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(54) CABINET COMPRISING DRAWERS AND A SNAP FIT LOCK MECHANISM

SCHRANK MIT SCHUBLADEN UND EINEM SCHNAPPSCHLOSSMECHANISMUS

ARMOIRE COMPRENANT DES TIROIRS ET UN MÉCANISME DE VERROUILLAGE ENCLIQUETABLE

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(56) References cited:
US-A1- 2008 278 043
US-A1- 2011 140 831
US-A1- 2014 167 574
US-A1- 2015 240 531

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Description

FIELD OF THE INVENTION

[0001] The invention deals with a cabinet comprising at least one drawer.

STATE OF THE ART

[0002] US Patent Application Publication 2014/0167574 to Schoenfeld discloses a file cabinet that permits a user to access to a single drawer/locked compartment at a time. The cabinet includes a at least one pull-out drawer with a lock mechanism that self locks when the drawer is pushed in and closed, and has an electro-mechanical servo to release the drawer for authorized access.

[0003] As disclosed in Schoenfeld, it is known to have a cabinet comprising a housing, a drawer able to slide relative to the housing between an open position and a closed position, and locking means for locking the drawer to the housing so as to retain the drawer in the closed position, and for unlocking the drawer from the housing, so as to allow the drawer to leave the closed position.

[0004] For this purpose, the locking means comprises a notch formed in the drawer, and a bar mounted on the housing which slides relative to the housing in a vertical direction. When the drawer is in the closed position, the bar is in front of the notch.

[0005] Once the drawer has reached the closed position, the bar can be caused, by means of an actuator comprising a key lock, to slide in the notch in order to lock the drawer. To unlock the drawer, the bar is caused to slide out of the notch by means of the same actuator.

[0006] However, a drawback of this cabinet is that a user must perform two subsequent actions to get the drawer locked: first, sliding the drawer into the closed position, then using the key lock.

[0007] Another drawback of this cabinet is that the drawer cannot be locked if it has not reached the closed position, since in such case the notch is not in front of the bar. As a consequence, a user has to ensure that the drawer has reached the closed position before using the key lock, which is uncomfortable.

SUMMARY OF THE INVENTION

[0008] The purpose of the invention is to lock a drawer in a cabinet in an easier manner.

[0009] For this purpose, it is proposed a cabinet comprising:

- a housing,
- a first drawer arranged to slide relative to the housing between an open position and a closed position,
- a first snap fit lock mechanism for locking automatically the first drawer to the housing when the first drawer reaches the closed position, so as to retain the first drawer in the closed position, and
- an actuator for causing the first snap fit lock mechanism to unlock the first drawer from the housing, so as to allow the first drawer to leave the closed position.

[0010] The cabinet may comprise the following optional features taken alone or in combination when it is technically feasible.

[0011] The first snap fit lock mechanism comprises a first locking member mounted on the first drawer and a second locking member mounted on the housing, wherein one of the first locking member and the second locking member is moveable between an engaged position, wherein the second locking member is engaged with the first locking member while the first drawer is in the closed position, and a disengaged position, wherein the second locking member is disengaged from the first locking member allowing the drawer to slide relative to the housing.

[0012] The actuator may be configured to move said one locking member from the engaged position to the disengaged position and maintain said one locking member in the disengaged position for a predetermined duration.

[0013] The first snap lock mechanism may comprise a resilient member arranged for urging the said one locking member towards the engaged position.

[0014] The first locking member may protrude from a back of the first drawer.

[0015] The cabinet comprises a shutter arranged between the first drawer and the second locking element at least partially, wherein the shutter comprises an opening to allow the first locking element pass through the shutter.

[0016] The second locking member may be rotatably moveable relative to the housing between the engaged position and the disengaged position.

[0017] One of the first locking member and the second locking member may comprises a hook, and the other of the first locking member and the second locking member may define a recess for receiving the hook.

[0018] The actuator may comprise a sliding pen which is adapted for urging the second locking member towards the disengaged position.

[0019] The housing may comprise a back wall towards which the first drawer gets closer when sliding towards the closed position, and wherein the actuator is arranged between the back of the first drawer and the back wall of the housing.

[0020] The actuator may be motorized.

[0021] The cabinet may further comprise a radio communication interface, for instance of NFC type, for receiving a control signal, and a controller configured to operate the motorized actuator such that the actuator unlocks the first snap fit lock mechanism when the control signal is received.

[0022] The actuator may comprise a key lock adapted

to cooperate with a key for manually operating the actuator.

[0023] The cabinet may further comprise:

- a second drawer arranged to slide relative to the housing between an open position and a closed position,
- a second snap fit lock mechanism for locking automatically the second drawer to the housing when the second drawer reaches the closed position, so as to retain the second drawer in the closed position, and

wherein the actuator is adapted for causing the second snap fit lock mechanism to unlock the second drawer from the housing, so as to allow the second drawer to leave the closed position.

[0024] The first snap fit lock mechanism comprises a first locking member mounted on the first drawer and a second locking member mounted on the housing, and the second snap fit lock mechanism may comprise a third locking member mounted on the second drawer and the second locking member. In such embodiment, the second locking member is moveable between an engaged position wherein the second locking member is engaged with the first locking member and the third locking member while the first drawer and the second drawer are both in their closed position, and a disengaged position, wherein the second locking member is disengaged from the first locking member and from the third locking member allowing the drawers to slide relative to the housing.

[0025] The third locking member may protrude from a back of the second drawer.

[0026] The third locking member may comprise a hook, and the second locking member may comprise a folded bar defining a recess for receiving the hooks of the first and third locking members.

DESCRIPTION OF THE FIGURES

[0027] Further details, features and advantages of the invention are explained in more detail below with the aid of the exemplary embodiments of the invention that are illustrated in the figures in which:

- Figure 1 and 2 are two different perspective views of a cabinet according to an embodiment of the invention.
- Figures 3 and 4 are two different perspective views of components located within the cabinet shown on figure 1 and 2.
- Figures 5 and 6 are top views of a snap fit lock mechanism located in the cabinet of figures 1-4, in two different configurations.
- Figure 7 is another perspective view of components located within the cabinet shown on figure 1 and 2.

[0028] Similar features have identical numbers in all figures.

DETAILED DESCRIPTION OF AT LEAST ONE EMBODIMENT

1/ Description of a cabinet comprising drawers

[0029] Referring to figures 1 and 2, a cabinet 1 comprises a housing 2 and at least a first drawer 4a and at least a second drawer 4b. The cabinet comprises for instance six drawers 4a-4f.

[0030] The housing 2 comprises a bottom 6, a top 8, two side walls 10, 12 and a back wall 14.

[0031] The two side walls 10, 12 and the back wall 14 extend vertically and connect the bottom 6 to the top 8. The back wall 14 interconnects the two side walls 10, 12.

[0032] The housing 2 defines at least a cavity located between the bottom 6 and the top 8, and between the two side walls 10, 12, wherein the drawers 4a-4f can slide.

[0033] The housing 2 further defines at least one front opening for accessing the cavity. The front opening is opposite the back wall 14 relative to the cavity.

[0034] The cabinet 1 further comprises four feet 16 extending from the bottom 6 of the housing 2. Each foot is rotatably mounted on the bottom 6. The cabinet 1 further comprises four wheels 18 for rolling the cabinet 1 on a floor. Each wheel 18 is mounted on a corresponding foot 16.

[0035] The housing comprises a handle 20, for instance affixed to the top 8 of the housing 2. The handle 20 can be seized by a user for moving and steering the cabinet 1 mounted on wheels 18.

[0036] Each drawer 4a-4f comprises a front 22, a back 24, a bottom 26 and two lateral walls 28, 30 forming together a top-opened container.

[0037] All drawers 4a-4f have the same length measured in the sliding direction, and have the same width (which corresponds substantially to the distance between the two side walls 10, 12). However, the drawers 4a-4f may have various heights, so as to form top-opened containers have various storage volumes. In the embodiment depicted in figure 1, the drawers 4a-4d have a small storage volume, the drawer 4e has a larger storage volume and the drawer 4f, closest to the bottom 6, has an even larger storage volume.

[0038] Each drawer4a-4f is arranged to slide relative to the housing 2 between an open position and a closed position, in a sliding direction.

[0039] The front 22 of each drawer 4a-4f comprises a handle which can be seized by a user for sliding the drawer relative to the housing 2.

[0040] Each drawer 4a-4f is located at a specific altitude between the bottom 6 and the top 8. The drawers are located one above the others between the bottom 6 and the top 8 of the housing 2. They can slide independently relative to the housing 2.

[0041] In its open position, any of the drawers 4a-4f at least partially extends outside the housing 2, such that a user can access to the top-opened container formed by

this drawer.

[0042] When any of the drawers 4a-4f is moved from its open position to its closed position, the drawer gets closer to the back wall 14 of the housing 2.

