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3,666,338

CHILD-PROOF CONTAINER

Filed Aug. 17, 1970

2 Sheets-Sheet 1

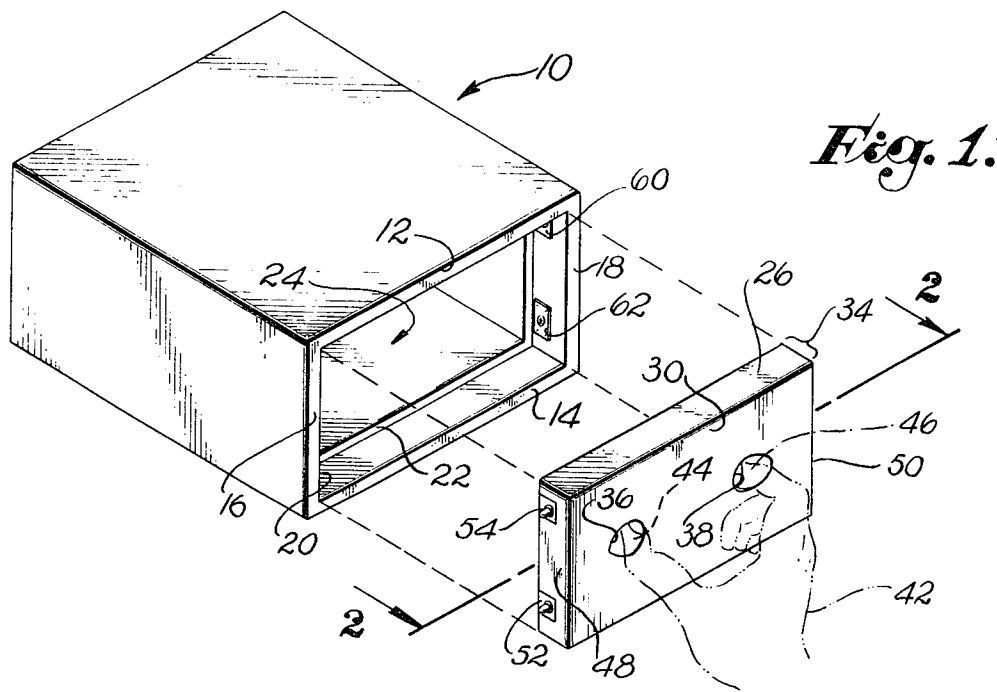
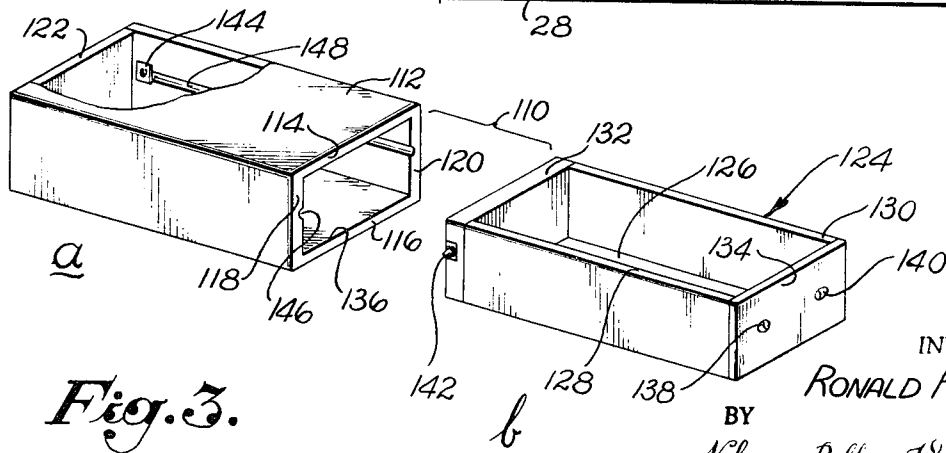
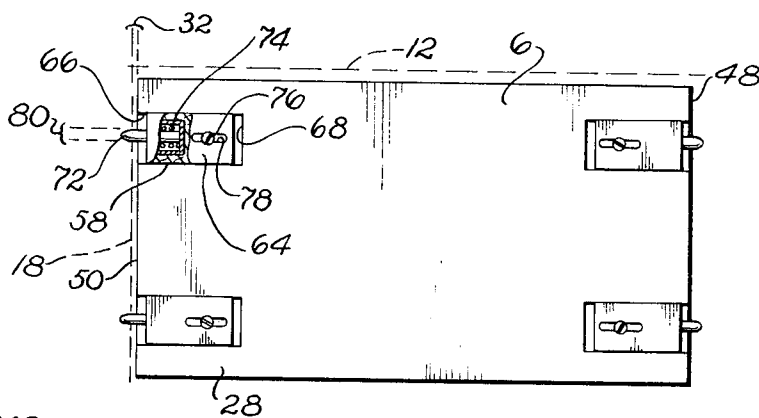


