(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 711 899 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
15.05.1996 Bulletin 1996/20

(51) Int Cl.[6]: **E05G 1/00**, E05G 7/00, E05G 1/14

(21) Application number: **95850185.0**

(22) Date of filing: **24.10.1995**

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: **24.10.1994 SE 9403666**
09.11.1994 SE 9403853

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(54) A box for transportation of value deposits

(57) A box for short-time storage and transportation of value deposits, for example bank-notes and items of value, comprises a collecting container (4) for value deposits supplied to the box, a device (8) arranged in connection with the collecting container (4) for providing a visible, permanent change of the value deposits positioned in the collecting container when the box is subjected to damages, and a feed-in device (10) for supplying value deposits to the collecting container (4). The feed-in device comprises a compartment (66) adjustable between a supply position and a discharge position, the compartment being in the supply position open towards the environments and closed towards the collecting container (4) and being in the discharge position closed towards the environments and open towards the collecting container (4).

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Description

The present invention relates to a box for short-time storage and transportation of value deposits, for example bank-notes and other items of value.

It is previously known to use cassettes or lockable cases or safety containers for the transportation of value deposits, for example the transportation of bank-notes from a shop to a bank. In order to prevent stealing of value deposits it is thereby previously known to provide the case or the safety container with means for providing a visible, permanent change of the value deposit positioned in the case or the container, for example by spoiling or providing a permanent marking of the deposits, if the case or the container is subjected to tampering or damagage. These means can be constituted by a colour gun which, when being released or actuated, sprays colour onto the value deposits which are thereby made unusable. Prior art cassettes, cases or safety containers of this kind are adapted to be supplied with value deposits only on one occasion before an emptying shall take place which means that they, when being used for transportation of value deposits from a shop to a bank, can only in the evening be supplied with money from all recording counters for transportation to the bank. Thus, the prior art cassettes, cases or safety containers can not provide a protection for the items of value, for example the money, in the course of the day. The prior art cassettes, cases or safety containers can of course be used only for transportation from one single place, for example one single shop, to a bank or counting center.

The object of the invention is to provide a box for short-time storage and transportation of value deposits, for example bank-notes and other items of value, by means of which these drawbacks are obviated.

In order to comply with this object the box according to the invention is constituted by a portable unit, comprising a collecting container for value deposits supplied to the box, having a door for emptying the box, provided with a lock and means positioned in connection with the collecting container adapted, when actuated, to provide a visible, permanent change of the value deposits positioned in the collecting container, for example by spoiling or permanently marking the deposits, the box being characterized by a feed-in device for feeding value deposits into a collecting container and that the feed-in device comprises a compartment adjustable between a supply position and a discharge position, the compartment being in the feed-in position open towards the environments and closed towards the collecting container and being in the discharge position closed towards the environments and open towards the collecting container.

A box of this kind can in the course of a whole day be stored in a shop for being supplied with value deposits several times, the value deposits being thereby short-time stored in the shop in a secure way, whereupon the box is at the end of the day transported to a bank or a counting center for being emptied. Also the transportation to the bank or the counting center can thereby be conducted in a completely safe way. The box according to the invention can be used also for collecting value deposits from several different places.

In a preferred embodiment of the box according to the invention the collecting container and the feed-in device are provided with separate locking devices so that it is possible at the location at which the box is supplied with value deposits possible only to open the feed-in device, while the collecting container can be opened only in a bank or in a counting center.

It is preferred that the compartment is displacable between the input position and the discharge position and that the compartment is from the discharge position movable to an end position in which the compartment is closed towards the environments as well as towards the collecting container. Preferably the feed-in device is constituted by a unit which is displacably journalled in the compartment between extended and inserted positions and being lockable in the inserted position, said unit being thereby suitably constituted by a drawer having a cassette displacably journalled therein, the cassette taking up substantially half of the bottom surface of the drawer and forming the compartment of the feed-in device and being adapted at the displacement of the drawer in the container to be displaced in the drawer so that the cassette is positioned at one end of the drawer in the extended position thereof and at the other end of the drawer in the inserted position of the drawer.

Thereby, the drawer preferably has a driving device for displacing the cassette in the drawer when the drawer is displaced in the compartment, the driving device preferably comprising a first gear rack fastened to a wall of the compartment, a second gear rack fastened to the cassette and a gear wheel connected between the gear racks and rotatably journalled in the drawer.

It is preferred that the drawer according to the invention is provided with flaps in connection with the compartment, the flaps being adapted to take an upwardly folded or a downwardly folded position so as to arrange the compartment in an open or a closed position towards the environments and the collecting container, respectively.

An embodiment of the box according to the invention shall be described in the following with reference to the accompanying drawings.

Fig. 1 is a schematical sectional view of an embodiment of the box according to the invention.

Fig. 2 is a schematical end view of the box shown in Fig. 1.

Fig. 3 is an enlarged sectional view corresponding to the upper portion of Fig. 1 with a feed-in device of the box in a completely inserted position.

Fig. 4 is a section corresponding to Fig. 3 with the feed-in device in a completely extended position.

Fig. 5 is a section corresponding to Figs. 3 and 4 with the feed-in device on its way from an extended to-

wards an inserted position.

