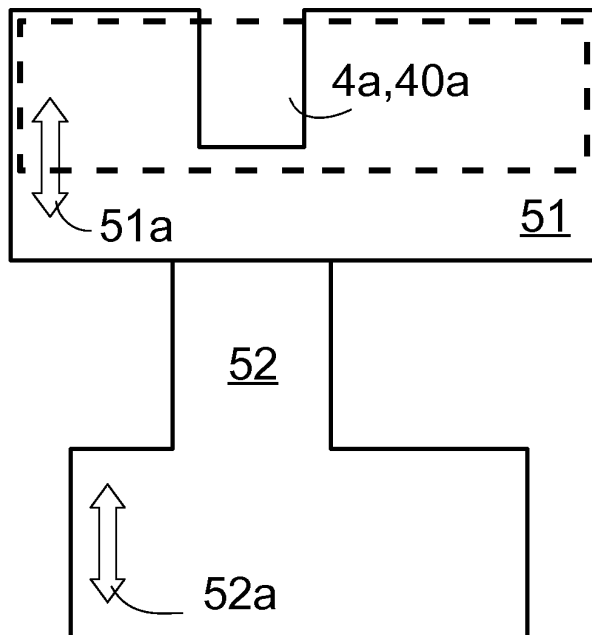


Fig. 2c

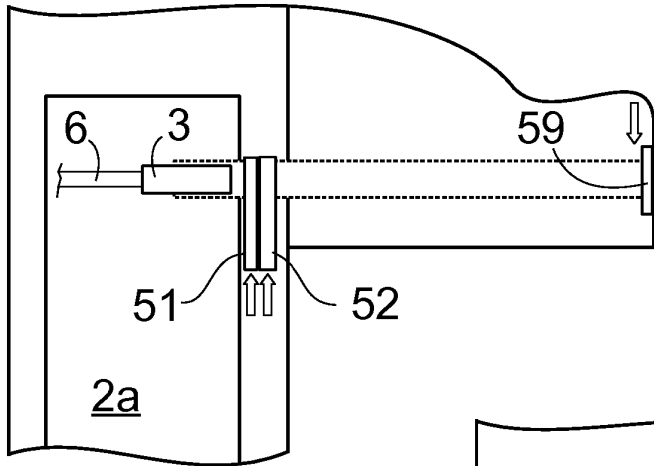


Fig. 3a

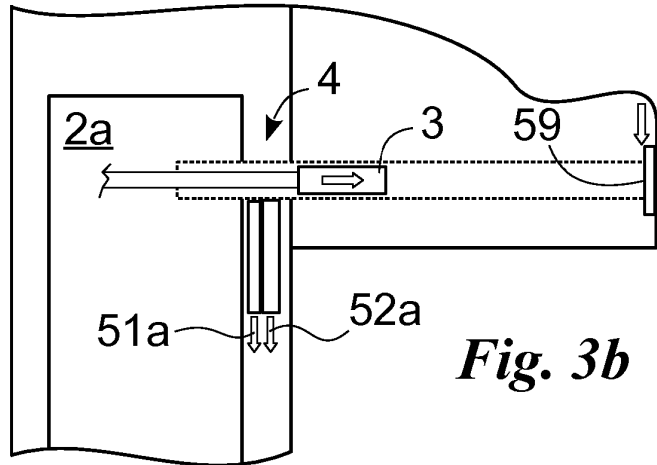


Fig. 3b