[0043] In its closed position, any of the drawers 4a-4f is located between the bottom 6 and the top 8 of the housing 2, such that a user cannot access a content stored in the top-opened container. In its closed position, the back 24 of a drawer and the back panel 14 of the housing 2 remain spaced apart.

[0044] For instance, figure 1 shows top drawer 4a in its open position, and other drawers 4b-4f in their closed position. In figure 2, all drawers 4a-4f are in their closed position.

[0045] Now referring to **figures 3 and 4,** showing the cavity defined in the housing 2, the cabinet 1 comprises a first snap fit lock mechanism for locking automatically the first drawer 4a to the housing 2 when the first drawer 4a reaches the closed position, so as to retain the first drawer 4a in the closed position.

[0046] The first snap fit lock mechanism comprises a first locking member 32 mounted on the first drawer 4a, and a second locking member 34 mounted on the housing 2.

[0047] The first locking member 32 protrudes from the back 24 of the first drawer 4a. Such arrangement is advantageous in that the cabinet 1 cannot be easily broken by a user inserting a flat rod between two drawers in attempt to manually operate the first snap fit lock mechanism.

[0048] The first locking member 32 comprises for instance a hook 36. The hook 36 extends parallel to the bottom 26.

[0049] Referring to **figures 5 and 6,** the hook 36 comprises a first portion 38 extending towards the second locking element 34 in the sliding direction, and an end portion 40 extending from the first portion in a direction towards side wall 10. The end portion 40 comprises an outer slant 42 with respect to the sliding direction. The outer slant 42 faces the second locking member 34, so as to contact the second locking member 34 when the first drawer 4a is moved towards the closed position. The end portion further comprises an engaging surface 44 opposite the outer slant 42 relative to the end portion 40. The engaging surface 44 faces the first drawer 4a. The engaging surface 44 is designed to engage with a surface of the second locking member 34 which will be described later. As shown on figure 5, the hook 36 may have the form of a "1".

[0050] The second locking member 34 is moveable between an engaged position (visible on figure 5 and a disengaged position (visible on figure 6).

[0051] In the engaged position, the second locking member 34 is engaged with the first locking member 32. When the second locking member 34 is in the engaged position, while the first drawer 4a is in the closed position, the second locking member prevents the drawer 4a to leave the closed position.

[0052] In the disengaged position, the second locking member 34 is disengaged from the first locking member 32 allowing the drawer to slide relative to the housing 2.

[0053] The second locking member 34 extends vertically between the bottom 6 and the top 8 of the housing 2.

[0054] The second locking member 34 is rotatably moveable relative to the housing 2 between the engaged position and the disengaged position.

[0055] Referring to figure 4, the second locking member 34 is mounted on the bottom 6 and the top 8 of the housing 2 by means of a pivot 46, for instance made in polyamide, such that the rotation axis of the second locking member 34 is vertical.

[0056] The second locking member 34 comprises a folded bar 48 extending vertically between the bottom 6 and the top 8 of the housing 2. The folded bar 48 defines a recess 50 for receiving the end portion 40 of the hook 36 of the first drawer 4a.

[0057] More specifically, the folded bar 48 comprises an end portion 52 comprising an outer slant 54 facing the first locking member 32, and an engaging surface 56 opposite the outer slant 54. The inner surface partially defines the recess 50.

[0058] The outer slant 54 is arranged to face the outer slant 44 of the first locking member 32 when the first drawer 4a slides is in its closed position.

[0059] The folded bar 48 has a V-shaped profile in a plane parallel to the bottom 6 of the housing 2.

[0060] The second locking member 34 further comprises a primary support 58. The primary support 58 comprises an engaging surface oriented in a direction perpendicular to the sliding direction. The primary support 58 is affixed to the folded bar 48 at a first altitude.

[0061] The second locking member 34 further comprises a secondary support 60. Like the primary support 58, the secondary support 60 comprises an engaging surface oriented in a direction perpendicular to the sliding direction.

[0062] The secondary support 60 is affixed to the folded bar 48 at a second altitude different from the first altitude. The secondary support 60 is for instance closer to the bottom 6 of the housing 2 than the primary support, as shown in figure 4.

[0063] Besides, the first snap lock mechanism comprises a resilient member 62 arranged for urging the second locking member 34 towards the engaged position. The resilient member 62 is for instance a spring comprising a first end affixed to the folded bar 48 and a second end affixed to the housing 2.

[0064] Referring to figure 5, the cabinet 1 further comprises at least one actuator, for instance a primary actuator 64 and a secondary actuator 65, for causing the first snap fit lock mechanism to unlock the first drawer 4a from the housing 2, so as to allow the first drawer 4a to leave the closed position. Each actuator 64, 66 is configured to move the locking member 34 from the engaged position to the disengaged position.

[0065] The primary actuator 64 is a motorized actuator.

[0066] The primary actuator 64 is arranged in the cavity between the drawers 4a-4f and the back wall 14 of the housing 2.

[0067] The primary actuator 64 comprises a body 66 and a pen 68 able to slide relative to the body 66. The body 66 is affixed to an inner surface of the back wall 14. The pen 68 is adapted for pushing the primary support 58 of the locking member 34, when the locking member 34 is in the engaged position, so as to urge the locking member 34 towards the disengaged position.

[0068] The sliding pen 68 is arranged to slide parallel to the back wall 14 (i.e. perpendicularly to the sliding direction).

[0069] The cabinet 1 further comprises a radio communication interface 70, for instance of NFC type, is adapted to communicate with an object located outside, for instance a mobile terminal or a chip card. It is arranged in the top 8 of the housing 2, such that it can be visible on the front of the cabinet 1, as shown on figure 1.

[0070] The cabinet 1 further comprises a controller configured to operate the motorized actuator based on signals received by the radio communication interface 70. The controller is arranged in the cavity between the drawers and the back wall 14. The controller is for instance located in the body 66 of the actuator. At least one wire (not shown on the figures) makes the radio communication interface 70 and the controller communicate together.

[0071] The cabinet 1 further comprises a power supply 72 for supplying the controller, the radio communication interface 70 and the motorized actuator 64 with power.

[0072] The power supply 72 is arranged in the cavity between the drawers 4a-4f and the back wall 14 of the housing 2.

[0073] Besides, the secondary actuator 65 comprises a key lock 74 (visible on figures 1, 3, 4). The key lock 74 comprises a stator and a rotor rotatably mounted on the stator. The rotor is adapted to cooperate with a key for manually operating the secondary actuator 65.

[0074] The key lock 74 is arranged on the back wall 14 of the cabinet 1. The stator may for instance be affixed to the back wall 14.

[0075] The key lock 74 comprises a pin 76 moveable between a first position wherein the pin 76 pushes the secondary support 60, so as to urge the locking element 34 into its disengaged position despite the action of the resilient member 62, and a second position wherein the pin 76 is distant from the secondary support 60, such that the second locking element is free to reach its engaged position by means of the resilient member 62.

[0076] The pin 76 is for instance affixed to the rotor of the key lock 74 and is eccentric relative to a rotation axis of said rotor.

[0077] The cabinet 1 comprises additional snap fit mechanisms (one snap fit mechanism per drawer). Each snap fit lock mechanism is adapted for locking automatically one of the drawers 4a-4f to the housing 2 when said drawer reaches its closed position, so as to retain said drawer in the closed position. The cabinet 1 illustrated on the figures therefore comprises six snap fit lock mechanisms for locking the six drawers 4a-4f.

[0078] Each snap fit lock mechanism comprises a locking element mounted on a corresponding drawer. All locking elements mounted on drawers have a similar shape (for instance a hook protruding from the back of a drawer, like the hook 36 of the first drawer 4a).

[0079] However, all snap fit lock mechanisms have in common the locking element 34 mounted to the housing 2 described above comprising a folded bar 48. This locking element 34 allows all drawers 4a-4f, when in their closed position, to be unlocked from the housing in one single action. For this purpose, multiple locking elements mounted on different drawers 4a-4f can be simultaneously engaged with the locking element 34. When said multiple locking elements comprise a hook and when the locking element 34 defines a recess 50, end portions of said hooks can be received simultaneously in the recess 50 at different altitudes between the bottom 6 and the top 8 of the housing 2.

[0080] Referring to figure 7, the cabinet 1 further comprises a shutter 78 arranged to hide the second locking element 34 at least partially. The shutter 78 is arranged between the drawers 4a-4f and the second locking element 34.

[0081] The shutter 78 comprises a plate 80 extending parallel to the back wall between the bottom 6 and the top 8.

[0082] The shutter 78 also comprises at least one opening 82 arranged in the plate 80 between the first locking element 32 mounted on the first drawer 4a, and the second locking element 34. The opening 82 is arranged to receive the first locking element 32 and to allow the first locking element 32 to reach the second locking element 34 hidden behind the shutter 78, when the drawer 4a slides towards the closed position. The opening 82 is for example a horizontal slot sized in accordance with the hook 36.

