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[54] **FIFTH LEG FOR MERCHANDISING MACHINE CABINET**

[75] Inventors: **Leo Kull**, West Caldwell; **Bruce B. Landis**, Long Valley, both of N.J.

[73] Assignee: **Rowe International Inc.**, Whippany, N.J.

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[52] **U.S. Cl.** **312/276**, 312/138, 312/317

[51] **Int. Cl.** **A47b 96/00**

[58] **Field of Search** 312/319, 276, 216, 312/138; 297/310; 49/396

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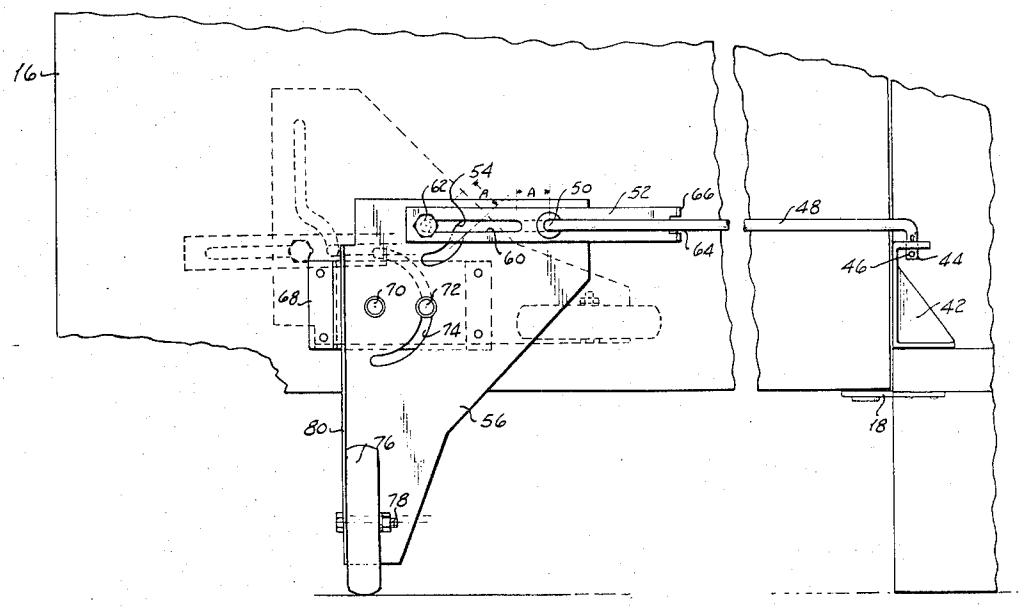
Primary Examiner—James T. McCall

Attorney—Henry L. Shenier, Francis M. O'Connor et al.

[57] **ABSTRACT**

A fifth leg for a merchandising machine cabinet having a door carrying a secondary merchandising unit and having a principal merchandising unit mounted in the cabinet so as to permit it to be swung out of the cabinet for loading, in which a leg pivoted on the door at a location remote from the door hinge moves from a retracted position to an extended position in response to movement of the door from said partially open position to said fully closed position so as to balance the machine whenever the door is between its partially open position and its fully open position.