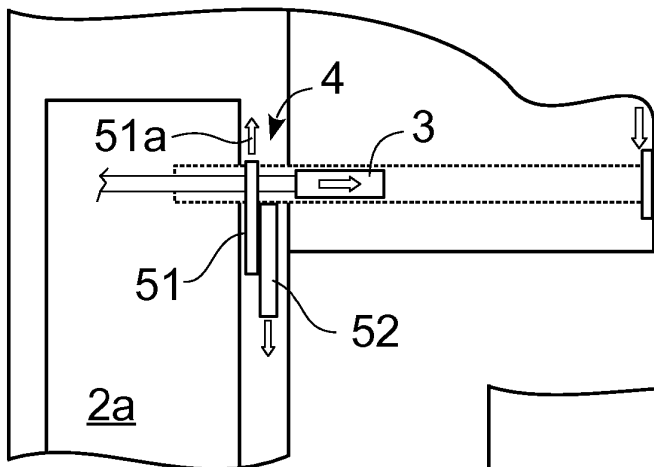


Fig. 3c

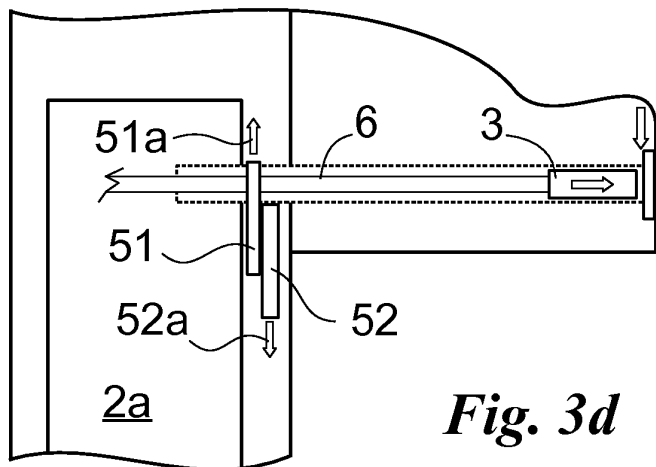


Fig. 3d

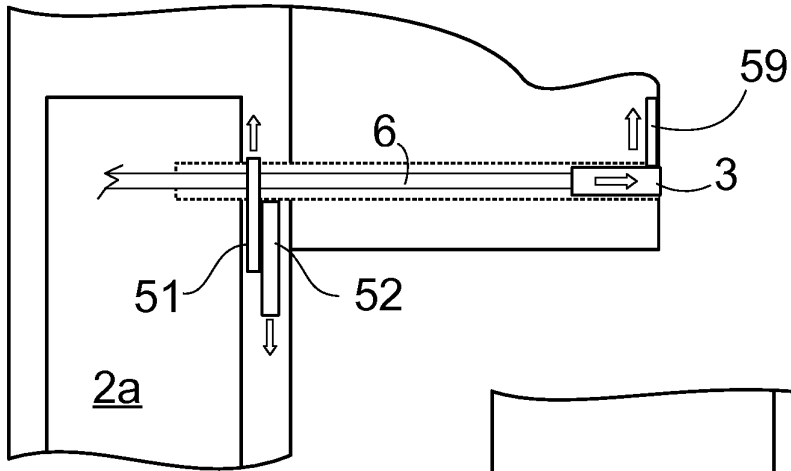


Fig. 3e