[0083] The shutter 78 comprises as many openings as the number of drawers 4a-4f in the cabinet 1 (six openings in the embodiment illustrated in the figures). The openings are formed in the shutter 78 at different altitudes between the bottom 6 and the top 8. Each opening is arranged to receive the locking element mounted on a corresponding drawer and to allow said locking element to reach the second locking element 34 hidden behind the shutter 78.

[0084] Thanks to the shutter 78, a user inserting a flat rod between two drawers in attempt to manually operate the first snap fit lock mechanism cannot easily access the second locking element 34. The cabinet 1 is therefore even more difficult to break in.

[0085] The shutter 78 may also comprise a primary opening 84 in front of the primary support 58 and a secondary opening in front of the secondary support 60. Thanks to both openings 84 and 86, both supports 58 and 60 have enough space to pivot even if the shutter

78 is placed very close to the back wall 14.

2/ Use of the cabinet for closing or opening at least one drawer

[0086] Let us assume that the first drawer 4a is in its opened position, as shown in figure 1. At this stage, the hook 36 mounted on the back of the first drawer 4a is distant from the folded bar 48 rotatably mounted on the housing 2.

[0087] Besides, the sliding pen 68 is distant from the primary support 58, and the pin 76 is distant from the secondary support 60, such that the second locking member 34 is in its engaged position, by means of the resilient member 62.

[0088] The first drawer 4a can be locked to the housing 2 as follows.

[0089] A user pushes the first drawer 4a so as to make it slide in the sliding direction towards the back wall 14 of the housing 2. Therefore, the hook 36 mounted on the back of the first drawer 4a gets closer to the folded bar 48.

[0090] When the drawer 4a reaches an intermediate position between the opened position and the closed position, the outer slant 42 of the hook 36 mounted on the back 24 of the first drawer 4a contacts the outer slant 54 of the first locking member 32.

[0091] When the user pushes further the drawer 4a from the intermediate position towards the closed position, the hook 36 urges the folded bar 48 from its engaged position to its disengaged position while the outer slant of the first locking element slips along the outer slant of the second locking member 34.

[0092] Slightly before the first drawer 4a reaches the closed position, the outer slant 42 of the hook 36 leaves the outer slant 54 of the folded bar 48. As a consequence, the hook 36 does not urge the folded bar 48 anymore; the folded bar 48 is then free to move back in the engaged position. As a matter of fact, the folded bar 48 automatically returns in this engaged position by means of the resilient member 62. The end portion of the hook 36 enters the recess 50 formed by the folded bar 48. The folded bar 48 is now in its engaged position, while the first drawer 4a is in the closed position, as shown on figure 5.

[0093] When the first drawer is in the closed position, the end portion 40 of the hook 36 is located between the end portion 52 of the locking element 34 and the back wall 14. Moreover, engaging surfaces 44 and 56 face each other.

[0094] If the user ever attempts to move the first drawer 4a from the closed position towards the open position, the engaging surface 44 of the hook 36 will abut against the engaging surface 56 of the folded bar 48. In other words, the first drawer 4a is automatically locked to the housing 2 by the snap fit lock mechanism housing 2 when the first drawer 4a reaches the closed position, so as to retain the first drawer 4a in the closed position.

[0095] Any other drawer in its opened position can be moved in its closed position in the same manner. Once a second drawer has reached its closed position, the end portion of the hook of the second drawer is in the recess 50 formed in the folded bar 48 as well as the end portion of the hook 36 of the first drawer 4a. Both hooks simply engage the same folded bar 48 at different altitudes.

[0096] Many drawers 4a-4f can also be moved simultaneously from their opened position to their closed position. In this case, the end portions of their hooks will enter the recess 50 of the folded bar 48 substantially at the same time.

[0097] It can be noted that the primary actuator 64 is not used for closing and automatically locking any drawer 4a-4f in its closed position.

[0098] Opening at least one of the drawers 4a-4f, for instance the first drawer 4a, can be carried out by means of the primary actuator 64 as follows.

[0099] First, the radio communication interface 70 can receive a radio signal emitted by a chip card or a mobile terminal held by a user, wherein the radio signal is designed to trigger such opening.

[0100] The radio signal is then transmitted by the radio communication interface 70 to the controller. Upon receiving the radio signal, the controller operates the primary actuator 64 so as to slide the pen 68 towards the primary support 58 of the folded bar 48 relative to the body 66. The sliding pen 68 pushes the primary support 58 such that the second locking element 34 is moved from the engaged position into the disengaged position. In this movement, the hook 36 is moved out of the recess 50 formed by the folded bar 48, and the resilient member 62 stretches.

[0101] Once the second locking member 34 has reached the disengaged position, as shown in figure 6, the engaging surface 56 of the folded bar 48 does not face anymore the engaging surface 44 of any hook mounted on a drawer, especially the hook 36 mounted on the first drawer 4a.

[0102] The primary actuator 64 maintains the second locking member 34 in the disengaged position for a period of predetermined duration. This predetermined duration can be programmed in the controller by means of a timer. This duration preferably depends on the number of drawers 4a-4f of the cabinet 1. This duration is for instance equal to kT, wherein k is the number of drawers, and T is greater than 5 seconds.

[0103] The predetermined duration can be set by a user by means of an appropriate configuration signal received by the radio communication interface 70 and transmitted to the controller.

[0104] During this period, the user can pull the first drawer 4a or any other drawer 4b-4f from the closed position to the opened position.

[0105] When this period expires, the actuator ceases to maintain the second locking member 34 in the disengaged position. Thus, the resilient member 62 causes the second locking member 34 to pivot into the engaged position.

[0106] If the user has not pulled the first drawer 4a in

this period, the hook 36 moves back into the recess 50 formed by the folded bar 48. Therefore, the drawer is automatically relocked relative to the housing 2.

[0107] If the first drawer 4a has left the closed position before the period of predetermined duration expires, the second locking element 34 pivots into the engaged position while the hook 36 is outside the recess 50 formed in the folded bar 48. Therefore, the drawer 4a can slide in the sliding direction towards the opened position or the closed position.

[0108] Opening the first drawer 4a can be also carried out by means of the secondary actuator 65 as follows.

[0109] A user inserts a key in the rotor of key lock 74.

[0110] When the user manually rotates the key and the rotor relative to the stator of the key lock 74, the eccentric pin 76 moves as well around the rotation axis of the rotor and pushes the secondary support 60, such that the second locking element 34 is moved from its engaged position into the disengaged position. In this movement, the hook 36 is moved out of the recess 50 formed by the folded bar 48, and the resilient member 62 stretches. Once the locking member 34 has reached its disengaged position, the engaging surface 56 of the folded bar 48 does not face anymore the engaging surface 44 of the hook 36.

[0111] In the disengaged position, the forces applied by the resilient member 62 and by the pin 76 to the second locking element 34 compensate, such that the second locking element 34 can remain in the disengaged position even if the user releases the key inserted in the key lock 74.

[0112] From this point on, the user can pull the first drawer 4a or any other drawer 4b-4f towards in its opened position.

[0113] This secondary actuator 65 can be advantageously used instead of the primary actuator 64, if the primary actuator 64 does not work properly (because of an internal failure or if the power supply 72 runs out of power).

[0114] Later on, the user can rotate back the key relative to the key lock 74, so as to cause the pin 76 to move away from the secondary support 60. Thus, the second locking element 34 is urged towards its engaged position by the resilient member 62. Any drawer 4a-4f of the cabinet 1 in its closed position will be retained in its closed position, whereas any drawer 4a-4f of the cabinet 1 which is not in its closed position will be free to slide in the sliding direction either towards the opened position or the closed position.

Claims

1. A cabinet comprising:

a housing (2);
a first drawer (4a) arranged to slide relative to the housing (2) between an open position and a closed position;
a first snap fit lock mechanism for locking automatically the first drawer (4a) to the housing (2) when the first drawer (4a) reaches the closed position, so as to retain the first drawer (4a) in the closed position, and comprising

a first locking member (32) mounted on the first drawer (4a);
a second locking member (34) mounted on the housing (2); and
wherein one of the first locking member and the second locking member is moveable between an engaged position, wherein the second locking member (34) is engaged with the first locking member (32) while the first drawer (4a) is in the closed position, and a disengaged position, wherein the second locking member (34) is disengaged from the first locking member (32) allowing the drawer to slide relative to the housing (2);

an actuator (64, 65) for causing the first snap fit lock mechanism to unlock the first drawer (4a) from the housing (2), so as to allow the first drawer (4a) to leave the closed position; and
characterized in that the cabinet further comprises a shutter (78) arranged between the first drawer (4a) and the second locking element (34) at least partially, wherein the shutter comprises an opening (82) to allow the first locking element (34) to pass through the shutter (78).

