United States Patent

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[54] **CABINET WITH RETRACTABLE DOOR**
9 Claims, 7 Drawing Figs.

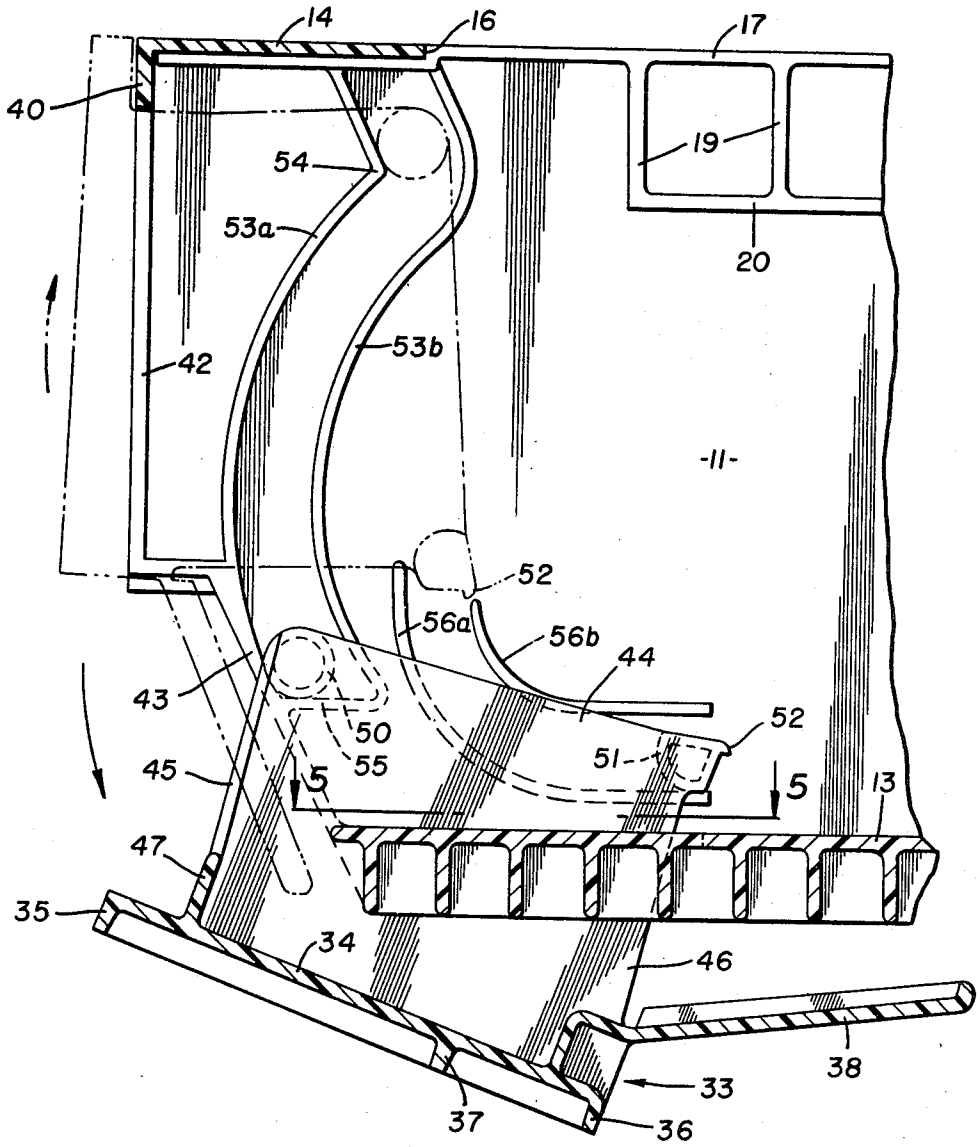
[52] **U.S. Cl.** **312/307,** 312/248, 312/296
[51] **Int. Cl.** **A47b 88/00**
[50] **Field of Search** 312/246, 247, 248, 245, 249, 250, 307, 109

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ABSTRACT: A storage cabinet preferably of plastic material adapted to mount on the underside of a wall cabinet and having a front door which slides downwardly to open and retracts under the cabinet, the door having spaced side cam pins slidable in separate tracks on the side walls of the cabinet to guide the door, and interengaging flange means on said cam pins and said tracks to hold the door in closed and open positions.



