Dec. 26, 1961 F. S. FOOTE, JR., ETAL 3,014,773

DOOR MOUNTING FOR FILING CABINET

Original Filed Nov. 25, 1957 4 Sheets-Sheet 1

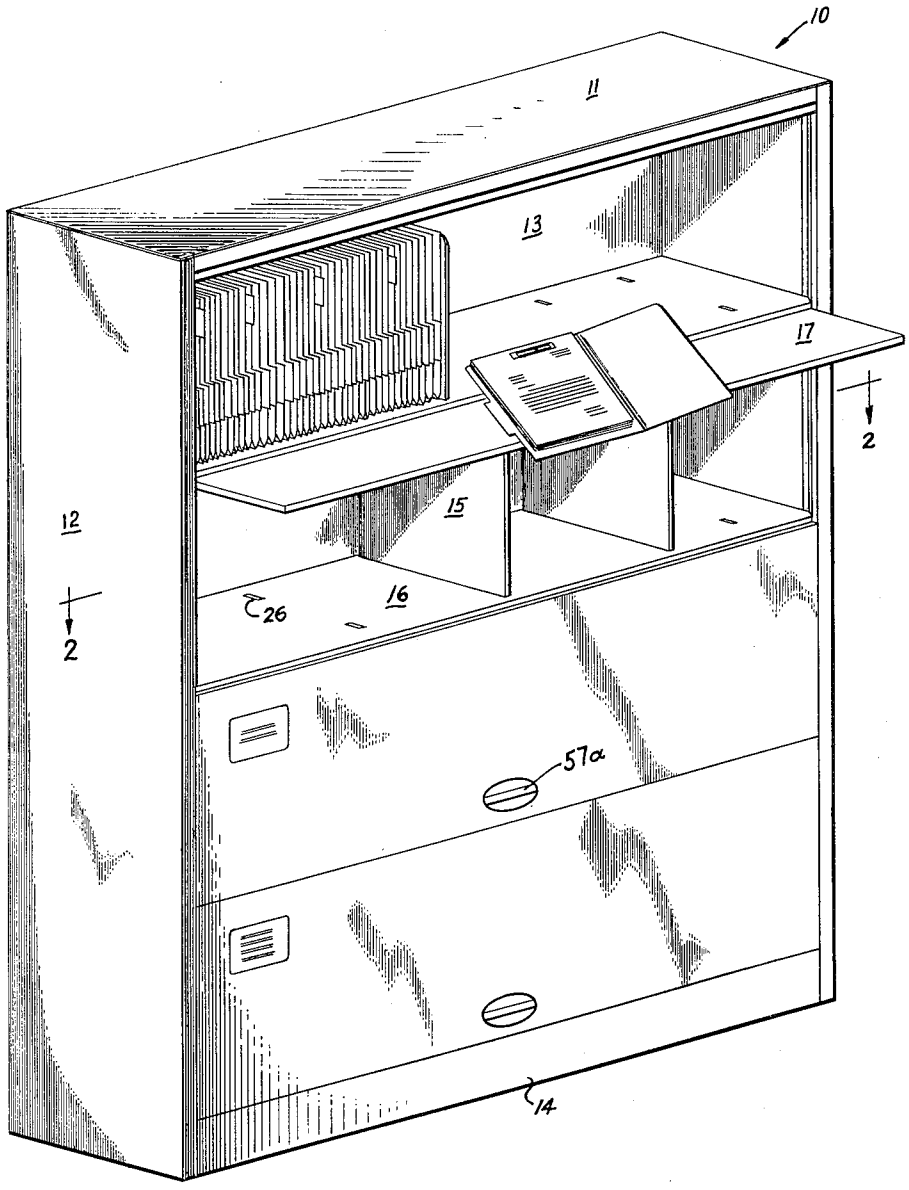

Fig. 1

INVENTORS
FRANCIS S. FOOTE, JR.
HARRY W. LECLAIRE
BY Edward B. Tugg
ATTORNEY

Dec. 26, 1961 F. S. FOOTE, JR., ETAL 3,014,773

DOOR MOUNTING FOR FILING CABINET

Original Filed Nov. 25, 1957 4 Sheets-Sheet 2

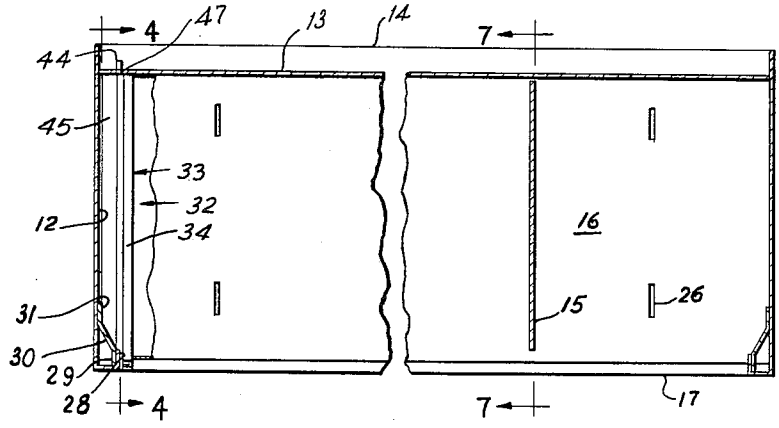