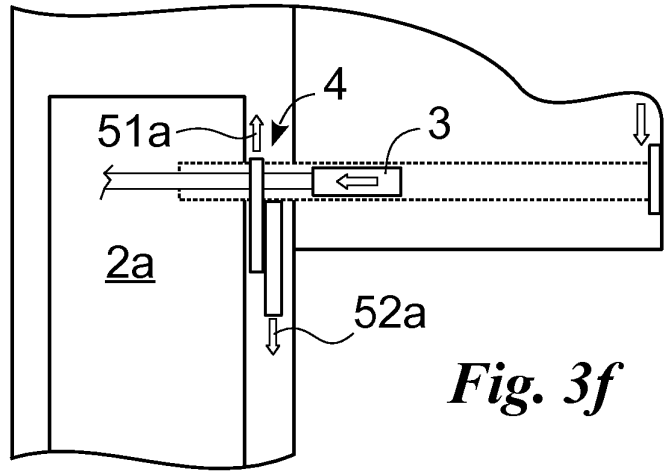


Fig. 3f

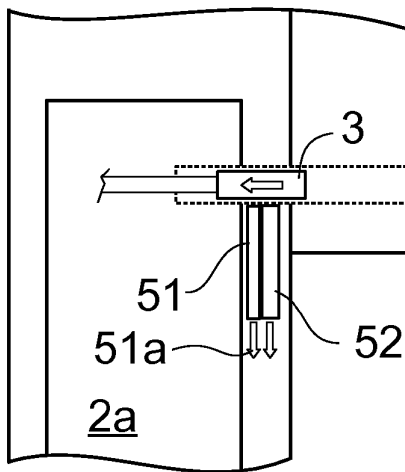


Fig. 3g

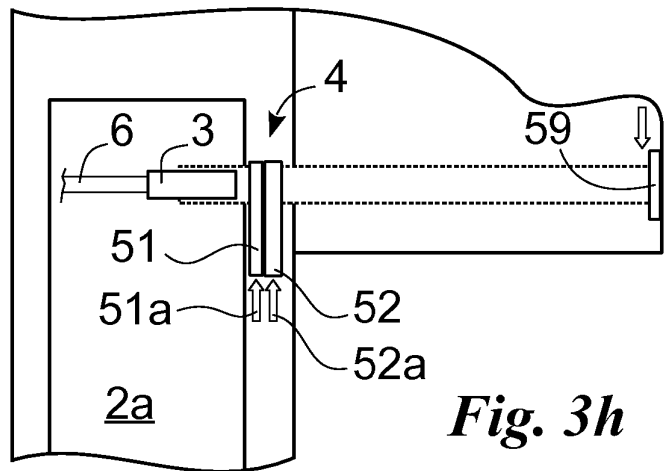


Fig. 3h