14 Claims, 5 Drawing Figures



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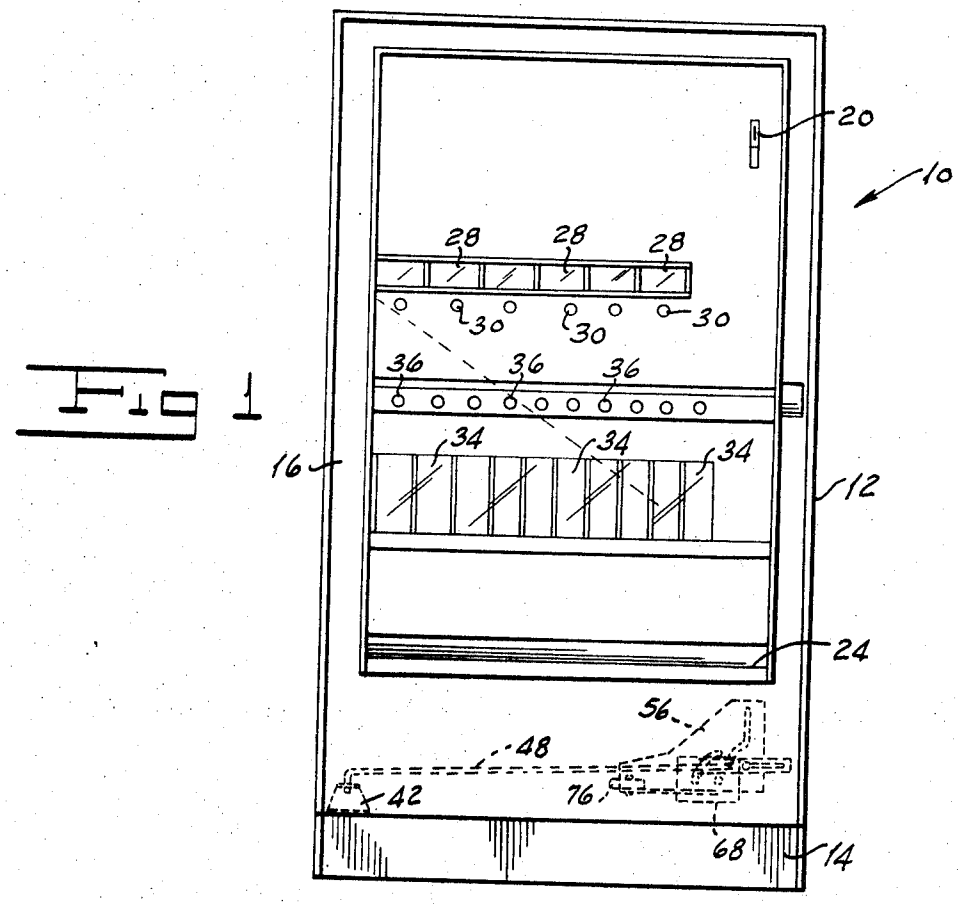