Fig. 2.



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2 Sheets-Sheet 2

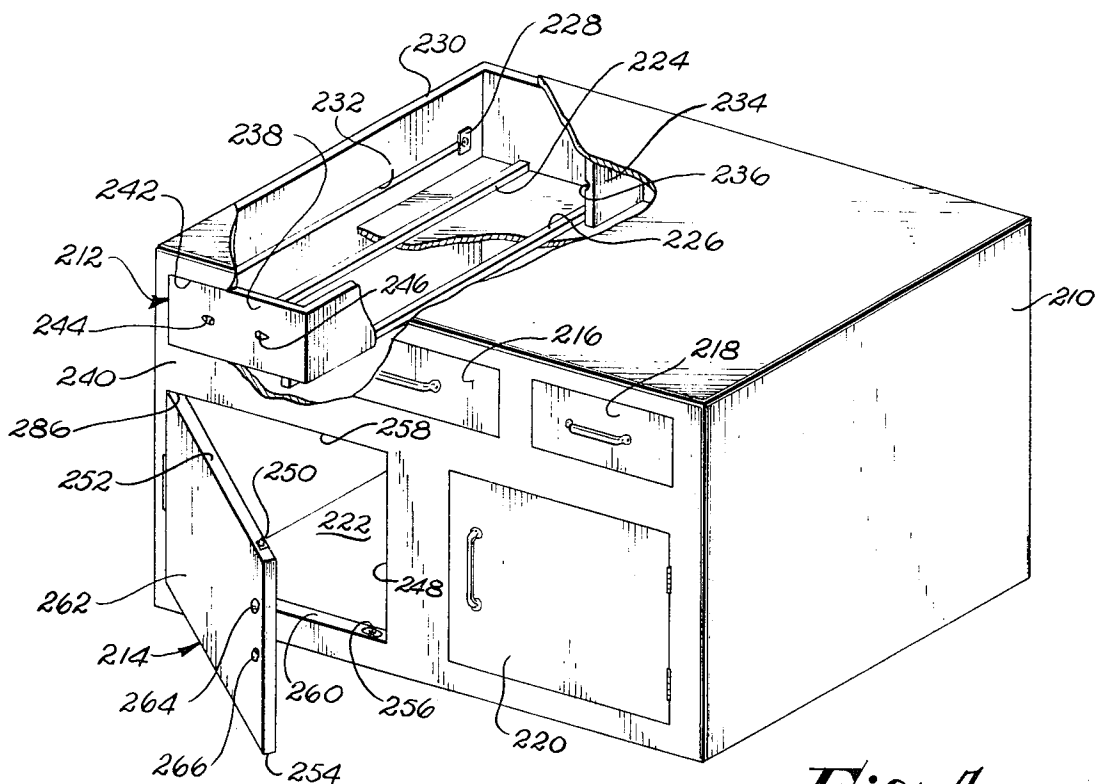
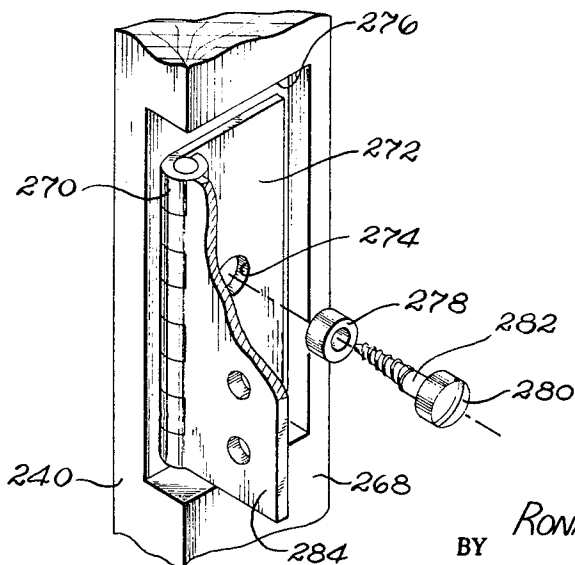


Fig. 4.