2. Cabinet according to claim 1, wherein the actuator (64, 65) is configured to move said one of the first locking member (32) and the second locking member (34) from the engaged position to the disengaged position and maintained in the disengaged position for a predetermined duration.

3. Cabinet according to any of the preceding claims, wherein the first snap lock mechanism further comprises a resilient member (62) arranged for urging the said one locking member towards the engaged position.

4. Cabinet according to any of the preceding claims, wherein the first locking member (32) protrudes from a back of the first drawer (4a).

5. Cabinet according to any of the preceding claims, wherein the second locking member (34) is rotatably moveable relative to the housing (2) between the engaged position and the disengaged position.

6. Cabinet according to any of the preceding claims, wherein one of the first locking member (32) and the

second locking member (34) comprises a hook (36), and wherein the other of the first locking member (32) and the second locking member (34) defines a recess (50) for receiving the hook (36).

7. Cabinet according to any of the preceding claims , wherein the actuator (64, 65) comprises a sliding pen which is adapted for urging the second locking member (34) towards the disengaged position.

8. Cabinet according to any of the preceding claims, wherein the housing (2) comprises a back wall towards which the first drawer (4a) gets closer when sliding towards the closed position, and wherein the actuator (64, 65) is arranged between the back of the first drawer (4a) and the back wall of the housing (2).

9. Cabinet according to any of the preceding claims, wherein the actuator (64, 65) is motorized.

10. Cabinet according to claim 9, wherein the cabinet further comprises:

a radio communication interface (70), for instance of NFC type, for receiving a control signal,
a controller configured to operate the motorized actuator (64, 65) such that the actuator (64, 65) unlocks the first snap fit lock mechanism when the control signal is received.

11. Cabinet according to any of the preceding claims, wherein the actuator (64, 65) comprises a key lock adapted to cooperate with a key for manually operating the actuator (64, 65).

12. Cabinet according to any of the preceding claims, further comprising
a second drawer (4b-4f) arranged to slide relative to the housing (2) between an open position and a closed position,
a second snap fit lock mechanism for locking automatically the second drawer (4b-4f) to the housing (2) when the second drawer (4b-4f) reaches the closed position, so as to retain the second drawer (4b-4f) in the closed position, and
wherein the actuator (64, 65) is adapted for causing the second snap fit lock mechanism to unlock the second drawer (4b-4f) from the housing (2), so as to allow the second drawer (4b-4f) to leave the closed position.

13. Cabinet according to claim 12, wherein the first snap fit lock mechanism comprises:

a first locking member (32) mounted on the first drawer (4a),
a second locking member (34) mounted on the housing (2),
and wherein the second snap fit lock mechanism comprises:

a third locking member mounted on the second drawer (4b-4f),
the second locking member (34),
wherein the second locking member (34) is moveable between an engaged position wherein the second locking member (34) is engaged with the first locking member (32) and the third locking member while the first drawer (4a) and the second drawer (4b-4f) are both in their closed position, and a disengaged position, wherein the second locking member (34) is disengaged from the first locking member (32) and from the third locking member allowing the drawers to slide relative to the housing (2).

14. Cabinet according to claim 13, wherein the third locking member protrudes from a back of the second drawer (4b-4f).

15. Cabinet according to any of claims 13 to 14, wherein the third locking member comprises a hook, and wherein the second locking member (34) comprises a folded bar defining a recess (50) for receiving the hooks of the first and third locking members.

Patentansprüche

1. Schrank, umfassend:

ein Gehäuse (2);
eine erste Schublade (4a), die so angeordnet ist, dass sie in Bezug auf das Gehäuse (2) zwischen einer offenen Position und einer geschlossenen Position gleitet;
einen ersten Schnappverschluss-Arretiermechanismus zum automatischen Arretieren der ersten Schublade (4a) an dem Gehäuse (2), wenn die erste Schublade (4a) die geschlossene Position erreicht, um die erste Schublade (4a) in der geschlossenen Position zurückzuhalten, und umfassend

ein erstes Verriegelungselement (32), das auf der ersten Schublade (4a) angebracht ist;
ein zweites Verriegelungselement (34), das auf dem Gehäuse (2) angebracht ist; und
wobei eines des ersten Verriegelungselements und des zweiten Verriegelungselements bewegbar ist zwischen einer Eingriffsposition, in der das zweite Verriege-

lungselement (34) in das erste Verriegelungselement (32) eingreift, während sich die erste Schublade (4a) in der geschlossenen Position befindet, und einer Freigabeposition, in der das zweite Verriegelungselement (34) vom ersten Verriegelungselement (32) gelöst ist, wodurch die Schublade in Bezug auf das Gehäuse (2) gleiten kann;

eine Betätigungsvorrichtung (64, 65), um den ersten Schnappverschluss-Arretiermechanismus zu veranlassen, die erste Schublade (4a) vom Gehäuse (2) zu entriegeln, sodass die erste Schublade (4a) die geschlossene Position verlassen kann; und

dadurch gekennzeichnet, dass der Schrank weiter eine Blende (78) umfasst, die zwischen der ersten Schublade (4a) und dem zweiten Verriegelungselement (34) mindestens teilweise angeordnet ist, wobei die Blende eine Öffnung (82) umfasst, sodass das erste Verriegelungselement (34) die Blende (78) durchsetzen kann.

2. Schrank nach Anspruch 1, wobei die Betätigungsvorrichtung (64, 65) ausgestaltet ist, das eine des ersten Verriegelungselements (32) und des zweiten Verriegelungselements (34) von der Eingriffsposition in die Freigabeposition zu bewegen und in der Freigabeposition für eine vorbestimmte Dauer zu halten.

3. Schrank nach einem der vorstehenden Ansprüche, wobei der erste Schnappverschluss-Arretiermechanismus weiter ein elastisches Element (62) umfasst, das angeordnet ist, um das eine Verriegelungselement zu der Eingriffsposition zu drängen.

4. Schrank nach einem der vorstehenden Ansprüche, wobei das erste Verriegelungselement (32) von einer Rückseite der ersten Schublade (4a) vorragt.

5. Schrank nach einem der vorstehenden Ansprüche, wobei das zweite Verriegelungselement (34) in Bezug auf das Gehäuse (2) zwischen der Eingriffsposition und der Freigabeposition drehbar beweglich ist.

6. Schrank nach einem der vorstehenden Ansprüche, wobei eines des ersten Verriegelungselements (32) und des zweiten Verriegelungselements (34) einen Haken (36) umfasst, und wobei das andere des ersten Verriegelungselements (32) und des zweiten Verriegelungselements (34) eine Aussparung (50) zum Aufnehmen des Hakens (36) definiert.

7. Schrank nach einem der vorstehenden Ansprüche, wobei die Betätigungsvorrichtung (64, 65) einen Gleitstift umfasst, der angepasst ist, um das zweite Verriegelungselement (34) zu der Freigabeposition zu drängen.

8. Schrank nach einem der vorstehenden Ansprüche, wobei das Gehäuse (2) eine Rückwand umfasst, der sich die erste Schublade (4a) nähert, wenn sie zu der geschlossenen Position gleitet, und wobei die Betätigungsvorrichtung (64, 65) zwischen der Rückseite der ersten Schublade (4a) und der Rückwand des Gehäuses (2) angeordnet ist.

9. Schrank nach einem der vorstehenden Ansprüche, wobei die Betätigungsvorrichtung (64, 65) motorisiert ist.

10. Schrank nach Anspruch 9, wobei der Schrank weiter umfasst:

eine Funkkommunikationsschnittstelle (70), zum Beispiel vom Typ NFC, zum Empfangen eines Steuersignals,
eine Steuerung, die ausgestaltet ist, die motorisierte Betätigungsvorrichtung (64, 65) so zu betreiben, dass die Betätigungsvorrichtung (64, 65) den ersten Schnappverschluss-Arretiermechanismus entriegelt, wenn das Steuersignal empfangen wird.

11. Schrank nach einem der vorstehenden Ansprüche, wobei die Betätigungsvorrichtung (64, 65) ein Schlüsselschloss umfasst, um mit einem Schlüssel zum manuellen Betreiben der Betätigungsvorrichtung (64, 65) zusammenzuwirken.

12. Schrank nach einem der vorstehenden Ansprüche, weiter umfassend
eine zweite Schublade (4b-4f), die so angeordnet ist, dass sie in Bezug auf das Gehäuse (2) zwischen einer offenen Position und einer geschlossenen Position gleitet;
einen zweiten Schnappverschluss-Arretiermechanismus zum automatischen Arretieren der zweiten Schublade (4b-4f) an dem Gehäuse (2), wenn die zweite Schublade (4b-4f) die geschlossene Position erreicht, um die zweite Schublade (4b-4f) in der geschlossenen Position zurückzuhalten, und
wobei die Betätigungsvorrichtung (64, 65) angepasst ist, um den zweiten Schnappverschluss-Arretiermechanismus zu veranlassen, die zweite Schublade (4b-4f) vom Gehäuse (2) zu entriegeln, sodass die zweite Schublade (4b-4f) die geschlossene Position verlassen kann.