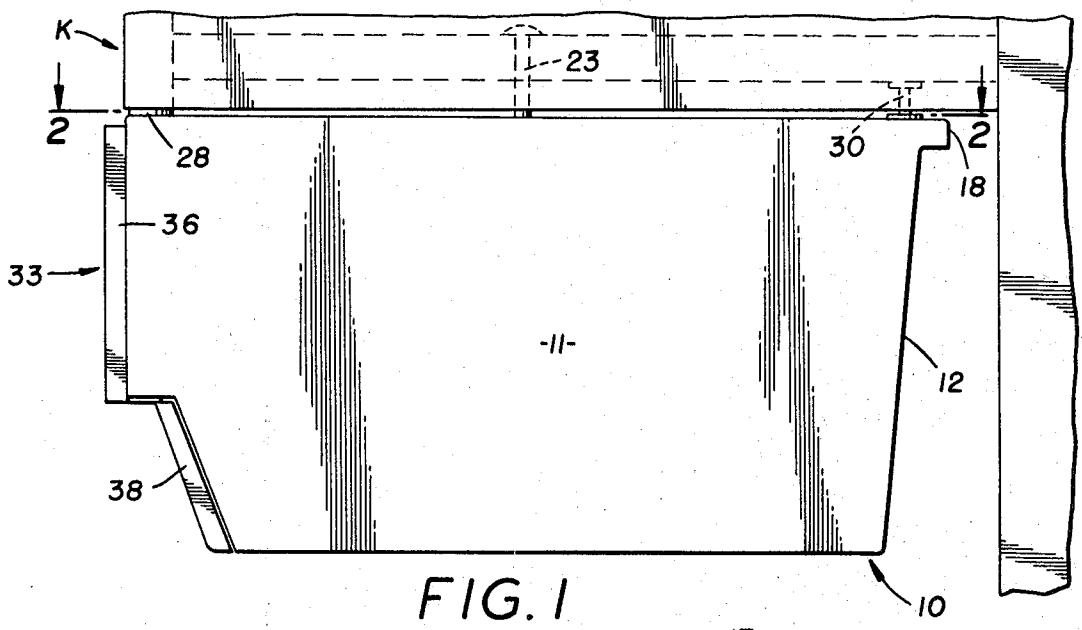


FIG. 1

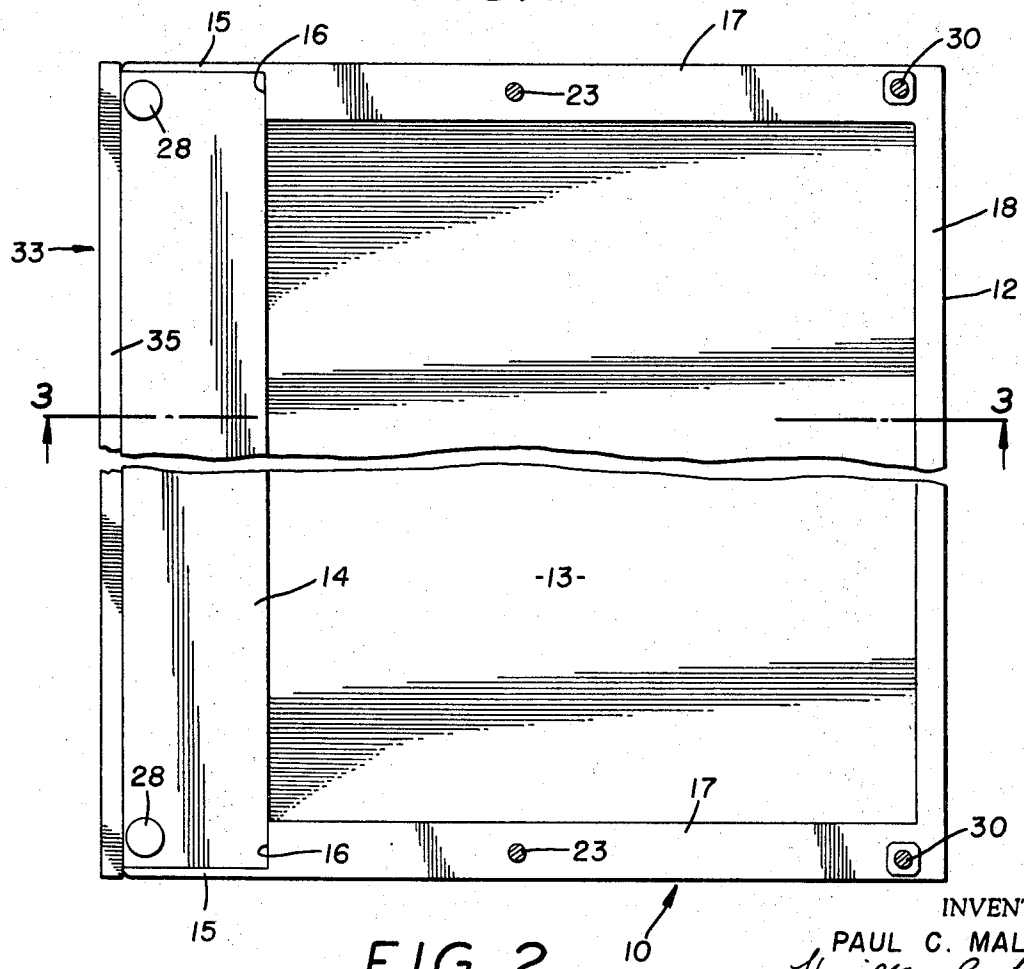


FIG. 2