Fig. 5.



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CHILD-PROOF CONTAINER
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8 Claims

ABSTRACT OF THE DISCLOSURE

A lid or drawer is close-fit within the opening of a receptacle and is removable only by pulling the lid or drawer directly out of the opening, against the tension of spring loaded catches, by means of a pair of finger grips which are spaced apart a distance greater than the effective finger grip span of a child and less than the finger grip span of an adult. The structure is adapted to a cabinet wall and door by connecting one edge of the door to the cabinet wall with a hinge which is pivotal in a plane normal to the plane along which it opens.

FIELD OF THE INVENTION

The field of art to which the invention pertain include the fields of receptacles, including wooden receptacles, closures and fasteners.

BACKGROUND AND SUMMARY OF THE INVENTION

With small children in a household, the storage of such items as medicines, poisons and the like is problematical in that it is desirable to have ready access to such materials, yet prevent access by the child. Such precautions extend not only to materials which a child can ingest, but also to such items as pistols, hunting knives, and the like, which can cause serious injury. For example, it is very desirable to obtain access to a loaded pistol in an emergency, as when it is suspected that a burglar has entered the premises. However, many pistol owners who have small children in their household keep their pistol in a place which is not only inaccessible to the child but very inconvenient to the adult, and as added safety precaution he will generally keep the pistol unloaded. As a result, he does not have immediate access to a loaded pistol in an emergency.

A variety of prior devices have been suggested to enclose such items in a child-proof manner. See for example, U.S. Pat. No. 2,936,189. Other patents of interest with respect to various containers are U.S. Pat. Nos. 1,218,814, 1,552,720 and 2,328,993. Many prior devices have required complex, costly mechanisms or have been too inconvenient for ready use, resulting in the lack of general adoption of such devices.

The present invention provides a child-proof container which can be simply constructed, effectively prevents access by a child, say under four years of age, yet which is readily accessible to normal adults. In one form of the invention, a box is provided in which a lid or drawer is disposed close-fit within the box and which is removable only by means of finger grips which are spaced apart too far for use by a child. The container is constructed so that the lid or drawer cannot be pulled out of the box except by a person with an adult finger grip span grasping the lid or drawer and pulling directly outwardly. In addition to the finger grip span requirement, a latching arrangement is provided which can be spring loaded to a desired tension in excess of the strength of a normal child so that in the event that the finger grip span requirements are otherwise overcome, access to the interior of the container would still be prevented. In this regard,

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clearance between the edges of the lid or drawer and adjacent wall structure of the container is insufficient to permit release of one only of the latch members. In a further embodiment a cabinet door is adapted to incorporate features of this invention and in furtherance thereof is provided with a hinge which is pivotal in a plane substantially normal to the plane along which it opens.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a receptacle in accordance with one embodiment of this invention in which a box is provided having a child-proof lid closure;

FIG. 2 is an elevational, partially broken-away view of the lid utilized in the embodiment of FIG. 1 on line 2—2 of FIG. 1, in the direction of the arrows;

FIGS. 3a and b are perspective views, partially broken-away in FIG. 3a, of another embodiment of this invention in which a child-proof drawer is provided;

FIG. 4 is a perspective, partially broken-away view of a cabinet structure incorporating various embodiments of this invention; and

FIG. 5 is a perspective, partially exploded view of a hinge utilized in construction of the cabinet depicted in FIG. 4.

DETAILED DESCRIPTION

As required, detailed illustrative embodiments of the invention are disclosed herein. However, it is to be understood that these embodiments merely exemplify the invention which may take many different forms radically different from the specific illustrative embodiments disclosed. Therefore, specific structural and functional details are not to be interpreted as limiting, but merely as a basis for the claims which define the scope of the invention.