13. Schrank nach Anspruch 12, wobei der erste Schnappverschluss-Arretiermechanismus umfasst:

ein erstes Verriegelungselement (32), das auf der ersten Schublade (4a) angebracht ist,

ein zweites Verriegelungselement (34), das auf dem Gehäuse (2) angebracht ist,
und wobei der zweite Schnappverschluss-Arretiermechanismus umfasst:

ein drittes Verriegelungselement, das auf der zweiten Schublade (4b-4f) angebracht ist,
das zweite Verriegelungselement (34),
wobei das zweite Verriegelungselement (34) bewegbar ist zwischen einer Eingriffsposition, in der das zweite Verriegelungselement (34) in das erste Verriegelungselement (32) und das dritte Verriegelungselement eingreift, während sich die erste Schublade (4a) und die zweite Schublade (4b-4f) beide in ihrer geschlossenen Position befinden, und einer Freigabeposition, in der das zweite Verriegelungselement (34) vom ersten Verriegelungselement (32) und vom dritten Verriegelungselement gelöst ist, wodurch die Schubladen in Bezug auf das Gehäuse (2) gleiten können.

14. Schrank nach Anspruch 13, wobei das dritte Verriegelungselement von einer Rückseite der zweiten Schublade (4b-4f) vorragt.

15. Schrank nach einem der Ansprüche 13 bis 14, wobei das dritte Verriegelungselement einen Haken umfasst, und wobei das zweite Verriegelungselement (34) eine abgekantete Stange umfasst, die eine Aussparung (50) zum Aufnehmen der Haken des ersten und dritten Verriegelungselements definiert.

Revendications

1. Armoire comprenant :

un boîtier (2) ;
un premier tiroir (4a) agencé pour coulisser par rapport au boîtier (2) entre une position ouverte et une position fermée ;
un premier mécanisme de verrouillage encliquetable pour verrouiller automatiquement le premier tiroir (4a) par rapport au boîtier (2) lorsque le premier tiroir (4a) atteint la position fermée, de manière à retenir le premier tiroir (4a) dans la position fermée, et comprenant
un premier élément de verrouillage (32) monté sur le premier tiroir (4a) ;
un second élément de verrouillage (34) monté sur le boîtier (2) ; et
dans laquelle l'un du premier élément de verrouillage et du second élément de verrouillage est mobile entre une position en prise, dans laquelle le second élément de verrouillage (34) est mis en prise avec le premier élément de verrouillage (32) alors que le premier tiroir (4a) est dans la position fermée, et une position désolidarisée, dans laquelle le second élément de verrouillage (34) est désolidarisée du premier élément de verrouillage (32) permettant au tiroir de coulisser par rapport au boîtier (2) ;
un actionneur (64, 65) pour amener le premier mécanisme de verrouillage encliquetable à déverrouiller le premier tiroir (4a) du boîtier (2), de manière à permettre au premier tiroir (4a) de quitter la position fermée ; et
caractérisée en ce que l'armoire comprend en outre un obturateur (78) agencé entre le premier tiroir (4a) et le second élément de verrouillage (34) au moins partiellement, dans laquelle l'obturateur comprend une ouverture (82) pour permettre au premier élément de verrouillage (34) de traverser l'obturateur (78).

2. Armoire selon la revendication 1, dans laquelle l'actionneur (64, 65) est configuré pour déplacer ledit un du premier élément de verrouillage (32) et du second élément de verrouillage (34) de la position en prise à la position désolidarisée et de le maintenir dans la position désolidarisée pendant une durée prédéterminée.

3. Armoire selon l'une quelconque des revendications précédentes, dans laquelle le premier mécanisme de verrouillage encliquetable comprend en outre un élément élastique (62) agencé pour pousser ledit un élément de verrouillage vers la position en prise.

4. Armoire selon l'une quelconque des revendications précédentes, dans laquelle le premier élément de verrouillage (32) fait saillie depuis un arrière du premier tiroir (4a).

5. Armoire selon l'une quelconque des revendications précédentes, dans laquelle le second élément de verrouillage (34) est mobile de manière rotative par rapport au boîtier (2) entre la position en prise et la position désolidarisée.

6. Armoire selon l'une quelconque des revendications précédentes, dans laquelle l'un du premier élément de verrouillage (32) et du second élément de verrouillage (34) comprend un crochet (36), et dans laquelle l'autre du premier élément de verrouillage (32) et du second élément de verrouillage (34) définit un évidement (50) pour recevoir le crochet (36).

7. Armoire selon l'une quelconque des revendications précédentes, dans laquelle l'actionneur (64, 65) comprend un stylet coulissant qui est adapté pour pousser le second élément de verrouillage (34) vers la position désolidarisée.

8. Armoire selon l'une quelconque des revendications précédentes, dans laquelle le boîtier (2) comprend une paroi arrière de laquelle le premier tiroir (4a) se rapproche quand il coulisse vers la position fermée, et dans laquelle l'actionneur (64, 65) est agencé entre l'arrière du premier tiroir (4a) et la paroi arrière du boîtier (2).

9. Armoire selon l'une quelconque des revendications précédentes, dans laquelle l'actionneur (64, 65) est motorisé.

10. Armoire selon la revendication 9, dans laquelle l'armoire comprend en outre :

une interface de communication radio (70), par exemple de type NFC, pour recevoir un signal de commande,
un dispositif de commande configuré pour faire fonctionner l'actionneur motorisé (64, 65) de telle sorte que l'actionneur (64, 65) déverrouille le premier mécanisme de verrouillage encliquetable quand le signal de commande est reçu.

11. Armoire selon l'une quelconque des revendications précédentes, dans laquelle l'actionneur (64, 65) comprend un verrou adapté pour coopérer avec une clé pour faire fonctionner manuellement l'actionneur (64, 65).

12. Armoire selon l'une quelconque des revendications précédentes, comprenant en outre
un deuxième tiroir (4b-4f) agencé pour coulisser par rapport au boîtier (2) entre une position ouverte et une position fermée,
un deuxième mécanisme de verrouillage encliquetable pour verrouiller automatiquement le deuxième tiroir (4b-4f) par rapport au boîtier (2) lorsque le deuxième tiroir (4b-4f) atteint la position fermée, de manière à retenir le deuxième tiroir (4b-4f) dans la position fermée, et
dans laquelle l'actionneur (64, 65) est adapté pour amener le deuxième mécanisme de verrouillage encliquetable à déverrouiller le deuxième tiroir (4b-4f) du boîtier (2), de manière à permettre au deuxième tiroir (4b-4f) de quitter la position fermée.

13. Armoire selon la revendication 12, dans laquelle le premier mécanisme de verrouillage encliquetable comprend :

un premier élément de verrouillage (32) monté sur le premier tiroir (4a),
un deuxième élément de verrouillage (34) monté sur le boîtier (2),
et dans laquelle le deuxième mécanisme de verrouillage encliquetable comprend :
un troisième élément de verrouillage monté sur le deuxième tiroir (4b-4f),
le deuxième élément de verrouillage (34),
dans laquelle le deuxième élément de verrouillage (34) est mobile entre une position en prise dans laquelle le deuxième élément de verrouillage (34) est mise en prise avec le premier élément de verrouillage (32) et le troisième élément de verrouillage alors que le premier tiroir (4a) et le deuxième tiroir (4b-4f) sont tous les deux dans leur position fermée, et une position désolidarisée, dans laquelle le deuxième élément de verrouillage (34) est désolidarisé du premier élément de verrouillage (32) et du troisième élément de verrouillage permettant aux tiroirs de coulisser par rapport au boîtier (2).

14. Armoire selon la revendication 13, dans laquelle le troisième élément de verrouillage fait saillie depuis un arrière du deuxième tiroir (4b-4f).

15. Armoire selon l'une quelconque des revendications 13 à 14, dans laquelle le troisième élément de verrouillage comprend un crochet, et dans laquelle le deuxième élément de verrouillage (34) comprend une barre pliée définissant un évidement (50) pour recevoir les crochets des premier et troisième éléments de verrouillage.