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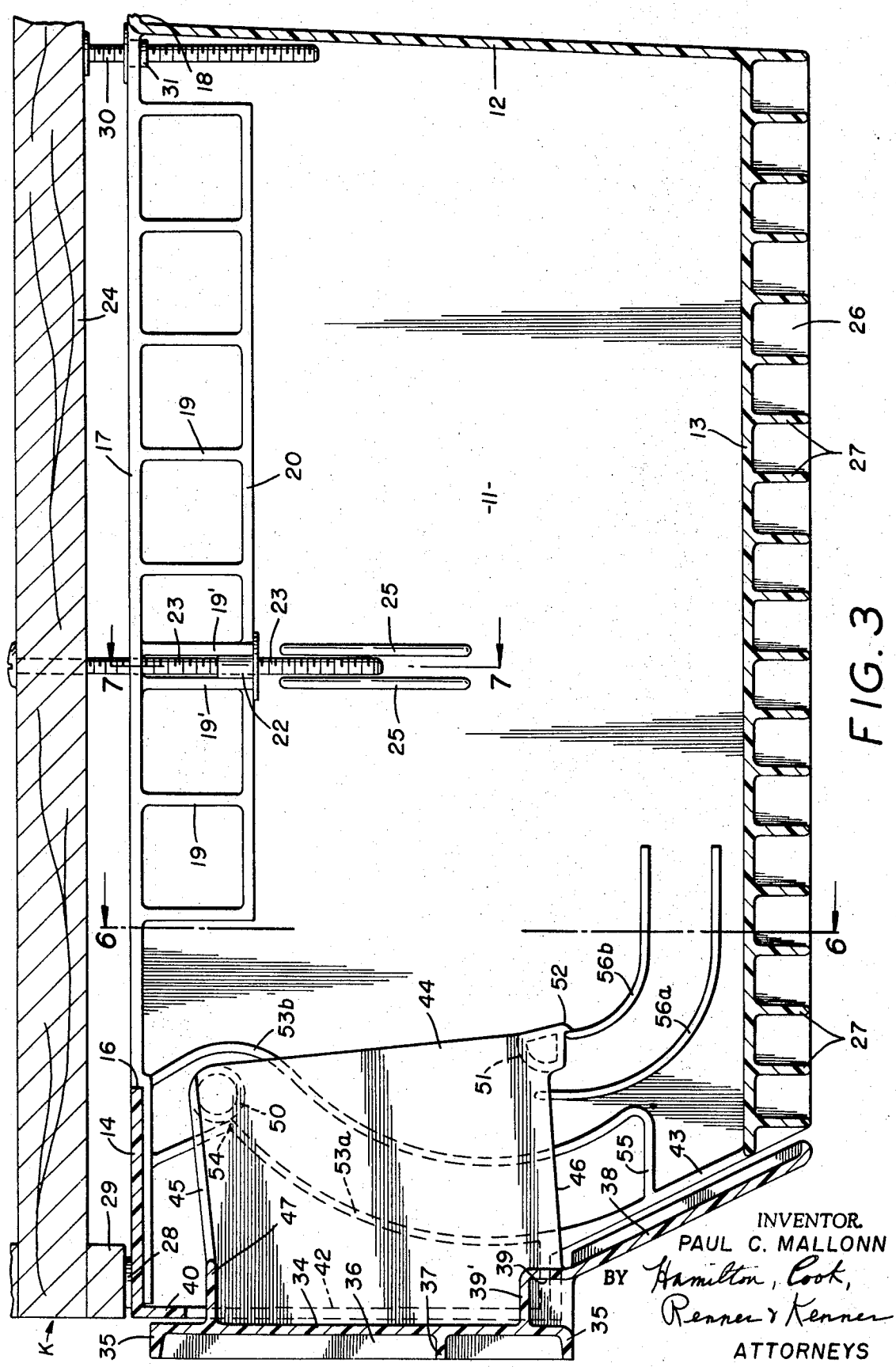