An embodiment of a box for short-time storage and transportation of value deposits as shown in the drawings is constituted by a portable container which suitably is provided with wheels (not shown) for facilitating the displacement of the container. The wheels can for example be constituted by wheel units positioned at one side each of the container and each comprising wheels positioned at the corners of an equilateral triangle, the wheels being rotatable around a common central axis as well as being rotatable around one axis each in the normal way. Such wheel units facilitate the movement of the box in stairs.

The container is at its lower portion provided with a locking device 2 by means of which the box can be locked to a floor attachment or another stationary or movable unit in for example a shop where the box is used for short-time storage of value deposits. The locking device 2 is positioned in connection with a groove 3 arranged at the bottom of the box and connectable with a stationary rail in the floor at the place where the box shall be temporarily positioned for being supplied with value deposits.

The box has at its lower end a collecting container 4 for value deposits supplied to the box. The collecting container 4 is provided with a door 6 which is opened when the value deposits supplied to the collecting container shall be removed from the box after the box has been transported to a bank, a counting central or the like. The door 4 is provided with a lock which is suitably constituted by a code lock or a lock actuatable by means of a magnetic card. The lock can for example be of mechanic, electromechanic, electrooptical or electronic type. The lock is of conventional kind and is not shown in the drawings.

In connection with the collecting container 4 the box is provided with a device 8 for providing a visible permanent change of the value deposits positioned in the collecting container 4 if the box is subjected to damages or tampering. In the embodiment shown, the device 8 is suitably constituted by a colouring gun which is activated when the box including the locking device 2 is subjected to damages or tampering spraying colour into the collecting container 4 so that the value deposits positioned therein are permanently coloured and are thereby made unusable. The supply of colour to the collecting container can be provided by the fact that pipes or nozzles extend into the collecting container from the device 8.

The box can also be provided with signalling means (not shown), for example smoke ampoules or sound or light means which are activated, in certain cases after a certain delay, when the device 8 has been activated as a consequence of the fact that the box has been subjected to damages or tampering.

At its upper portion the box has a feed-in device 10 which is movable between a supply position for value deposits in which the device is open towards the environments and a discharge position in which the device is closed towards the environments and open towards the collecting container 4. From the discharge position the feed-in device is displacable to an end position in which the feed-in device 10 is closed towards the environments and the collecting container 4 is closed towards the feed-in device 10. In the end position the feed-in device 10 is closed by means of a cover 12. The feed-in device is lockable in the end position by means of a lock 14 schematically shown and being of the code lock type or of the type which can be opened by means of a magnetic card.

Also this lock 14 can be of a mechanic, electromechanic, electrooptic or electronic type. It is important that there are required different facilities in the form of different keys, different codes and so on for opening the lock to the collecting container and the lock to the feed-in device so that it is not possible to open the collecting container but only the feed-in container at the place where the box is situated for being supplied with value deposits.

In a manner not shown in detail, the box is built from an inner shell which at its outer surface is provided with a shell protection. The shell protection is arranged to activate the device 8 when being subjected to mechanical damages so that the value deposits in the collecting container 4 are made unusable, as described above. The shell protection can be constituted by electrical cables positioned at a short distance from each other and through which an electric current flows, a short circuiting of the cables or an interruption of the flow of current through the cables causing an activation of the device 8. The electrical cables can be supplied with current from a chargable battery positioned in the box. The shell protection can be constituted also by means of electric circuit cards or by means of opticle fibers in which the function is the same as is in respect of the electrical cables.

In addition thereto the box is provided with sensors for humidity, water, cold, heat, agents sprayed into the box or similar factors which might be used for deactivating the shell protection and/or other electrical or electronical components of the box. Thus, also these sensors are connected with the device 8 for activating this device if the box is subjected to said influences.

Outwardly the box has some kind of suitable shielding device for preventing unauthorized influence on the electronic equipment of the box. Between the inner shell/shell protection and the shielding device the box has preferably a layer of foamed polyurethane in which pipes for wire laying can be positioned.

The box can be provided with equipment (not shown) for remote release or activation of the device 8 for destroying or marking the value deposits. Thereby it is possible to activate or release the device 8 if the box has in an unauthorized way been transported from the intended position. It is also possible to provide the box 1 with equipment (not shown) for locating the box if the

box has been subjected to unauthorized transportation.

The value deposits supplied to the box are suitably positioned in safety bags at least partly consisting of a pervious foil material so that the value deposits positioned in the bags are accessible for being influenced by the colour sprayed from the device 8. The safety bags can for example be of the kind described in the Swedish Patent Application No 9402655-6.

The feed-in device 10 shown on an enlarged scale in Figs. 3-5 comprises a drawer 16 movable in the container of the box between an inserted position and an extended position. The drawer has side walls 18 and a bottom 20. The bottom 20 is present only at the outer end of the drawer in the direction of extension thereof, and the bottom of the drawer is at the inner end thereof open towards the collecting container 4.

In the drawer there is positioned a movably journalled cassette 22 taking up about one half of the bottom surface of the drawer 16. The cassette 22 is at the upper edges of its sides provided with gear racks 24 having their teeth 26 extending downwards. The teeth 26 engage gear wheels 28 which are rotatably journalled on the side walls of the drawer 16. At the sides of the container of the box there are fastened gear racks 30 having their teeth extending upwards. When the drawer 16 is drawn out from the box the gear wheels 28 rotate on the teeth 31 of the gear racks 30 and the rotation of the gear wheels 28 provides that the cassette 22 is through the gear racks 24 fastened to the cassette driven in relation to the drawer 16 from the inner to the outer end thereof.