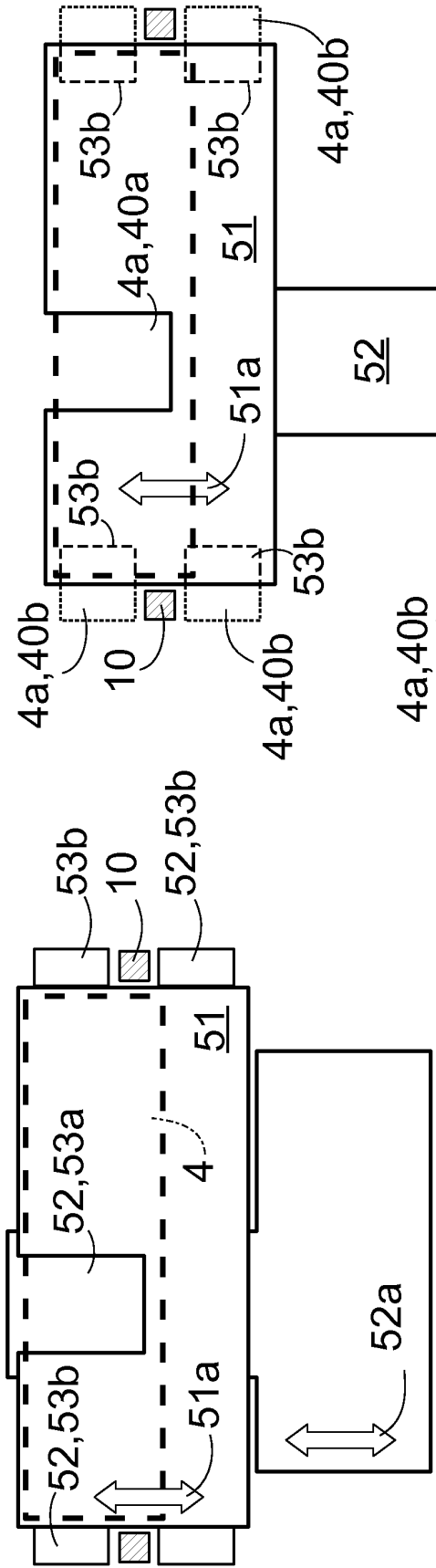


Fig. 4a

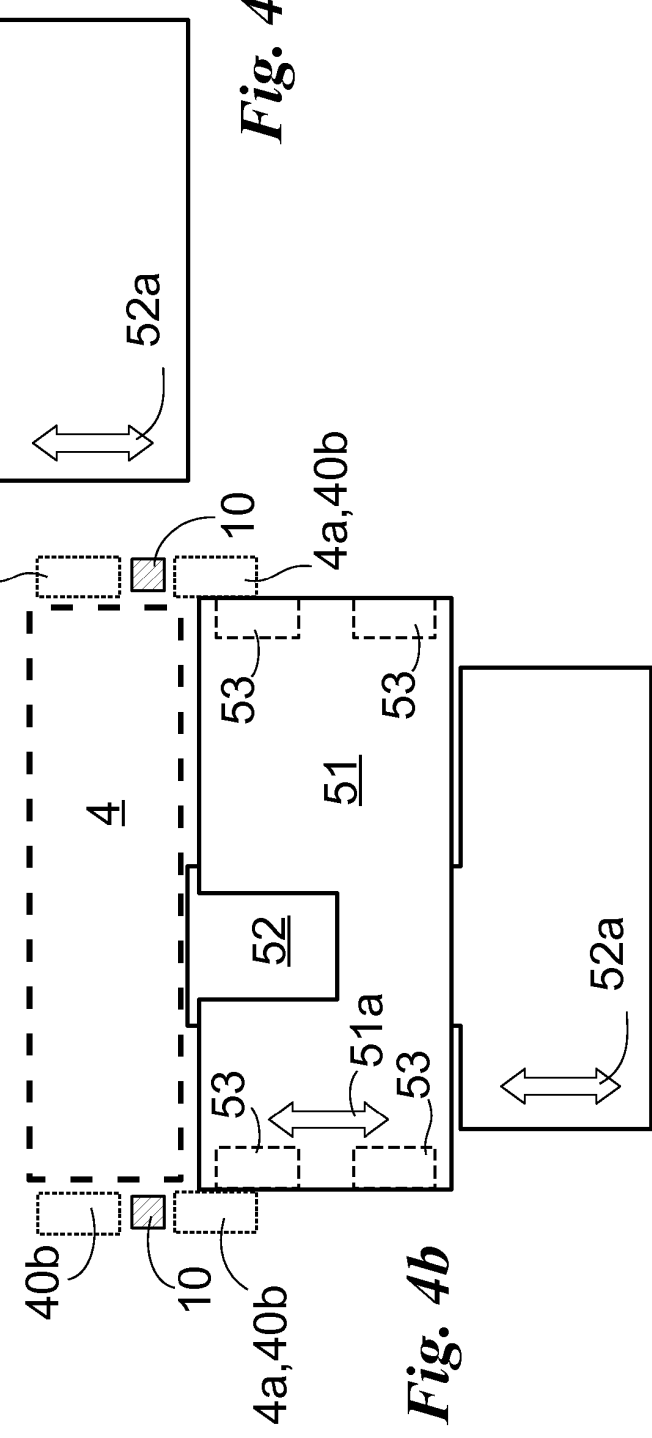


Fig. 4b

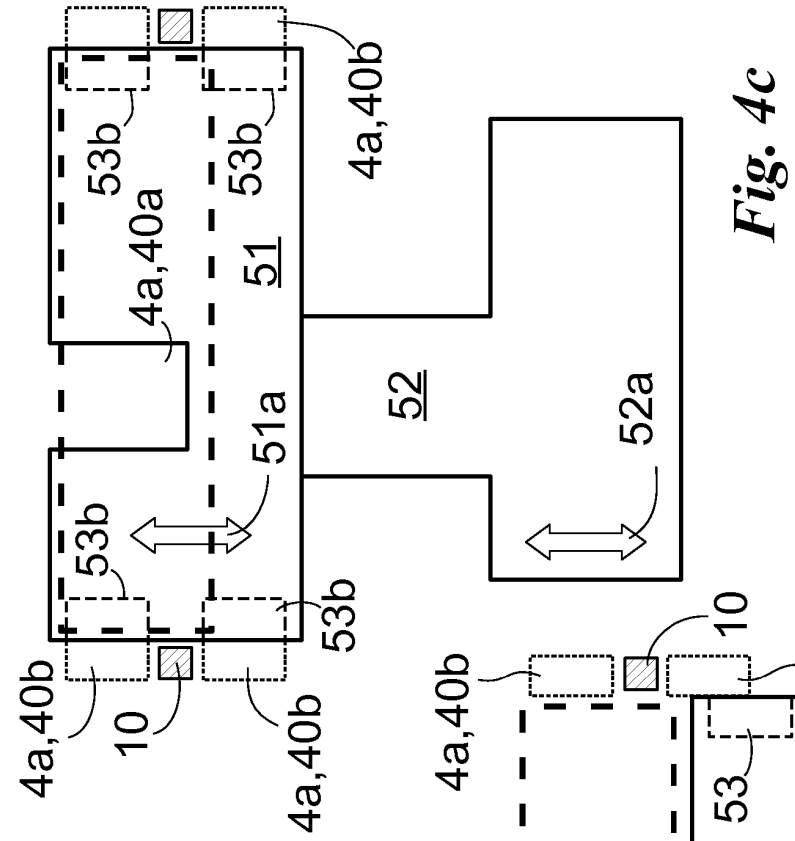
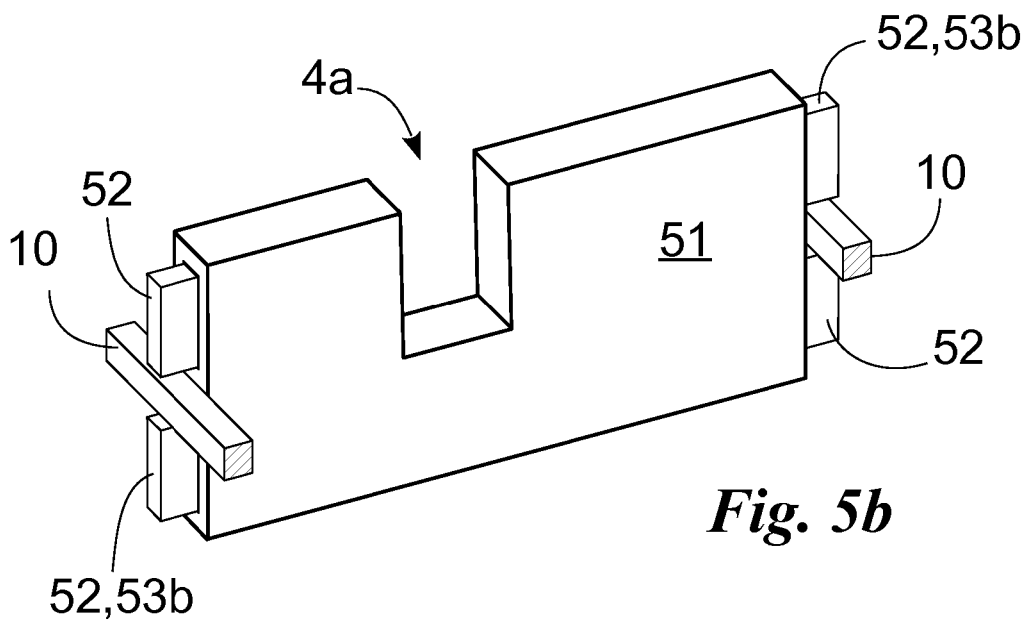