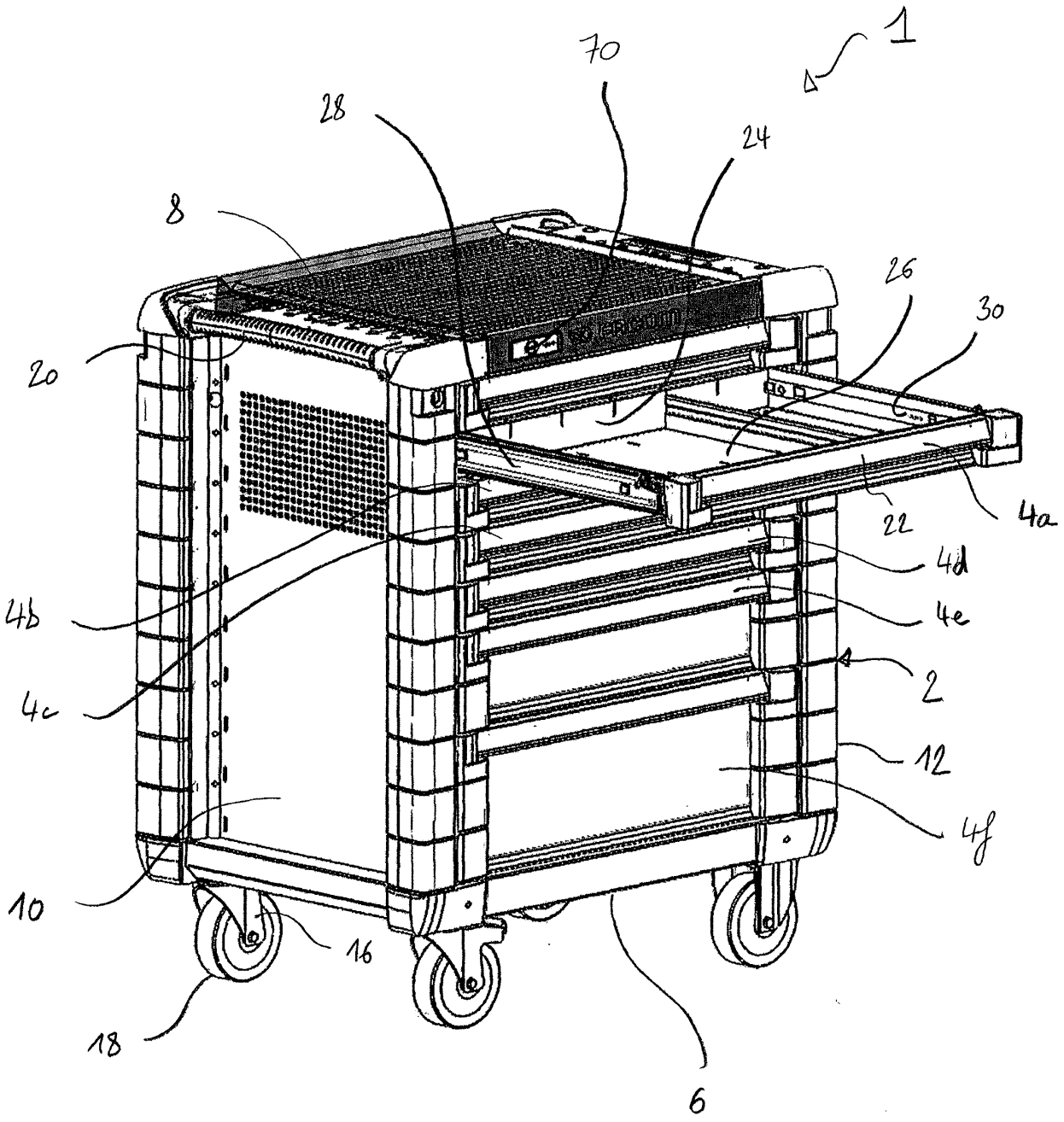

FIG. 1

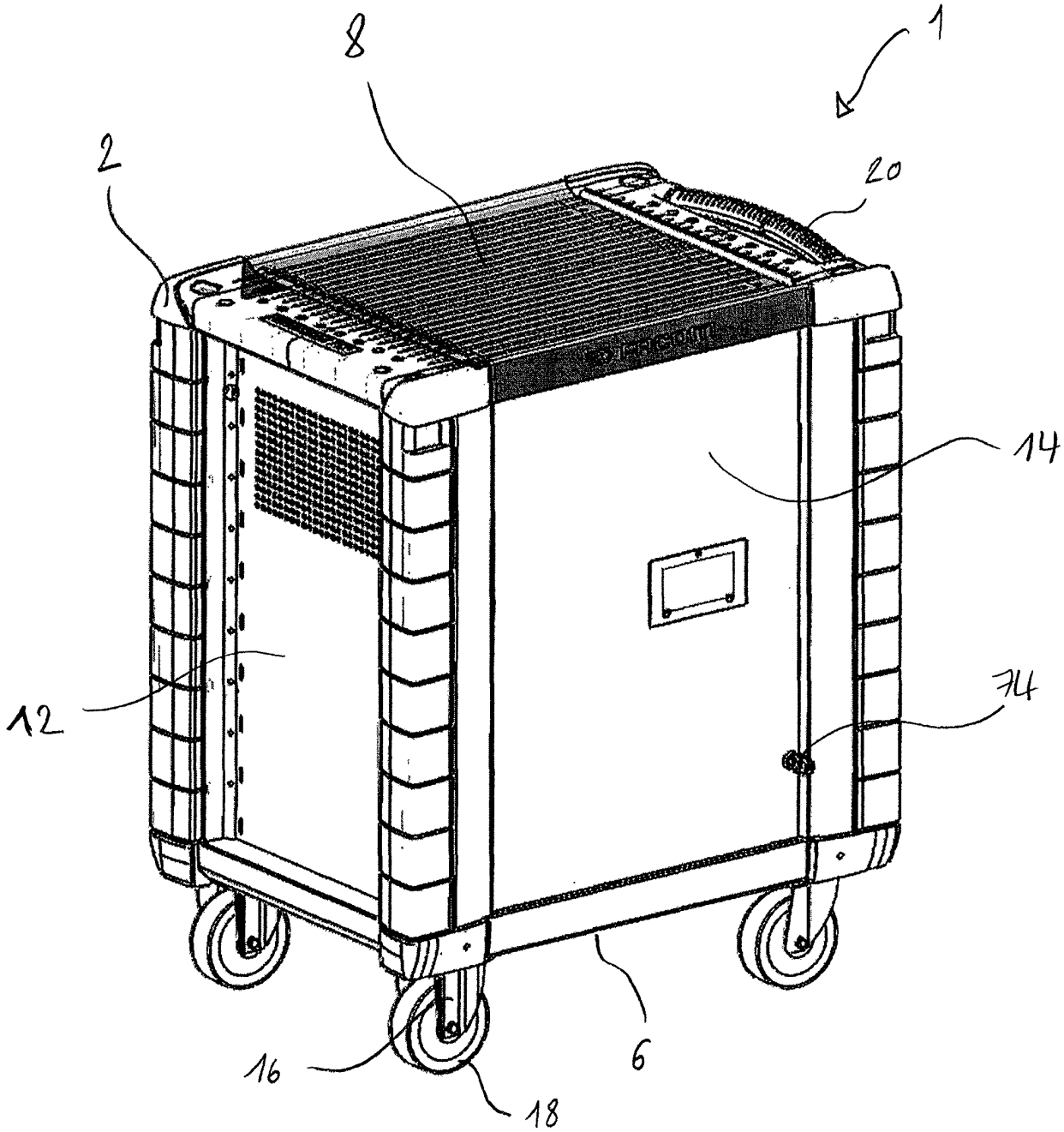

FIG. 2

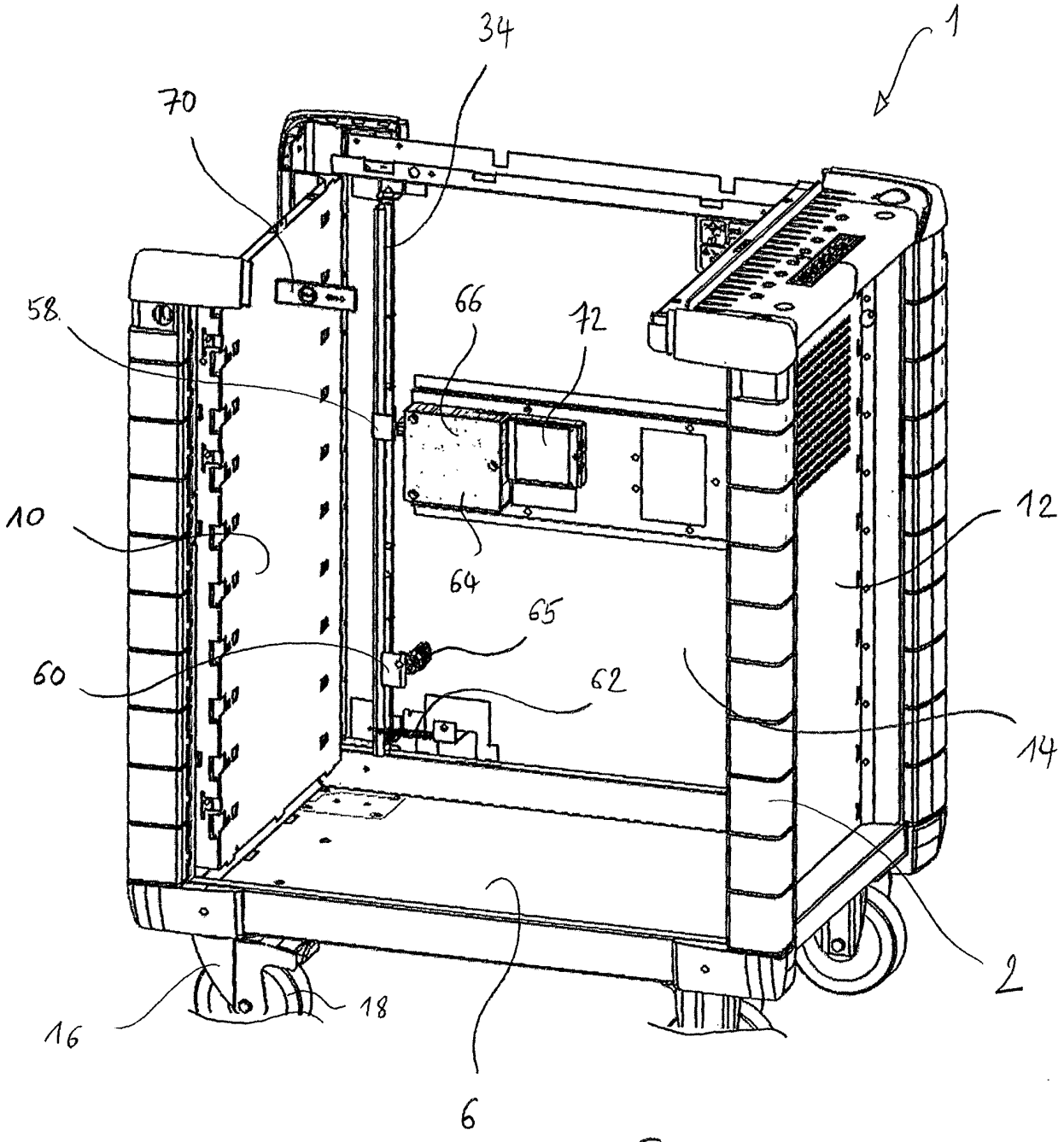

FIG. 3