The cassette 22 is open upwards and is in the inserted position of the drawer 16 shown in Fig. 3 closed downwards by means of a first flap 32 at the outer end of the cassette and a second flap 34 at the inner end of the cassette. The flaps 32 and 34 are rotatably supported around shafts 36 and 38 and are rotated between an upwardly rotated position and a downwardly rotated position by mechanical engagement with different guiding surfaces.

The outer flap 32 is provided with two guiding pins 40 and 42. In the position shown in Fig. 3 the guiding pin 40 engages a cam 44 positioned at the bottom 20 of the drawer 16 while the guiding pin 42 is received in a groove 46. When the cassette is displaced to the left in Fig. 3 following the extension of the drawer 16 from the box the guiding pin 40 leaves the cam 44 and the guiding pin 42 leaves the groove 46, the guiding pin 42 arriving to an engagement with a guiding surface 48 providing a rotation of the outer flap 32 to an upright position in which the flap is retained.

The inner flap 34 is guided by means of a guiding rocker 52 rotatable around a shaft 50 and engaging by means of a pin 54 a guiding surface 56 on the flap 34. When the cassette 22 is moved to the left in Fig. 3 as a consequence of the fact that the drawer 16 is drawn out the flap 34 is retained in downwardly rotated position until the guiding rocker 52 arrives to a cam 58 which is positioned in the box above the drawer 16. When the upper end 60 of the guiding rocker 52 engages the cam 58 the guiding rocker 52 is tilted backwardly from the engagement of the pin 54 with the surface 56, the flap 34 being thereby rotated from a downward position to an upward position under the influence of a spring (not shown).

When the extension movement of the drawer 16 continues the cassette 22 is displaced in the drawer to the maximum outer position therein in accordance with Fig. 4. In this position continuing extension of the drawer 16 from the box is prevented by the fact that the upper end edge 62 of the inner flap 34 engages a stop surface 64 positioned above the drawer.

Thus, in the position shown in Fig. 4 value deposits can be made in the upwardly open compartment 66 formed by the cassette 22 and in this position closed to the inner of the box by means of the flap 34. When the value deposit has been positioned in the compartment 66 the drawer 16 is again pushed into the box. While the drawer 16 is moved into the box the cassette 22 is by means of the gear racks 24 and 30 and the gear wheels 28 displaced towards the inner end of the drawer 16. While the drawer 16 and the cassette 22 are displaced from the extended towards the inserted position the end portion 62 of the inner flap 34 engages projections 68 on a catch rod 70 positioned above the drawer preventing that the drawer 16 and the cassette 22 are drawn to an extended position before the drawer has been completely introduced into the box.

At subsequent displacement of the drawer 16 into the box and displacement of the cassette 22 towards the inner portion of the drawer 16 following therefrom, the cassette 22 arrives in a discharge position of the compartment 66 of the cassette 22 in which the compartment 66 is open downwards towards the collecting container 4 of the box. When this condition has been reached the value deposit positioned in the compartment 66 falls down into the collecting container 4. At subsequent displacement of the drawer 16 inwardly from the discharge position, the drawer 16 and the cassette 22 arrive to an end position in which the drawer and the cassette are completely inserted into the box. Just before this end position has been reached the guiding pin 40 of the flap 32 engages the cam 44 so that the flap 32 is folded down to the position according to Fig. 3 at the same time as the guiding rocker 52 engages a cam 72 turning the guiding rocker 52 somewhat clockwise so that the guiding element 52 rotates the flap 34 to a downward position by means of the pin 54 against the action of the the spring, not shown. After that the position according to Fig. 3 has again been reached, and the drawer 16 is locked by means of the lock 14.

It appears that the box according to the invention can in a safe way be used for short-time storage and transportation of value deposits. The box can be provided with electronic control systems providing that the feed-in device is used only a predetermined number of times before the box is emptied in for example a bank.

The box can be handled by for example a guard company which stores the box at night and see to it that the required batteries are charged and that the required control systems and locking devices are programmed for acting in a correct way.

Claims

1. A box for short-time storage and transportation of value deposits, for example bank-notes and items of value, comprising a collecting container (4) for value deposits supplied to the box, the container having a door (6) for the emptying of the box provided with a lock, and a device (8) positioned in connection with the collecting container (4) which is adapted at activation to provide a visible, permanent change of the value deposits positioned in the collecting container, for example by spoiling or permanently marking the deposits, **characterized** in that the box comprises a feed-in device (10) for supplying value deposits to the collecting container and that the feed-in device comprises a compartment (66) adjustable between a supply position and a discharge position, the compartment being in the supply position open towards the environments and closed towards the collecting container (4) and being in the discharge position closed towards the environments and open towards the collecting container (4).

2. A box as claimed in claim 1, **characterized** in that the compartment (66) is movable between the supply position and the discharge position and from the discharge position is movable to an end position in which the compartment is closed towards the environments as well as towards the collecting container (4).