Referring now to FIGS. 1 and 2 there is illustrated a child-proof container 10 in accordance with one embodiment of the invention. The container 10 is constructed of wood, but may be constructed of plastic, metal, or other material, and includes an elongate box having top and bottom walls 12 and 14, side walls 16 and 18 and a rear wall. The wall structure defines a container having an opening 20 at the front. The container is formed with an inner ledge 22 defining a compartment 24 of decreased dimensions, the ledge 22 serving as a stop for a lid 26. The lid 26 is dimensioned so as to close-fit the opening 20 and so that when its rear surface 28 abuts the ledge 22, the front surface 30 of the lid is flush with the forward edges of the walls 14, 16 and 18.

Referring specifically to FIG. 2, the wall structure 12 and 18 is shown by dashed lines to illustrate the clearance, as indicated at 32, between the edge surfaces of the lid 26 and the inner surfaces of the walls 12 and 18. It will be seen that the width of the lid 26 as indicated at 34 is substantially greater than the extent of clearance 32 between the lid edge surfaces and the inner surfaces of the container walls. As a result, to be removed from the container 10, the lid 26 must be pulled directly outwardly.

A pair of recesses 36 and 38 are drilled into the front surface 30 of the lid to provide finger grips for the lid 26, as indicated by the hand shown in dashed lines at 42. The recesses 36 and 38 are drilled inwardly toward each other so as to allow the fingers of one hand to grasp the lid 26. In this regard, concepts of the present invention differ from prior attempts at child-proofing a box. The finger grips 36 and 38 are spaced apart, but not necessarily such a distance as would preclude a child from actually inserting his fingers in the grips. As will hereinafter be described in more detail, latching members are incorporated with the lid so that the lid must be pulled outwardly with some degree of force. In accordance with the concepts of the present invention, even if a child

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were to place his fingers within the finger grip recesses 36 and 38, as a result of tension on the latching elements, he would not have sufficient strength in his fingers to withdraw the lid. This would be so, even if he used a finger from each hand to insert into the spaced recesses 36 and 38.

Accordingly, the present invention does not rely entirely on finger grip span, but also on the relative weakness of grip of the ends of a child's fingers. However, it will also be appreciated that a spacing which is greater than, or at the end of, a child's finger grip span is greater assurance of safety. The term finger grip span is meant to refer to the maximum distance between the person's thumb and forwardmost knuckle of this longest finger, as indicated at 44, 46, respectively, in FIG. 1. In this regard, the finger grip span of a child under four years old is generally about four inches or less so that spacing of the inner edges of the recesses 36 and 38 is preferably about four inches or more, and generally less than about eight inches.

Referring now to the manner by which the lid 26 is latched into the container 10, the side edges 48 and 50 of the lid 26 are provided with oppositely disposed pairs of spring-loaded bullet catches 52, 54, 56 and 58 which engage strike-plates, such as at 60 and 62, so as to latch the lid 26 within the container 10. Referring specifically to the bullet catch designated by the numeral 58 as exemplary, the bullet catch 58 is the spring-loaded type which is well known and commercially available. It is press-fit into an opening drilled into one end of a wooden housing 64 having a rectangular cross-section and slidable within a mortise 68 formed through the lid rear surface 28. The bullet catch 58 includes a bullet-shaped latch bar 72 supported on a spring 74. A screw opening is drilled laterally through the housing 64 and extended to become a slot 78. The housing is secured to the lid 26 by means of a screw 76 through the slot 78. By adjustment of the screw 76 with respect to the slot 78, the position of the latch bar 72 can be varied. By such means, the tension of the spring load on the bullet catches can be adjusted as individually determined by the person who is to have access to the box. The tension can be adjusted to the point where only a strong man can remove the lid 26, or the tension can be adjusted so that any adult woman can easily remove the lid 26. The bullet catches should be disposed so as to be spaced on a line substantially parallel to a line between the finger grips 36 and 38 so that the lid 26 may be withdrawn from the container 10 by drawing straight back thereon. As a result of the narrow clearance 32 in comparison to the relatively substantial width of the lid 26, the lid 26 cannot be tilted out of the container 10 but must be drawn straight out.