FIG 1

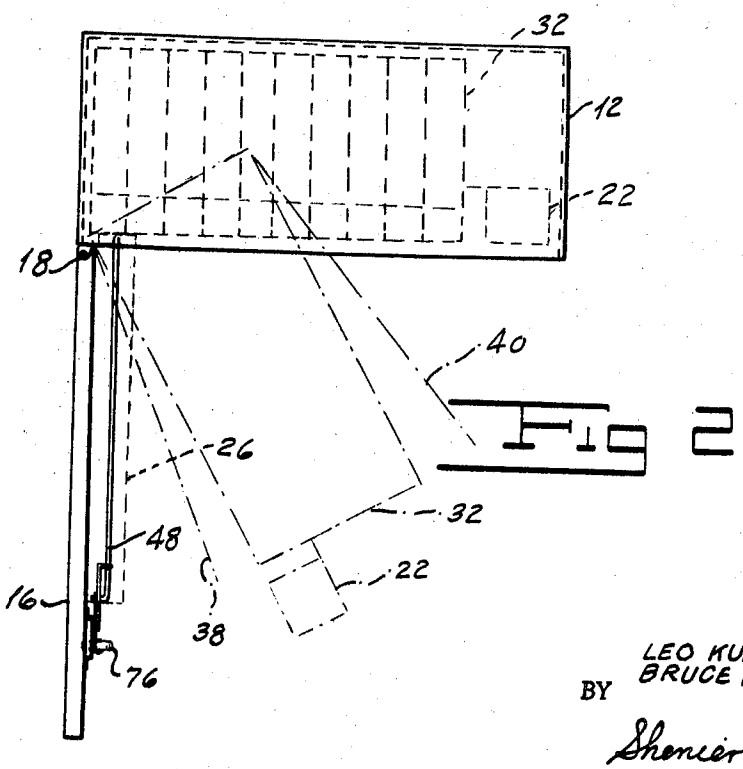


FIG 2

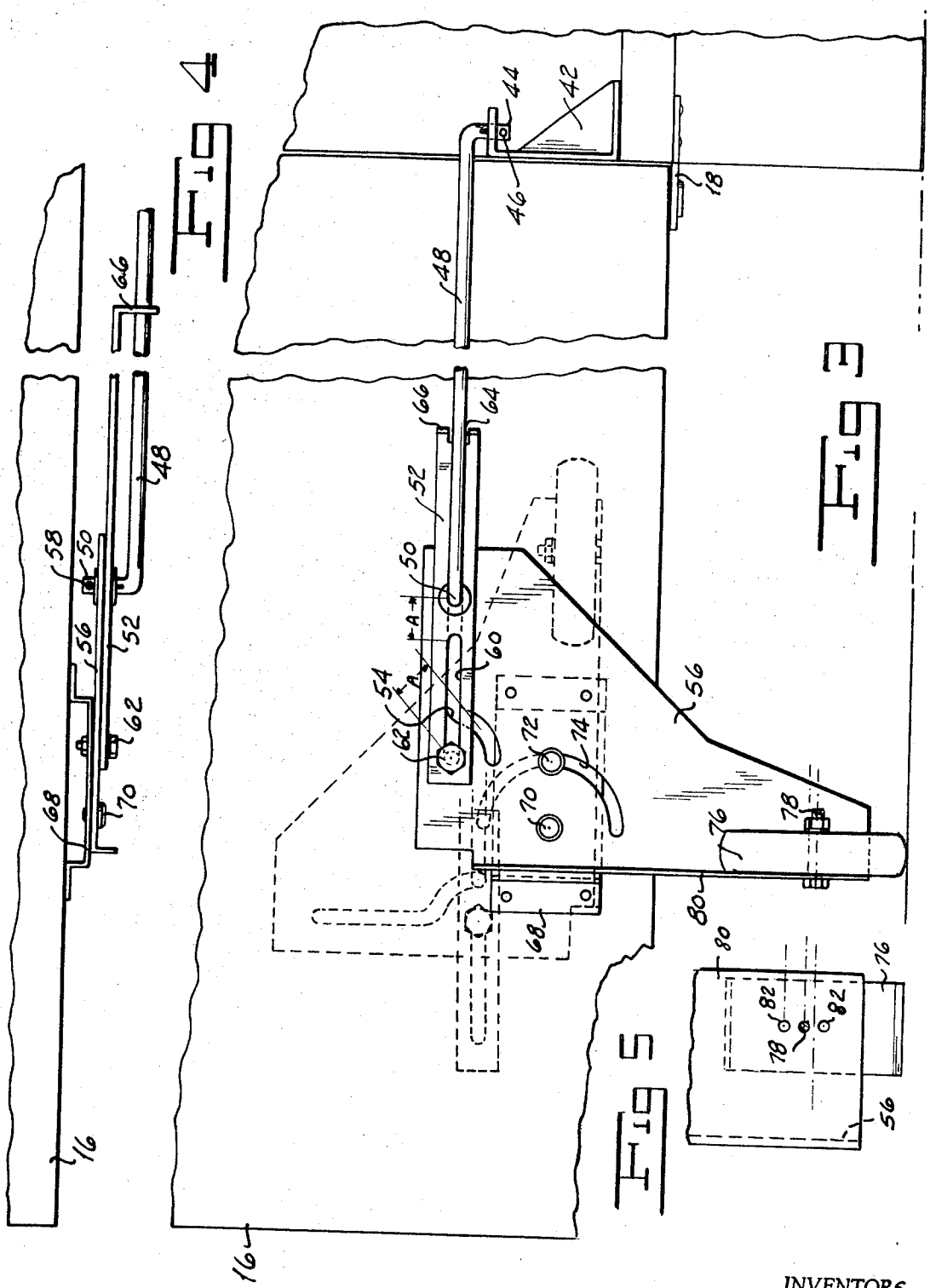
INVENTORS
LEO KULL
BRUCE B. LANDIS

BY Spencer & Monnot
ATTORNEYS

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INVENTORS
LEO KULL
BRUCE B. LANDIS