3. A box as claimed in claim 1 or 2, **characterized** in that the feed-in device (10) is constituted by a unit which is displacably journalled in the compartment between an extended and an inserted position, the unit being lockable in the inserted position.

4. A box as claimed in claim 3, **characterized** in that the unit displacably journalled in the compartment is constituted by a drawer (16) having a cassette (22) movably journalled therein, occuping substantially the half of the bottom surface of the drawer and forming the compartment (66) of the feed-in device, the cassette being adapted to be displaced in the drawer when the drawer is displaced in the compartment so that the cassette is in the extended position of the drawer positioned at one end of the drawer and is in the inserted position of the drawer positioned at the other end thereof.

5. A box as claimed in claim 4, **characterized** by a driving device (24-31) for displacing the cassette (22) in the drawer (16) when the drawer (16) is displaced in the compartment.

6. A box as claimed in claim 5, **characterized** in that the driving device comprises a first gear rack (30) fastened to one wall of the container, a second gear rack (24) fastened to the cassette and a gear wheel (28) rotatably journalled in the drawer and connected between the gear racks.

7. A box as claimed in any of the preceding claims, **characterized** by flaps (32, 34) mounted in connection with the compartment and adapted to take an upwardly or downwardly folded position for arranging the compartment (66) in an open or closed condition towards the environment and the collecting container (4), respectively.

8. A box as claimed in claim 7, **characterized** in that a first flap (32) is positioned at the outer end of the compartment (66) and that a second flap (34) is positioned at the inner end of the compartment (66), the flaps being adapted to take an upwardly folded position in the supply position and the discharge position of the feed-in device and while the compartment is displaced between the supply position and the discharge position and between the discharge position and the supply position and to take in the end position a downwardly folded position in which the flaps close the compartment towards the collecting container.

9. A box as claimed in claim 7 or 8, **characterized** by engagement surfaces (40, 44); 58, 72) arranged in the box for guiding the displacement of the flaps (32, 34) between the upwardly and downwardly folded positions as a consequence of the displacement of the cassette (22) between the different positions.

10. A box as claimed in any of claims 3 - 9, **characterized** by a latching device (62; 68, 70) for preventing extension of the unit displacably journalled in the box after starting the displacement towards the inserted position but before the displacement towards the inserted position has been completed.

11. A box as claimed in claim 10, **characterized** in that the latching device is constituted by latching teeth (68) arranged in the box and a ratchet hook (62) rotatably journalled in the unit which is displacably journalled in the box.

12. A box as claimed in claim 11, **characterized** in the ratchet hook (62) is constituted by the inner flap (34).

13. A box as claimed in any of the preceding claims, **characterized** in that the collecting container (4) and the feed-in device (10) are provided with separate locks and that separate facilities, for example different keys or different codes, are required for opening the locks.

14. A box as claimed in any of the preceding claims, **characterized** in that the device (8) for providing at its actuation a visible, permanent change of the value deposits positioned in the collecting container comprises a colouring gun which is adapted to be actuated for colouring the value deposits in the collecting container when the box is subjected to damages or tampering.

15. A box as claimed in any of the preceding claims, **characterized** in that the device (8) for providing at actuation a visible, permanent change of the value deposits positioned in the collecting container comprises sensors for activating the device, the sensors being adapted to activate the device when the box is subjected to mechanical damages, humidity, water, cold, heat, agents sprayed into the box and the like.

16. A box as claimed in claim 15, **characterized** in that the sensors comprise a shell protector enclosing the collecting container and adapted to activate the device for permanent change of the value deposits positioned in the collecting container when the box is subjected to mechanical damages.

17. A box as claimed in claim 16, **characterized** in that the shell protection comprises a current circuit fed from a battery and adapted to activate the device for permanent change of value deposits positioned in the collecting container when the current curcuit is broken.

18. A box as claimed in claim 17, **characterized** in that the shell protection is constituted by a printed circuit card.

19. A box as claimed in claim 17, **characterized** in that the shell protection is constituted by electric cables positioned at a short distance from each other.

20. A box as claimed in claim 16, **characterized** in that the shell protection is constituted by optical fibres.

21. A box as claimed in any of the preceding claims, **characterized** by a device (2) for releasably fixing the box at a temporary site.

22. A box as claimed in claim 21, **characterized** in that the device (8) for providing at an activation a visible, permanant change of value deposits positioned in the collecting container (4) is adapted to be activated when the device (2) for releasably fastening the box at a temporary site is subjected to damages.

23. A box as claimed in any of the preceding claims, **characterized** by equipment for remote activation of the device for providing at activation a visible, permanent change of the value deposits positioned in the collecting container (4).

24. A box as claimed in any of the preceding claims, **characterized** by equipment for locating the box.

25. A box as claimed in any of the preceding claims, **characterized** by signalling means, for example smoke ampoules or light or sound means adapted to be activated as a consequence of the activation of the device (8) for providing at activation a visible, permanent change of the value deposits positioned in the collecting container (4).