Considering now the width of the bullet catch latch bar 72, as indicated at 80, it will be appreciated that in order to prevent a child from working the lid 26 out of the container 10, the clearance 32 should be less than about one-half the width of the latch bar 72. In this latter case, if a child were to manipulate the lid 26 so that it is tilted to its maximum disposition within the container 10, even if he were to depress one of the bullet catches, it would still not clear the strike plate opening. Accordingly, the child could not release the bullet catches on one side only. To facilitate an interoperative relation between the finger grips 36 and 38 and the tensioned latching elements, neither of the grips 36 and 38 is centrally disposed between the bullet catches.

Referring now to FIGS. 3a and b there is illustrated another embodiment of this invention in which a child-proof container 110 is provided including a housing 112 which is formed with top and bottom walls 114 and 116, side walls 118 and 120 and a rear wall 122 to define a hollow casing for a drawer 124. The drawer 124 includes a bottom wall 126, side walls 128 and 130, a rear wall 132 and a front wall 134. The wall structure is dimensioned and assembled so as to slide close-fit within the

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casing 112, with clearances on the order referred to above with respect to FIGS. 1 and 2. When completely inserted, the front wall 134 fits flush within the opening 136 defined by the front edges of the casing walls 114, 116, 118 and 120. The front drawer wall 124 is formed with a pair of oppositely disposed finger grip recesses 138 and 140, the purpose and function of which are identical to that referred to with respect to FIGS. 1 and 2.

In this embodiment, a single pair of bullet catches, only one of which indicated at 142 is shown, are disposed horizontally aligned on opposite vertical edges of the rear wall 132. A pair of oppositely disposed strike plates, one of which is shown at 144 are correspondingly disposed at the end of the casing walls 118 and 120, and the inner surfaces of the walls 118 and 120 are formed with grooves 146 and 148 leading to the strike plates, for accommodation of the bullet catches.

Articles to be kept secure from a child are placed in the drawer 124 which is then slid into the casing 112 until the bullet catches 142 engage the strike plates 122, at which point the front surface of the front wall 134 is flush with the outer edges of the casing walls 114, 116, 118 and 120, or lies within the opening 136. In order to open the drawer, the finger grips 138 and 140 must be spanned and the drawer withdrawn directly out of the casing 112. The bullet catches 142 are identical to those described with respect to FIGS. 1 and 2 and can have their spring load adjustable as appropriate to the user.

Referring now to FIGS. 4 and 5, still other embodiments of the invention are illustrated in which the concepts herein are applied to a kitchen cabinet 210 which includes a slidable drawer 212 and hinged door 214, each of which is made child-proof by employing the concepts herein, and which are used in conjunction with normal slidable drawers 216 and 218 and a normal hinged door 220. Accordingly, the housewife has readily available a place where she can store such items as medicines, for example in the drawer 212, or poisons and harsh cleaning chemicals, such as in the compartment 222 as closed by the door 214.

Referring first to the slidable drawer 212, this is constructed in a manner identical to the construction of the drawer 124 depicted in FIG. 3b. The cabinet 210 is fitted with drawer slides 224 and 226 in the usual manner and a pair of strike plates, such as illustrated at 228, are disposed at opposite ends thereof. One strike plate is secured to the adjacent cabinet wall 230 which is formed with a groove 232 leading to the strike plate 228 to accommodate the bullet catch. The other strike plate is secured to an upright member 234, also formed with a groove 236 leading to the strike plate. The dimensions of the drawer 212 are such that when fully seated within the cabinet 210, the front wall 238 is flush with the front cabinet wall 240 which serves as a jamb for the drawer 212, or is somewhat within the opening 242 defined thereat. In accordance with the present invention, a pair of finger grips 244 and 246 are formed as inwardly directed recesses in the front surface of the front drawer wall 238.