FIG. 3

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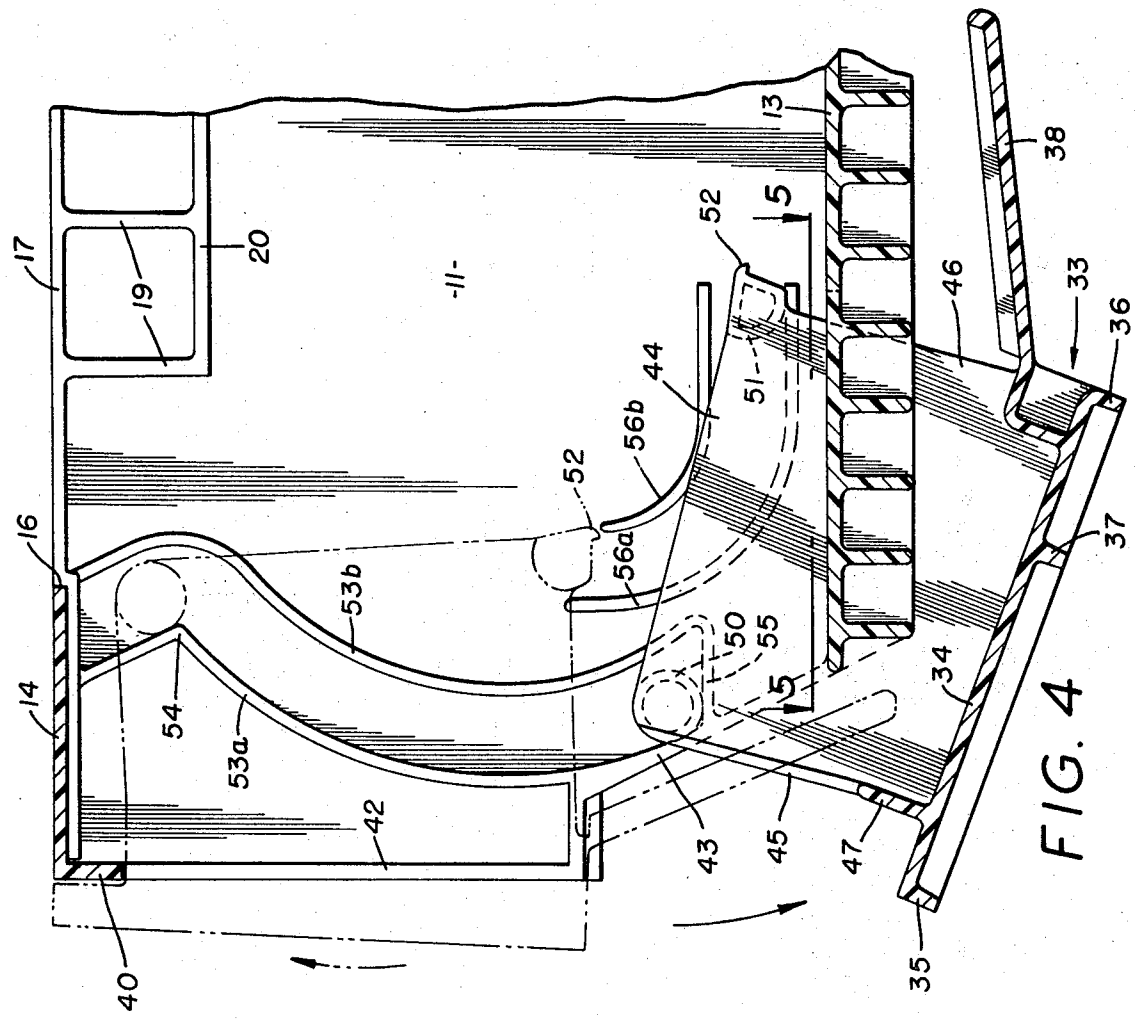