BY Shenier & Monnor
ATTORNEYS

FIFTH LEG FOR MERCHANDISING MACHINE CABINET

BACKGROUND OF THE INVENTION

There are known in the prior art merchandising machines in which the merchandising unit is mounted in the cabinet for swinging movement around a vertical axis to a position out of the cabinet to facilitate loading of the merchandising unit from the back thereof. One such machine is shown in Auerbach et al. U.S. Pat. No. 3,227,307. The copending application of Albert Kurimsky Ser. No. 210,380 filed Dec. 21, 1971 for "Improved Delivery System for FIFO Merchandising Machine" discloses an improvement over the machine disclosed in the Auerbach et al. patent. In the machine disclosed in the Kurimsky application, a secondary merchandising unit adapted to dispensing articles such as packs of gum and rolls of mints is mounted directly on the door of the machine cabinet. The primary merchandising unit which is adapted to dispense articles such as bars of candy, bags of chips and the like, together with the coin mechanism is mounted within the cabinet for swinging movement around a vertical axis to a location outside the cabinet at which the back of the unit is accessible for loading.

It will be appreciated that in merchandising machines of the type described above, most of the weight of the machine is in the merchandising units. As a result, when the door is open and the units are swung out to loading position, the entire machine is unbalanced and has a tendency to topple thus endangering the person servicing the machine and raising the possibility of damage to the parts of the machine.

Some attempts have been made to overcome the problem outlined above of balancing a merchandising unit is swung out of the cabinet for loading. For example, foot-operated kick stands have been provided on the door adjacent to its outer edge. The danger of such an arrangement is that the person servicing the machine may neglect to operate the kick stand before moving the dispensing unit out of the cabinet. Moreover, if an attempt is made to close the cabinet door before the kick stand is raised, floor at the location at which the machine is installed may be gouged or scratched.

We have invented a fifth leg for a merchandising machine cabinet which overcomes the problems outlined above. Our fifth leg balances the machine with the door open and with the merchandising unit swung out for loading. Our fifth leg will not mar or scratch the floor at the machine installation. Our fifth leg is automatically extended as the cabinet door is moved to a partially open position and is automatically retracted as the door moves from the partially open to the fully closed position. The construction of our fifth leg is simple. Operation of the fifth leg is certain.

SUMMARY OF THE INVENTION

One object of our invention is to provide a fifth leg for a merchandising machine cabinet which overcomes the defects in merchandising machines of the prior art.

Another object of our invention is to provide a fifth leg for a merchandising machine cabinet which balances the machine with the door open and with the merchandising unit swung out for loading.

A further object of our invention is to provide a fifth leg for a merchandising machine which is automatically extended as the cabinet door is moved to a partially open condition.

A still further object of our invention is to provide a fifth leg for a merchandising machine cabinet which automatically moves to a retracted position as the cabinet door is moved from a partially open to a fully closed condition.

Yet another object of our invention is to provide a fifth leg for a merchandising machine cabinet which automatically balances the machine in all positions of the door between a partially open and a fully open condition.

A still further object of our invention is to provide a fifth leg for a merchandising machine which is simple in construction and which is certain in operation.

Other and further objects of our invention will appear in the following description.

In general our invention contemplates the provision of a fifth leg for a merchandising machine cabinet in which the leg is pivotally mounted on the cabinet door at a location remote from the door hinge and is automatically extended as the door is moved from the closed to a partially open condition and which is automatically retracted as the door is moved from the partially open to the fully closed condition, so that the leg balances the machine in all positions of the door between partially open and fully open conditions.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings which form part of the instant specification and which are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

FIG. 1 is a front elevation of a merchandising machine provided with our fifth leg for merchandising machine cabinet.

FIG. 2 is a top plan view of the machine shown in FIG. 1 with the door open.

FIG. 3 is a fragmentary elevation of a portion of the machine illustrated in FIGS. 1 and 2 showing our fifth leg.

FIG. 4 is a fragmentary top plan of the mechanism shown in FIG. 3 with parts broken away.

FIG. 5 is a fragmentary elevation of a portion of the structure shown in FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, a merchandising machine, indicated generally by the reference character 10 with which our fifth leg is used, includes a cabinet 12 having a base 14 and provided with a door 16 supported on upper and lower hinges 18 for movement between a fully closed position illustrated in FIG. 1 and a fully open position illustrated in FIG. 2, which is about 90° of movement of the door from fully closed. The door 16 has a coin slot 20 through which coins can be inserted into a coin mechanism 22 in order to make a purchase. Merchandise is delivered to the customer at a tray 24 in the door.