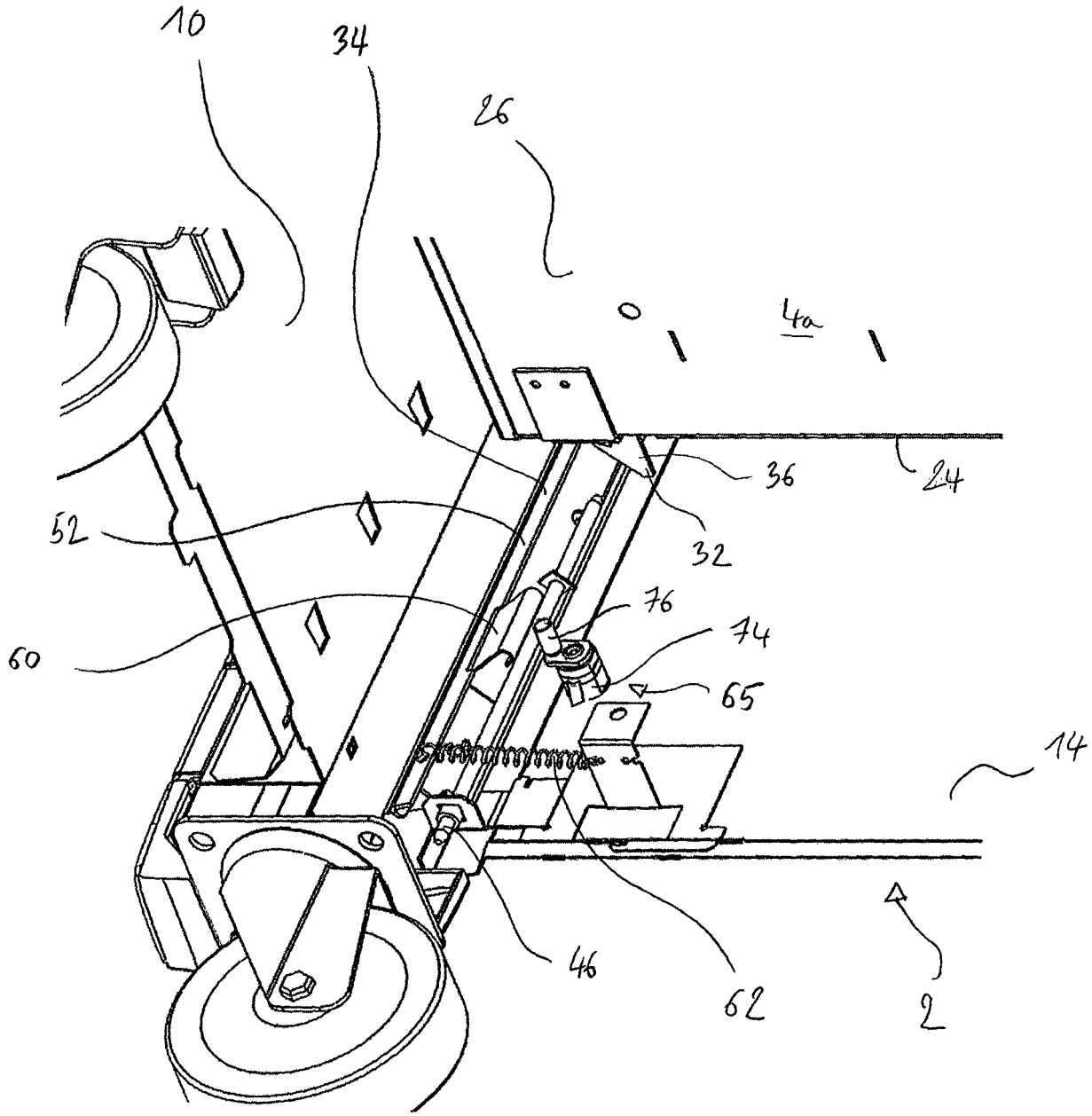

FIG. 4

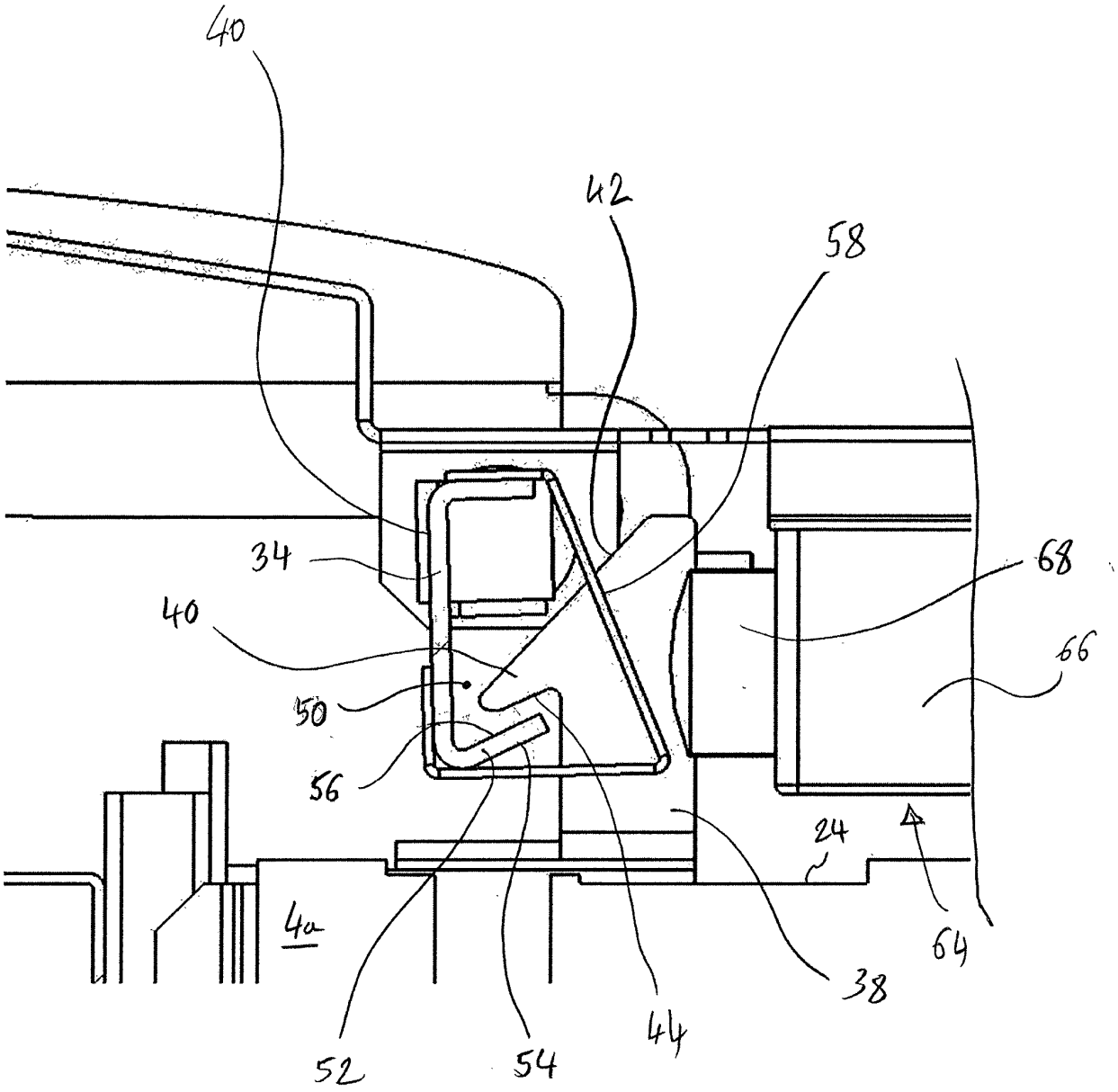

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FIG. 5