FIG. 4

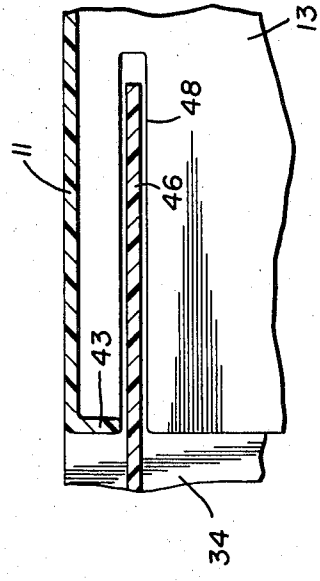
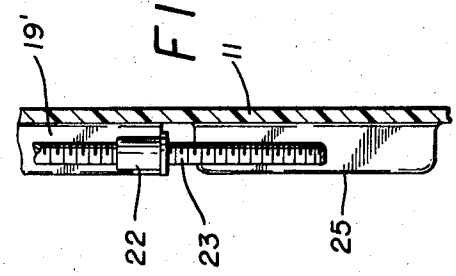


FIG. 5

FIG. 7



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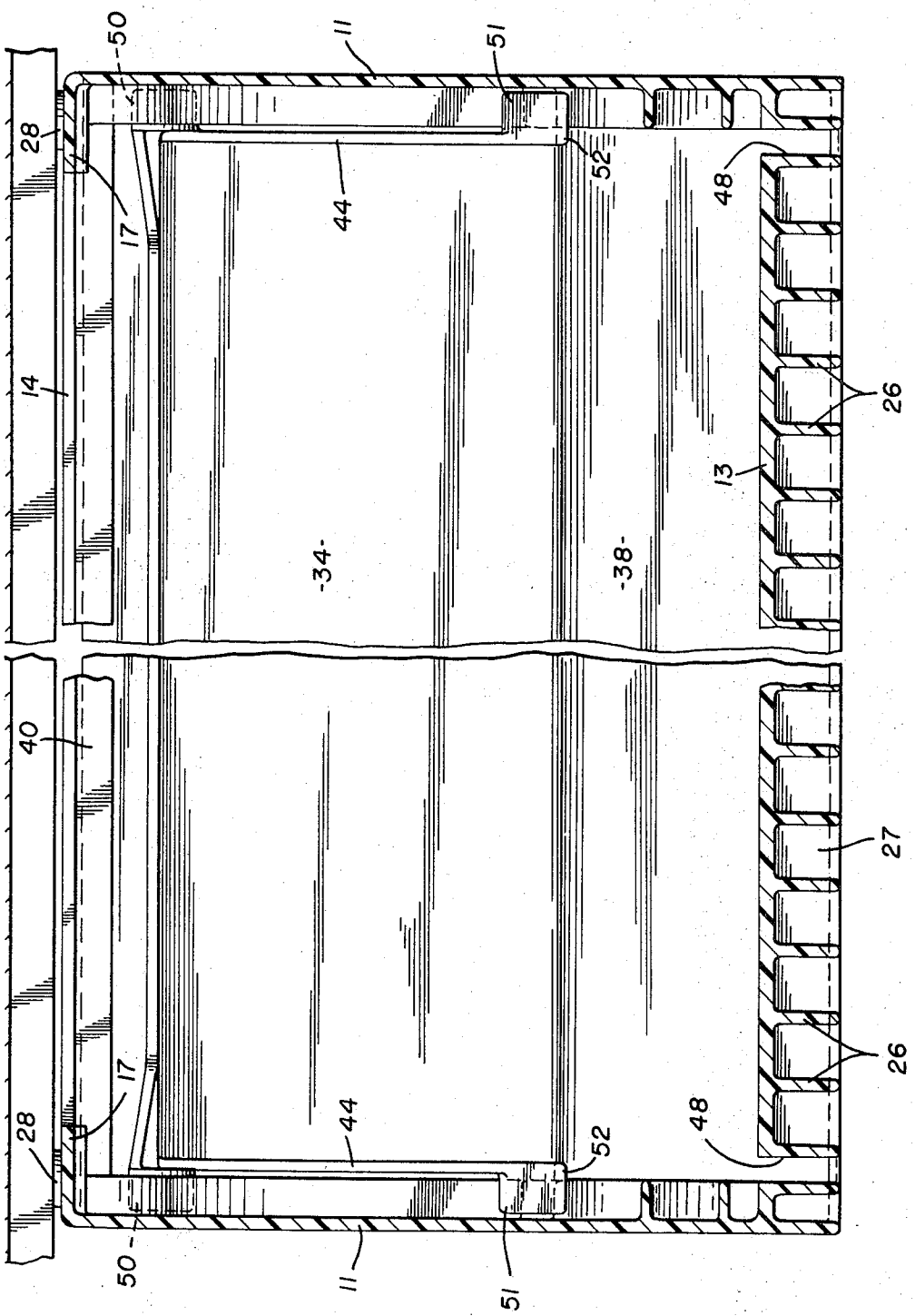