The particular machine illustrated in the drawings includes a secondary dispensing unit 26 which is adapted to contain articles of merchandise such for example as packs of gum and rolls of mints. The next of each of these articles to be dispensed is visible through one of a number of windows 28. Push buttons 30 carried by the door 16 are adapted to be actuated to energize the

associated merchandising unit after a sum in coins aggregating the purchase price of an article has been inserted in slot **20.**

The machine **10** includes a main or principal merchandising unit **32** adapted to store articles of merchandise such, for example, as bars of candy, bags of chips and the like. The next of each of these articles to be dispensed is visible to the customer through a respective window **34** in the door **16.** Activation of the respective sections of the main unit **32** is under the control of push buttons **36** on door **16.** As is more fully shown in the Auerback patent, the entire unit **32** is supported for swinging movement to a position outside the cabinet **12** as shown in dot-dash lines in FIG. **2.** Moreover, the unit **32** may have swingable front and back panels **38** and **40** which can be opened for access to the unit. In the machine with which our fifth leg is used, the coin mechanism **22** may be carried by unit **32** for movement therewith. Since the operating mechanisms of units **26** and **32** do not, *per se*, form part of our invention, they will not be described in detail.

Our fifth leg assembly includes a bracket **42** welded or otherwise secured to the frame of the machine within the cabinet **12.** Bracket **42** receives a bent end **44** of a rod **48.** A pin **46** retains the end **44** in bracket **42** so that rod **48** may swing relative to the bracket. The other end **50** of rod **48** is bent at right angles to the end **44** and to the longitudinal axis of rod **48** and is inserted through a guide link **52** and through a cam slot **54** in the leg **56.** A pin **58** retains the end **50** in assembled position with the link **52** and the leg **56.** A guide bolt **62** secured to the leg **56** rides in a slot **60** in link **52** to guide the link in its movement in a manner to be described. Rod **48** passes through a slot **64** formed in a flange **66** on the end of link **52** to restrain the rod against appreciable swinging movement around a horizontal axis while permitting limited angular movement around a horizontal axis between the rod and the pivot provided at the rod end **44.**

A bracket **68** welded or otherwise secured to the inside of the cabinet door carries a pivot pin **70** which supports leg **56** for movement between its extended position illustrated in full lines in FIG. **3** and its retracted position illustrated in broken lines. A guide pin **72** on bracket **68** rides in an arcuate slot **74** in leg **56** to guide the leg in the course of its movement. A pivot bolt **78** selectively mounts a nylon block **76** having rounded upper and lower edges in one of a number of spaced holes **82** in a flange **80** in leg **56.** It will be seen that holes **82** allow a range of adjustment of the vertical position of block **76.** In addition we position the mounting hole in block **76** at a location vertically spaced from the block center. For example, in a particlar embodiment the spacing between holes **82** may be one-half inch while the block mounting hole is one-quarter inch from the center of the block. In this way the block can be rotated 180° between two positions illustrated respectively in FIGS. **3** and **5.** In a particular installation we so adjust the block position that the lower edge thereof just clears the floor in the extended position of the leg and does not engage the floor until unit **32** is moved out of the cabinet **12** to tilt the cabinet slightly.

In operation of our fifth leg with the door **16** in the fully open position illustrated in FIGS. **2** to **4,** the end **50** of rod **48** is in the extreme right hand end of the straight portion of the cam slot **54.** At the same time, guide bolt **62** is in the extreme left hand end of the guide slot **60** in link **52.** Pin **74** is at the upper end of the arcuate slot **74.** Leg **56** is in its extended position and block **76** just clears the floor. When unit **32** is moved out to tilt the cabinet block **76** engage the floor.

From the positions of the parts just described, as the door **16** is moved from its fully open position toward closed position, end **50** travels along the straight portion of cam slot **54** until it engages the initial portion of the arcuate portion of cam slot **54.** At this point, the right end of slot **60** in link **52** engages bolt **62.** From this intermediate position continued movement of the door **16** toward its closed position causes link **52** to drive bolt **62** to rotate leg **56** around pin **70** to its retracted position. The arcuate portion of slot **54** permits of relative movement between end **50** and leg **56.** The parts are now in the broken line position illustrated in FIG. **3** when the door is fully closed.