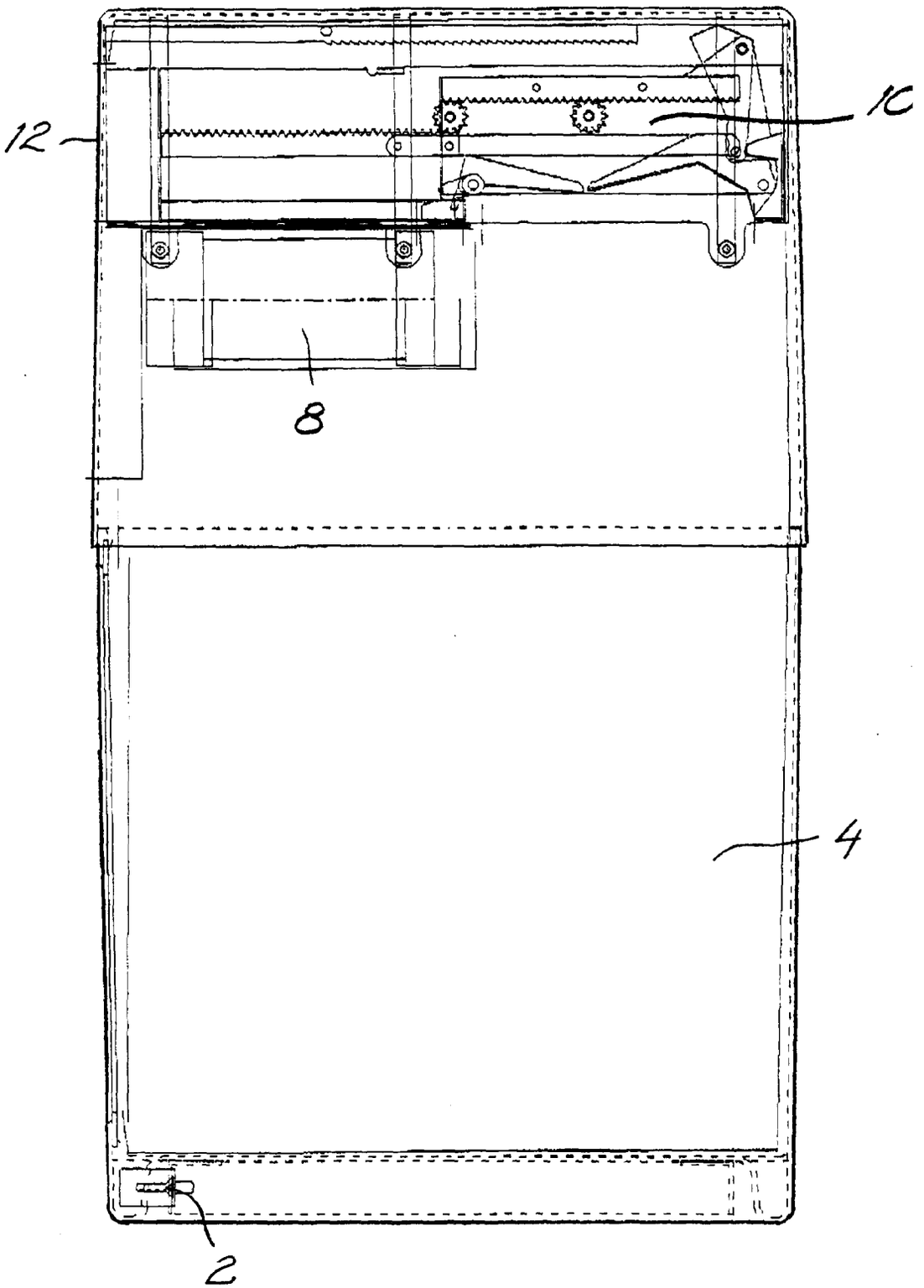

Fig. 1

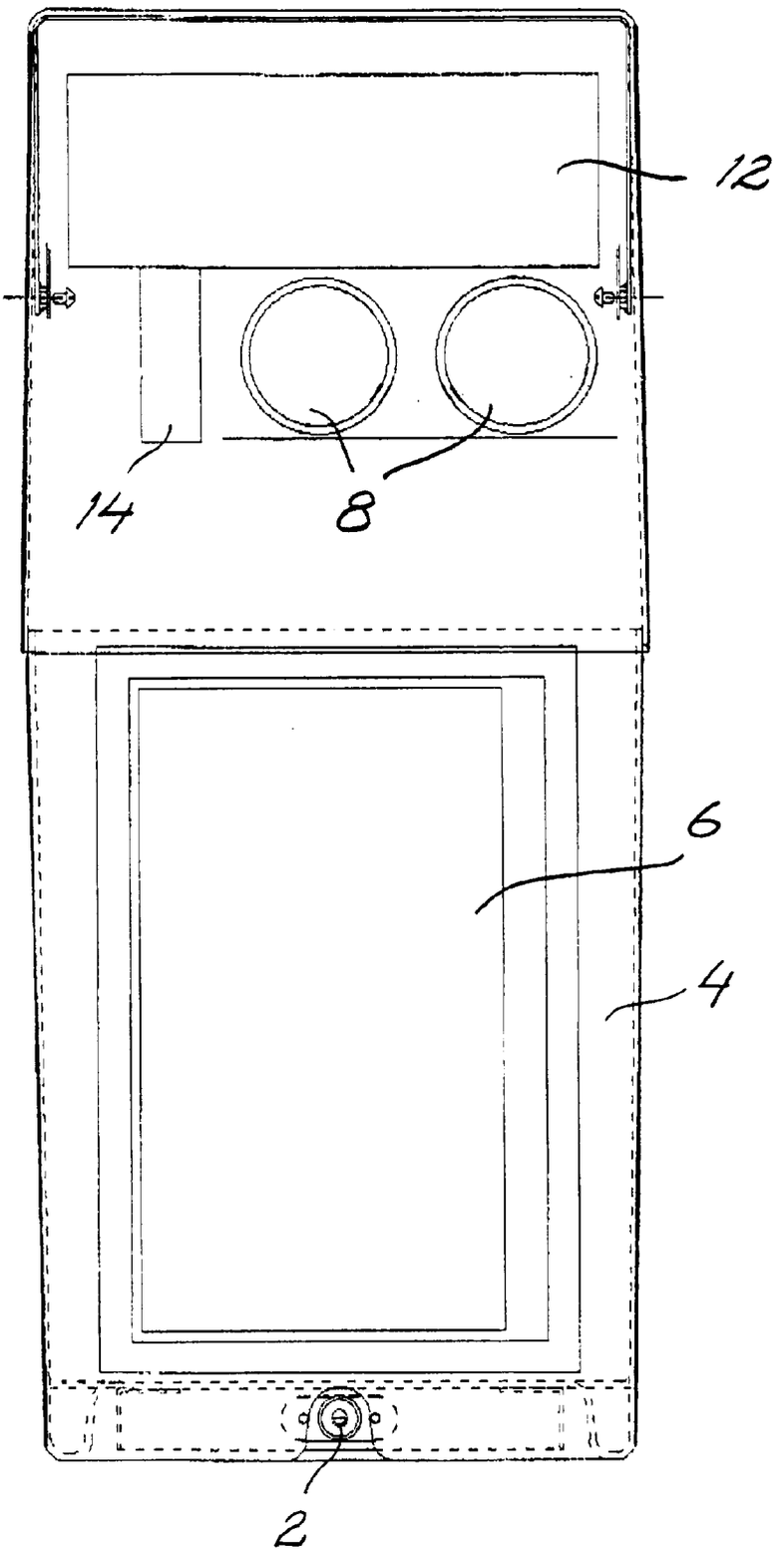

Fig. 2