FIG. 6

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CABINET WITH RETRACTABLE DOOR

BACKGROUND OF THE INVENTION

Certain prior cabinet constructions have had pullout drawers with guide rollers mounting the drawer in the side walls of the cabinet, and when a drawer is pulled out access to its contents is had only from the top. This is particularly disadvantageous where the drawer is mounted above eye level as it would be if mounted on the underside of a kitchen wall cabinet above a counter.

A conventional cabinet having a hinged front door, if mounted on the underside of a kitchen wall cabinet, requires space in front of the cabinet to swing the door open, and the open door is always in the way and presents a hazard if left open. However, it is often desirable to leave the door open, as in following recipes using ingredients stored in such a cabinet, for example.

Certain other prior cabinet constructions, of which I am aware, have provided articulated or otherwise complicated constructions which are expensive and impractical.

SUMMARY OF THE INVENTION

The present invention comprises an improved cabinet of molded plastic material having a rear wall, bottom wall and sidewalls adapted for attachment to the underside of a kitchen wall cabinet, said sidewalls having separate tracks for slidably mounting cam pins on the sides of a front door to guide it downwardly and under the cabinet, the pins cooperating with the tracks to support the door in closed and retracted positions.

It is an object of the present invention to provide a novel and improved cabinet with a retractable door which is adapted for mounting on the underside of a kitchen wall cabinet.

Another object is to provide an improved cabinet with a retractable door which is easy to operate, economical to construct and install, and sturdy and stable in all positions.

A further object is to provide an improved cabinet with a retractable door adapted to be entirely out of the way when left in open position.

These and other objects are attained by the improved cabinet construction shown and described herein, modifications and variations in details of construction being within the scope of the appended claims.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation showing the improved cabinet mounted on the underside of a kitchen wall cabinet, with the door in closed position.

FIG. 2 is a plan view, partly broken away, as on line 2–2 of FIG. 1.

FIG. 3 is an enlarged vertical sectional view on line 3–3 of FIG. 2.

FIG. 4 is a partial view similar to FIG. 3, showing the door in open and retracted position.

FIG. 5 is a partial plan sectional view on line 5–5 of FIG. 4.

FIG. 6 is a transverse vertical sectional view, partly broken away, on line 6–6 of FIG. 3.

FIG. 7 is a fragmentary sectional view on line 7–7 of FIG. 3.

DESCRIPTION OF A PREFERRED EMBODIMENT

The cabinet indicated as a whole at **10** in FIG. 1 has molded plastic sidewalls **11** and a rear wall **12** and bottom wall **13** preferably integral therewith. The plastic material may be medium impact polystyrene or other suitable material. The top front ends of the sidewalls **11** are preferably held in proper spaced relation by a spacer bar **14** which may be of the same material and extends between the sidewalls with its ends abutting shoulders **15** on the sidewalls (FIG. 2). The shoulders **15** are formed by recesses **16** in the front ends of the inturned flanges **17** at the tops of the sidewalls. The rear wall **12** has an outturned top flange **18** which is a continuation of the flanges **17**.