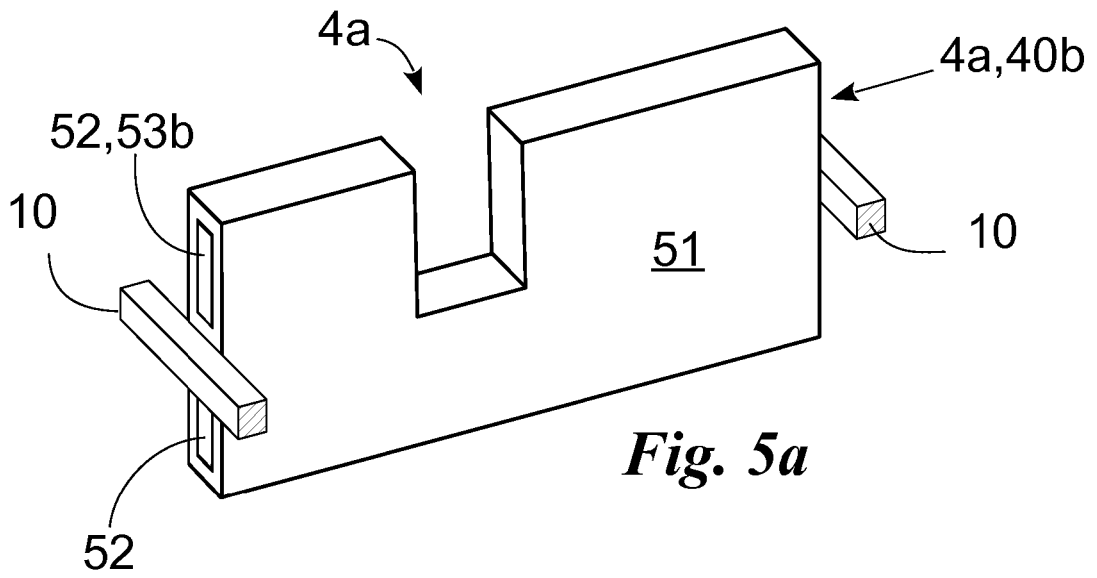


Fig. 4c



REFERENCES CITED IN THE DESCRIPTION

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