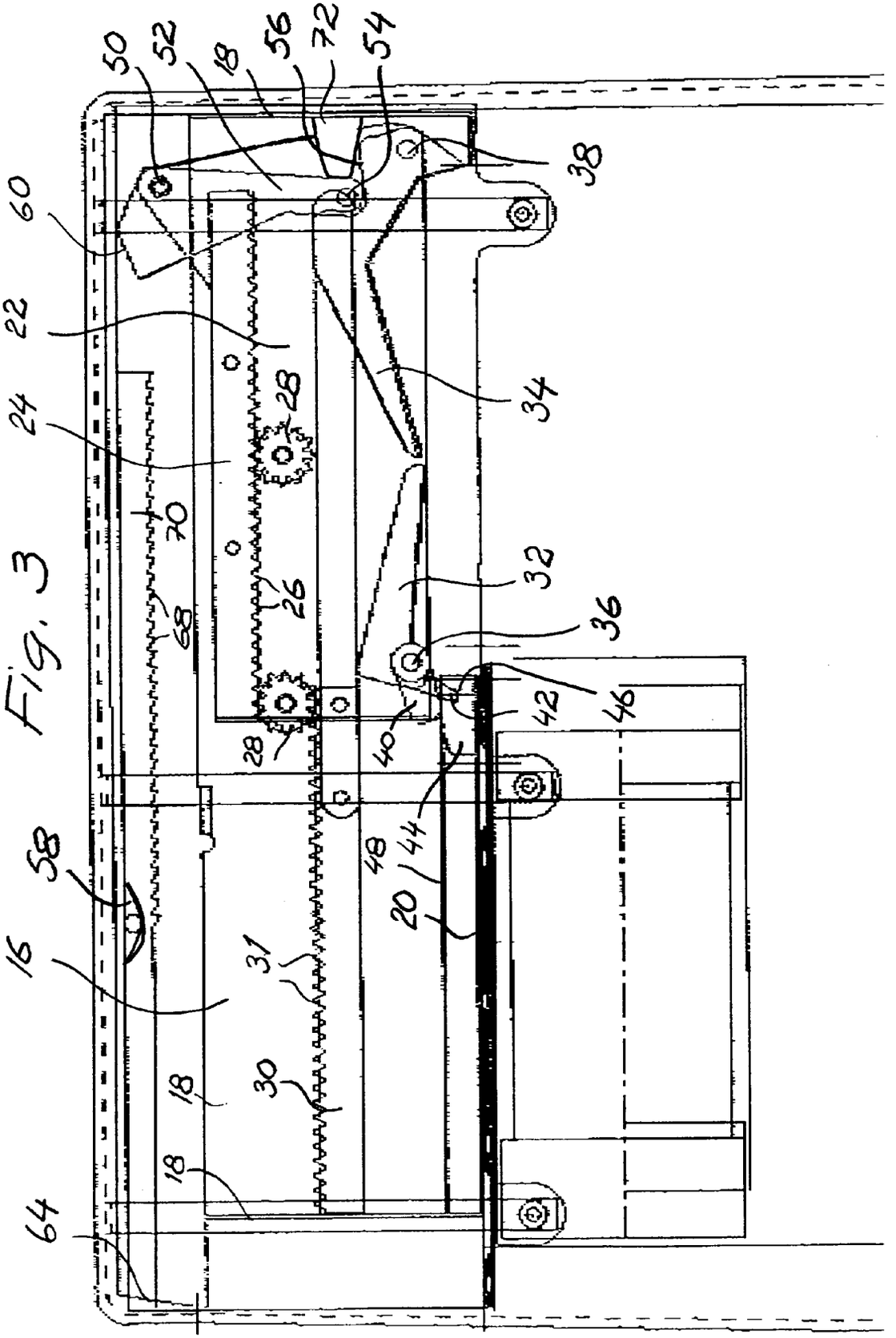
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Fig. 3