Referring now to the cabinet door 214, the front cabinet wall 240 defines an opening 248 for the door 214 into which the door 214 is relatively close-fit, retaining the dimensional relationship of width to clearance as referred to with respect to structure of FIGS. 1 and 2. A pair of bullet catches, as illustrated at 250 are secured to extend from the top and bottom edges 252 and 254 of the door 214, and correspondingly disposed strike plates, such as at 256 are secured to the confronting top and bottom edges 258 and 260 of the front cabinet wall 240. The front surface 262 of the door 214 is formed with a pair of finger grips 264 and 266 in the form of inwardly directed recesses spaced apart in accordance with the principles hereinbefore described with respect to the devices of FIGS. 1-2. The bullet catches 250 are identical to the bullet catches such as 58 as utilized in the device of

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FIGS. 1 and 2 are adjustably spring loaded so that the force required to open the door 214 can be adjusted.

Referring specifically to FIG. 5, the door 214 is hingedly connected to an inner edge 268 of the front wall 240. A hinge 270 of special construction is utilized having an inner leaf 272 which is formed with a single central securement hole 274. The material of the front wall 240 is cut away from the edge 268 to define a pocket 276 for the spring leaf 272 with greater clearance for the leaf 272 than present between the edges of the door 214 and the front wall 240. A low friction washer 278, of Teflon or the like, is disposed within the opening 274 and the leaf 272 is secured to the wall 240 by means of a wood screw 280. The wood screw 280 is formed with an unthreaded shank portion 282 which, when the screw radius is fully threaded into the wall 240, is disposed within the Teflon washer 278. The washer 278 is slightly wider than the width of the leaf 272 so that when the hinge is fully secured to the wall 240, it pivots on the washer 278 to the extent of its clearance within the pocket 276.

The other hinge 284 is secured to the back edge 286 of the door 214 (FIG. 4). In accordance with this embodiment, the hinge 270 opens along a plane which is normal to the plane upon which the hinge pivots about the Teflon washer 278, both planes being normal to a plane defined by the oppositely disposed strike plates. As a result of this construction, when the door 214 is closed, an attempt to open the door by means of pulling on one only of the recesses 264 will result in pivoting of the door 214 until the top and bottom edges thereof 252 and 254 engage the adjacent surfaces 258 and 260 of the front cabinet wall 240, the binding engagement cooperating with the tension on the spring loaded catches 250 to prevent opening of the door 214. The finger grips 264 and 266 are preferably disposed so that neither grip 264 or 266 is vertically central of the door.

I claim:

1. A child-proof container, comprising:
 - wall structure defining a receptacle and opening thereinto;
 - a closure member for said receptacle comprising a front wall within said opening and including a pair of spaced finger grip recesses formed inwardly toward each other into the outer surface of said front wall without extension through said front wall; and
 - interconnecting means on said closure member and wall structure for latching said member to said wall structure, said interconnecting means being inaccessible from the outer surface of said front wall and comprising a pair of spring loaded catches on opposite sides of said closure member within said receptacle;

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said closure member being formed so that the clearance between the periphery of said closure member and adjacent wall structure is insufficient to permit release of one only of said pair of catches and said finger grips are spaced on a line substantially parallel to said pair of catches.

2. The invention according to claim 1 in which said closure member is formed to close substantially without extension from said receptacle opening.

3. The invention according to claim 1 including means for adjusting the tension of said spring load.

4. The invention according to claim 1 in which said finger grips are spaced apart by about four inches or more.

5. The invention according to claim 1 in which said wall structure is in the form of a box having side walls, a top wall, a bottom wall and a rear wall, and said closure member constitutes a front wall for said box.

6. The invention according to claim 1 in which said wall structure is in the form of a box having side walls, a top wall, a bottom wall and a rear wall, and said closure member constitutes a drawer slidable into said box, said drawer having a rear wall spaced inwardly from said front wall, said interconnecting means comprising components operatively connected to said rear wall.

7. The invention according to claim 1 in which said wall structure is constructed in the form of a drawer jamb and said closure member constitutes a drawer slidable into said opening.

8. The invention according to claim 1 in which said wall structure is constructed in the form of a cabinet wall and said closure member constitutes a door therefor and including a hinge connecting one edge of said door to said cabinet wall to open along a first plane, said hinge being pivotal in a second plane substantially normal to said first plane.

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312—294; 220—55 K; 292—1