When the door is opened, end **50,** acting on the arcuate portion of cam slot **54** immediately begins to move leg **56** to its extended position. After about 45° of movement of the door leg **56** is fully extended. It will be appreciated that the leg is fully extended before the merchandising units can move to positions at which the machine is unbalanced. After this 45° movement, end **50** registers with the straight portion of slot **54** and continued movement of rod **48** and link **52** relative to the leg produce no movement of the leg.

It will be seen that we have accomplished the objects of our invention. We have provided a fifth leg for a merchandising machine cabinet which overcomes the defects of arrangements of the prior art. Our fifth leg balances the machines with the door open and with the merchandising unit swung out for loading. No danger of marring the floor exists. Our construction is such that the fifth leg is fully extended during the initial opening movement of the door and is not retracted until the terminal part of the closing movement of the door. It is simple in construction and certain in operation.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of our claims. It is further obvious that various changes may be made in details within the scope of our claims without departing from the spirit of our invention. It is, therefore, to be understood that our invention is not to be limited to the specific details show and described.

Having thus described our invention, what we claim is:

1. In a merchandising machine, an assembly including a cabinet, a door, means mounting said door on said cabinet for movement around a generally vertical axis between a fully open condition and a fully closed condition, a leg, means mounting said leg on said door for movement around a generally horizontal axis between a retracted position and an extended position, and means responsive to movement of said door from its closed condition to its open condition for moving said leg from its retracted position to its extended position.

2. An assembly as in claim **1** in which said leg mounting means is disposed at a location on said door remote from said door mounting means.

3. An assembly as in claim **1** in which said means responsive to movement of said door moves said leg to its extended position at a position of said door intermediate said open and closed conditions.

4. An assembly as in claim 3 in which said means responsive to movement of said door moves said leg from said extended position to said retracted position upon movement of said door from said intermediate position to said fully closed condition.

5. An assembly as in claim 4 in which said means responsive to movement of said door maintains said leg extended in all positions of said door between said intermediate position and said fully open condition.

6. An assembly as in claim 5 in which said intermediate position of said door is approximately half way between said fully open and said fully closed conditions of the door.

7. In a merchandising machine, an assembly including a cabinet, a door, a hinge mounting said door on said cabinet for movement around a generally vertical axis between a fully closed condition and a fully open condition, a foot, means mounting said foot on said door at a location remote from said hinge for pivotal movement around a generally horizontal axis between a retracted position and an extended position, and means including a rod extending between said cabinet and said door for moving said foot between said positions in response to movement of said door between said open and closed conditions.

8. An assembly as in claim 7 in which said moving means comprises means for moving said foot from said retracted position to said extended position in response to movement of said door from said closed condition to a position intermediate said open and closed conditions and for moving said leg from said extended position to said retracted position in response to movement of said door from said intermediate position to said closed condition and for maintaining said foot in said extended position in all positions of said door between said closed and open conditions.

9. An assembly as in claim 8 in which said moving means comprises means pivotally connecting said rod at one end thereof to said cabinet and a cam slot in said leg for receiving the other end of said rod, said cam slot comprising a curved portion adapted to be engaged by said other rod end between said fully closed condition of said door and said intermediate position.

10. An assembly as in claim 9 in which said cam slot comprises a straight portion adapted to be engaged by said other rod end between said intermediate position of said door and said fully open position.

11. An assembly as in claim 10 in which said means pivotally mounting said one rod end comprises means mounting said one rod for movement around a generally vertical axis, and in which said moving means comprises means for restraining said rod against appreciable movement around a generally horizontal axis.

12. An assembly as in claim 11 in which said restraining means comprises a link said link receiving said other end of said rod, and a pin-and-slot connection for coupling the said link to leg.

13. An assembly as in claim 12 including a flange on said link at a location intermediate the ends of said rod and a slot in said flange for receiving said rod.

14. An assembly as in claim 13 including a pin and arcuate slot connection between said door and said leg for limiting the movement of the leg relative to the door to said extended and retracted positions.

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