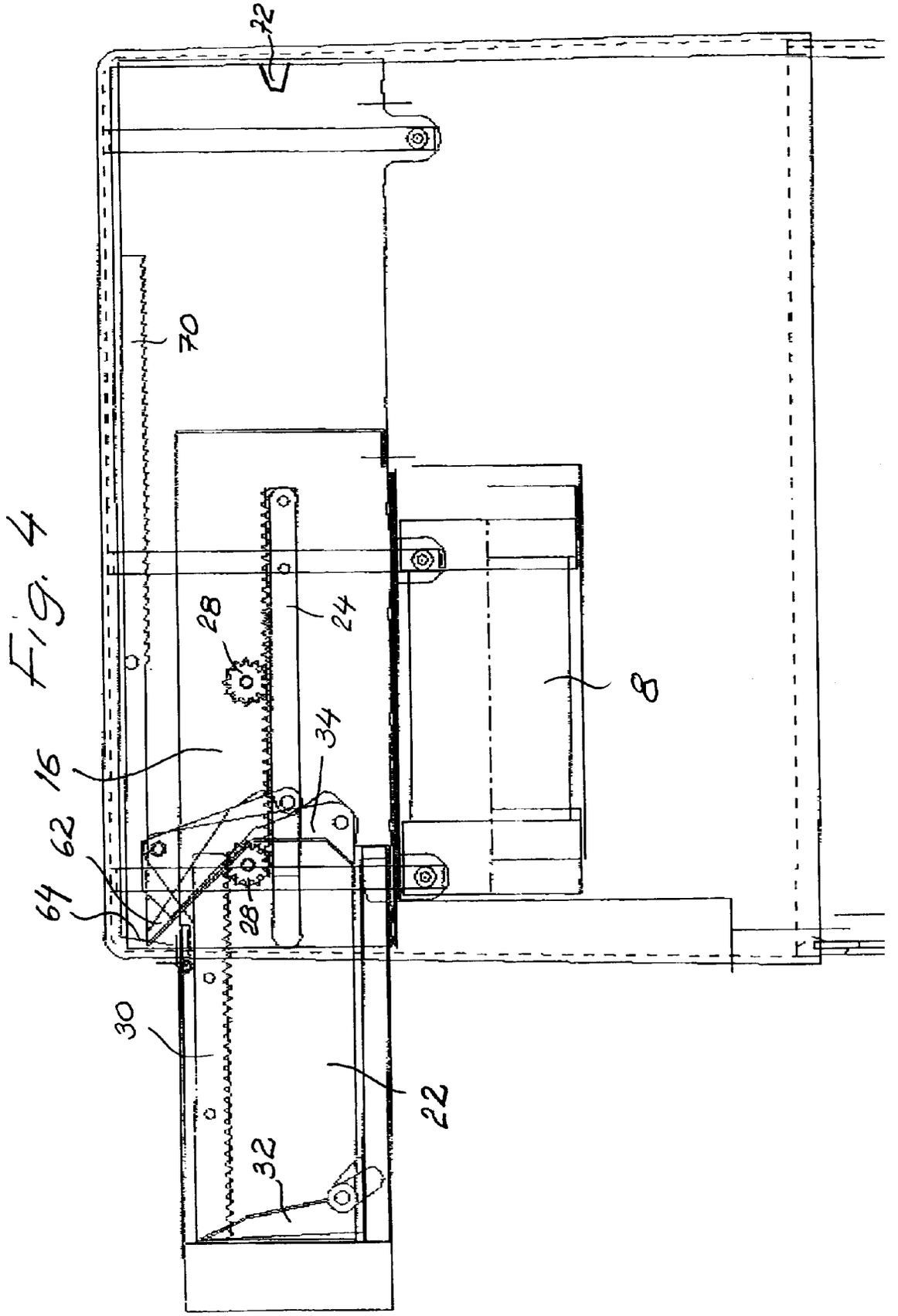

Fig. 4

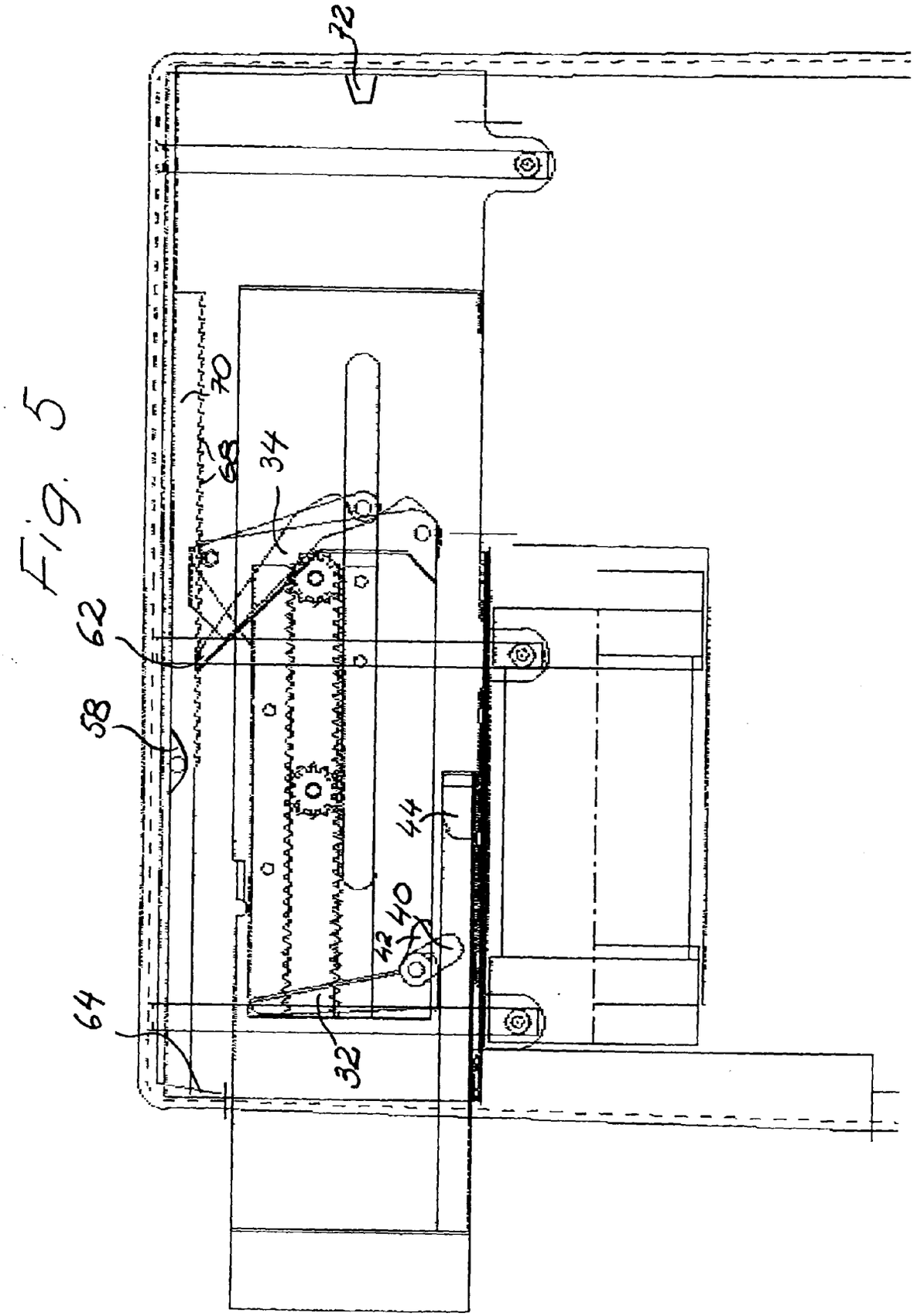

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 95 85 0185

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	US-A-4 452 390 (WEST) * column 1, line 65 - column 2, line 51; figures 1-5 *	1,13-22, 25	E05G1/00 E05G7/00 E05G1/14
Y A	GB-A-2 199 890 (TIMETILL SECURITY LTD) * abstract * * page 8, line 11 - line 26 *	1,13 14,16,20	
Y	WO-A-90 06414 (AB CATUSAFE) * abstract * * page 3, last paragraph * * page 4, paragraph 2 - paragraph 3; figures 1-3 *	1,14,15, 21,22	
P,Y	WO-A-95 02742 (JÄGERSKOG) * page 1 - page 2, paragraph 1 *	1,14, 16-20	
P,Y	GB-A-2 280 056 (TRANSALARM LTD) * abstract *	25	TECHNICAL FIELDS SEARCHED (Int.Cl.6) E05G
A	US-A-2 562 632 (MOSMAN) * column 4, line 50 - line 59; figures 1,2 *	3	
A	US-A-4 135 658 (HAGBERG) * column 5, line 35 - line 36; figure 2 *	3	
A	US-A-3 302 871 (KETTERING ET AL) * column 14, line 11 - line 69; figures 6-15 *	3,4	
A	DE-U-89 10 007 (SITEC) * the whole document *	3,4	

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	31 January 1996	Van Kessel, J

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB-A-657 157 (CHUBB & SONS LOCK & SAFE COMPANY LTD) * the whole document * ---	10	
A	WO-A-94 20935 (GORE & ASSOCIATES LTD) * page 8, line 8 - line 11 * ---	18	
A	FR-A-2 676 085 (BACHELET) * abstract * -----	19	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)

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