Preferably, the sidewalls **11** each have a series of internal vertical reinforcing ribs **19** depending from the flanges **17** intermediate their ends, said ribs being connected at their lower ends by a horizontal rib **20**. Two closely spaced ribs **19'** provide a channel into which a T-nut **22** may be inserted from the lower end, the T-flange abutting the lower horizontal rib **20**. Long bolts **23** are inserted through holes in the bottom wall **24** of a kitchen cabinet K and through aligned holes in the top flanges **17**, and are screwed through the nuts **22** for supporting the sidewalls of the cabinet on the underside of the kitchen cabinet. Vertical guard flanges **25** are provided on the sidewalls **11** below the horizontal flanges **20** for straddling the lower end portions of the bolts **23**. As shown in FIGS. **3** and **6**, the bottom wall **13** preferably has both longitudinal external ribs **26** and transverse external ribs **27** for reinforcing the bottom.

Two rubber friction pads **28** are provided on the top surfaces of the ends of the spacer bar **14** for abutting the under surface of the kitchen cabinet K at the front edge **29** for maintaining alignment therewith. At the rear ends of the top flanges **17** leveling screws **30** abut the underside of the kitchen cabinet K and are threaded through T-nuts **31** in flanges **17** to keep the cabinet **10** in level horizontal position.

The door indicated as a whole at **33** preferably has a normally vertical upper front panel **34** with horizontal and vertical peripheral flanges **35** and **36**, respectively, and an intermediate horizontal flange **37**. An offset rearwardly inclined lower door panel **38** is connected to the bottom of panel **34** and an upwardly extending finger hold recess **39** having an upper wall **39'** is provided between panels **34** and **38** medially of the sides of the door. In the closed position of FIG. **3** the upper edge portion of panel **34** overlaps the front downturned flange **40** on spacer bar **14** forming the top of the front opening into cabinet **10**, and the bottom edge portion of panel **38** overlaps the front edge of the cabinet bottom wall **13** forming the bottom edge of the cabinet opening. As seen in FIG. **3**, the lower portions of the front edges of sidewalls **11** are rearwardly inclined to conform to the lower door panel **38**. The side edges of the door overlap the sides of the cabinet opening defined by inturned vertical upper flanges **42** connecting with inturned downwardly inclined lower flanges **43** on the front edges of the side walls **11**.

Extending rearwardly from the upper door panel **34** are two substantially rectangular side wing flanges **44** positioned to pass within and adjacent to the sides of the cabinet opening defined by the front flanges **42** and **43**. In the closed position of the door the upper edges **45** of the wings are within the cabinet opening below transverse flange **40**, and the lower edges **46** extend rearwardly from the lower part of panel **34** where it is connected by flange **39** to the lower panel. A transverse rearwardly extending reinforcing flange **47** on the door panel **34** connects the upper edges of the wings **44**. As shown in FIGS. **5** and **6** the bottom wall **13** of the cabinet is provided with forwardly open slots **48** extending rearwardly from the front side flanges **43**, to receive the wing flanges **44** when the door is retracted.

The cam pins for movably mounting the door project laterally outwardly from the inner corners of the wing flanges **44**. The upper cam pins **50** are cylindrical while the lower can pins **51** are flattened on the bottom and rear sides to form depending lips **52** at their rear edges for a purpose to be described.

The tracks for the pins **50** are formed by spaced-apart interior flanges or ribs **53***a* and **53***b* on the sidewalls **11**. The ribs **53***a* and **53***b* extend downwardly from the top flanges **17** first in a rearwardly inclined direction and then in a forwardly curving direction The change of direction in the forward ribs **53***a* is marked by a sharp point **54**, against which the upper pins **50** abut to hold the door in closed position as shown in FIG. **3**. The lower ends of ribs **53***a* merge with lower front flanges **43**, and the lower ends of ribs **53***b* terminate in horizontal flanges **55** which connect with flanges **43** to close the tracks and form stops for the pins **50** in the retracted position of FIG. **4**.