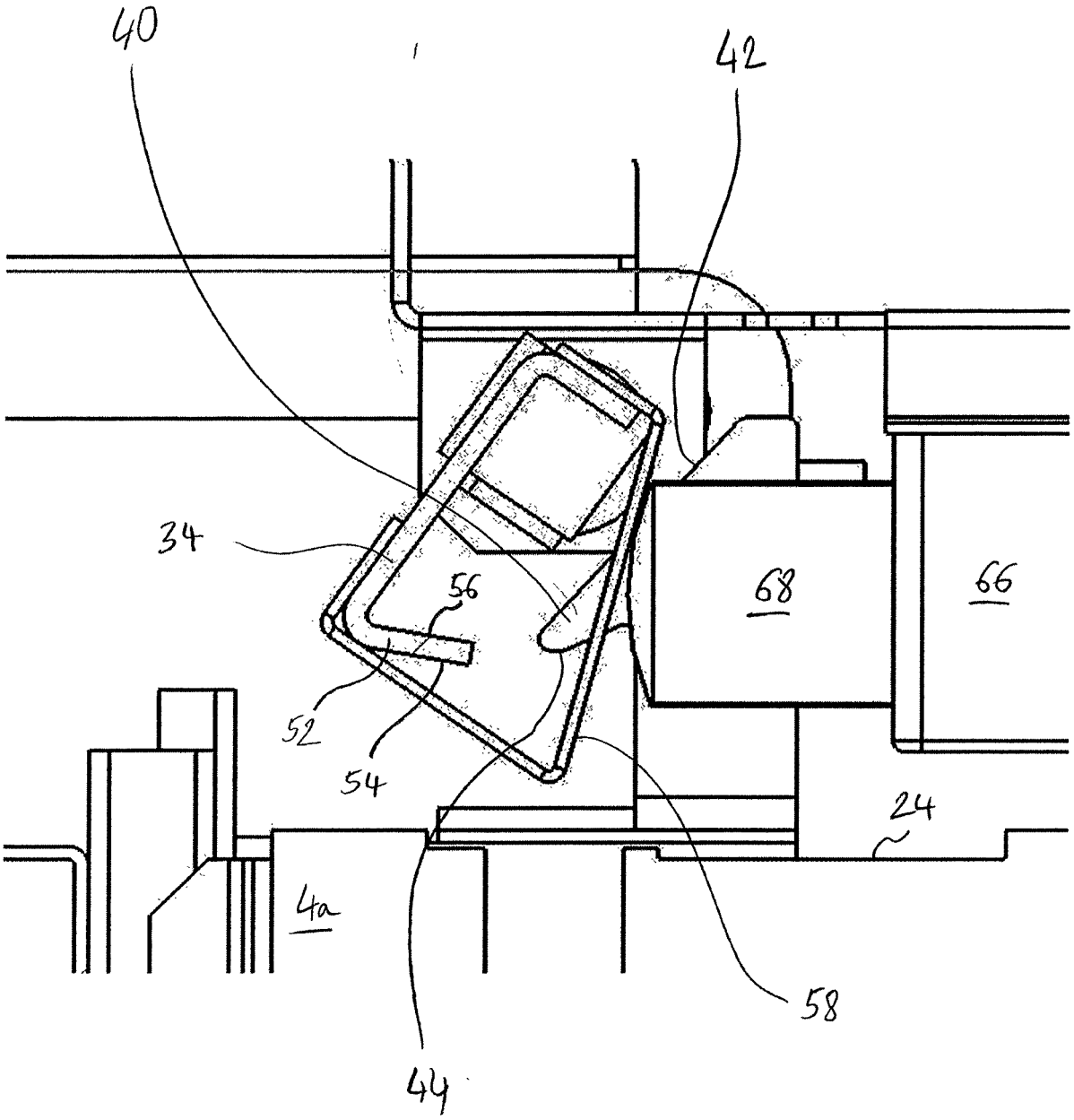

FIG. 6

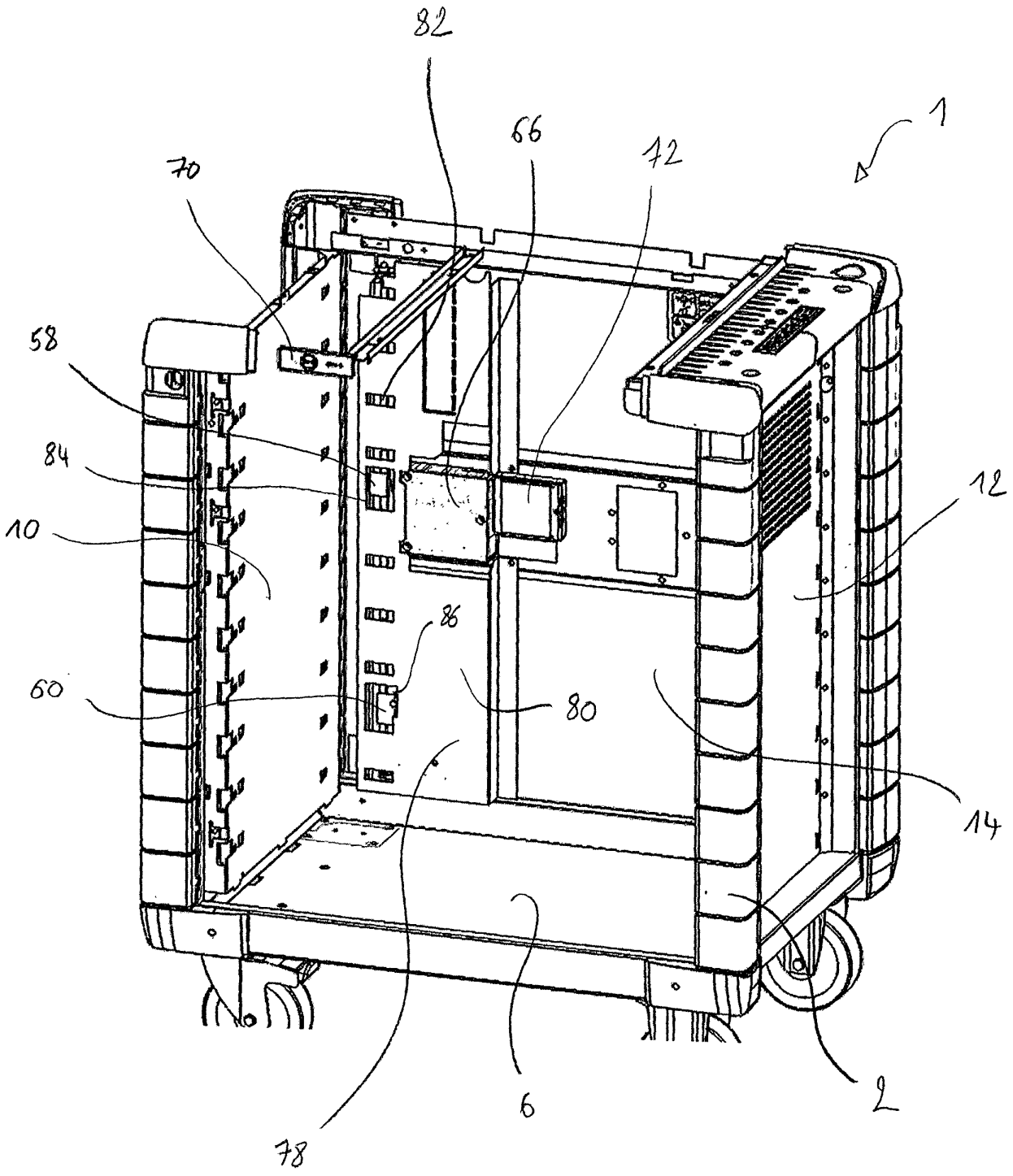

FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 20140167574, Schoenfeld **[0002]**