The tracks for the lower pins **51** are formed by two downwardly and rearwardly curved space-apart flanges or ribs **56***a* and **56***b* on the interior surfaces of the sidewalls **11**. These tracks may be open at the top and rear ends as shown. In the closed position of the door, the upper ends of track flanges **56***b* are positioned to engage the bottoms of pins **51** against the front of the lips **52** so as to support the weight of the door and at the same time hold the lower panel **38** thereof inwardly in the fully closed position. In the retracted position the curved surfaces of pins **51** rest on the rear ends of flanges **56***a*, as seen in FIG. **4**.

When it is desired to move the door from the position of FIG. **4** to the closed position of FIG. **3**, the door is grasped at the upper peripheral flange **35** and lifted until the inner transverse flange **47** abuts the transverse flange **40**, as shown in the phantom position of the door in FIG. **4**. In this position the lips **52** are raised above the upper ends of track flanges **56***b*, and by pressing slightly inwardly on the door and releasing it, the door will assume the position of FIG. **3**.

To open the door, it is lifted slightly and rocked forwardly by grasping the finger hold **39** so as to prevent binding, until the lips **52** ride over the upper ends of flanges **56***b*, whereupon it will swing freely by gravity to the open position of FIG. **4**.

The improved cabinet with the retractable door is economical to construct and is quickly installed on the underside of conventional kitchen wall cabinets. It is easily operated and retracts to a convenient out-of-the-way position when opened.

I claim:

1. A storage cabinet having a rear wall, a bottom wall, and sidewalls connected to said rear and bottom walls and forming an open front end to said cabinet, a door for closing said front end having side wings extending into said open front end adjacent the interior surfaces of said sidewalls, a pair of spaced laterally projecting cam pins on each side wing, and separate track flanges on the interior of each sidewall for slidably receiving the cam pins to guide the door from closed position to an open retracted position under said bottom wall, said bottom wall having slots receiving said side wings in the open retracted position of said door.

2. A storage cabinet as defined in claim **1**, in which flange means are provided on said tracks to support said door in closed and open positions.

3. A storage cabinet as defined in claim **2**, in which one track flange on each sidewall engages one of the pins on the adjacent wing to hold the door inwardly in its closed position, and a flange at the lower end of said track engages said pin to support the door in open retracted position.

4. A storage cabinet as defined in claim **2**, in which one track flange on each sidewall engages one of the pins on the adjacent wing to support the door in closed position.

5. A storage cabinet as defined in claim **2**, in which one track flange on each side wall engages one of the pins on the adjacent wing to hold the door inwardly in its closed position and a flange on the lower end of said track engages said pin to support the door in open retracted position, and a flange on the other track on each sidewall engages the other pin on the adjacent wing to support the door in closed position.

6. A storage cabinet having a rear wall, a bottom wall, and sidewalls connected to said rear and bottom walls and forming an open front end to said cabinet, a door for closing said front end having side wings extending into said open front end adjacent the interior surfaces of said side walls, a pair of spaced laterally projecting cam pins on each side wing, and separate track flanges on the interior of each sidewall for slidably receiving the cam pins to guide the door from closed position to an open retracted position under said bottom wall, said track having flange means to support said door in closed and open positions, one track flange on each sidewall engaging one of the pins on the adjacent wing to support the door in closed position, said pin engaged by the tract flange to support the door in closed position having a lip engaging behind the end of said track to hold the door inwardly in its closed position.

7. A storage cabinet as defined in claim **1**, in which each pair of spaced cam pins comprises an upper and a lower pin, and the track for receiving the upper pin has a flange portion for engaging said pin to hold the door inwardly in its closed position and has a flange at its lower end for engaging said pin to support the door in its open retracted position.

8. A storage cabinet as defined in claim **1**, in which each pair of spaced cam pins comprises an upper and a lower pin, and the track for receiving the lower pin has an upper end flange for engaging said pin to support the door in its closed position.

9. A storage cabinet as defined in claim **1**, in which each pair of spaced cam pins comprises an upper and a lower pin, and the track for receiving the upper pin has a flange portion for engaging said pin to hold the door inwardly in its closed position and has a flange at its lower end for engaging the pin to support the door in its open retracted position, and the track for receiving the lower pin has an upper end flange for engaging said lower pin to support the door in its closed position.