Fig. 2

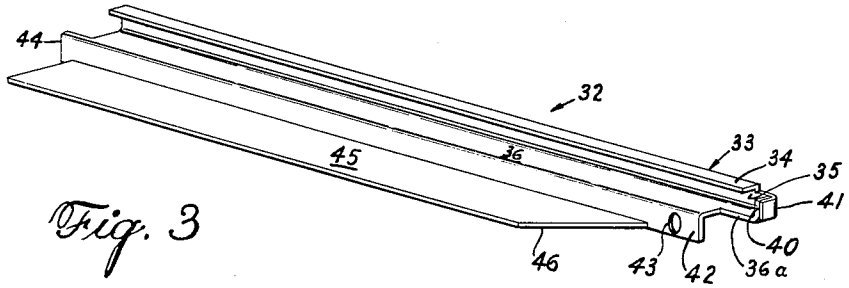

Fig. 3

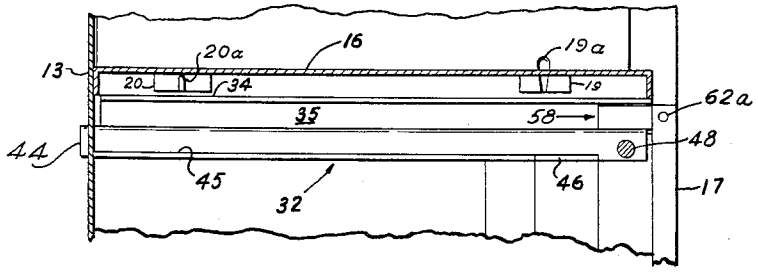

Fig 4

INVENTORS
FRANCIS S. FOOTE, JR.
HARRY W. LE CLAIRE
BY Edward B. Gregg
ATTORNEY

Dec. 26, 1961 F. S. FOOTE, JR., ETAL 3,014,773

DOOR MOUNTING FOR FILING CABINET

Original Filed Nov. 25, 1957 4 Sheets-Sheet 3

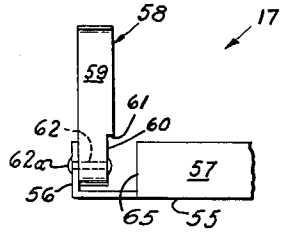

Fig 5

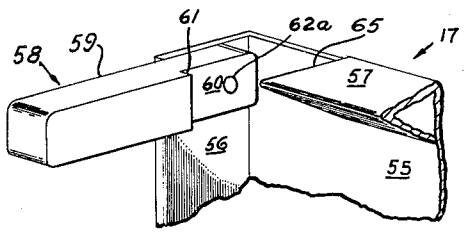

Fig. 6

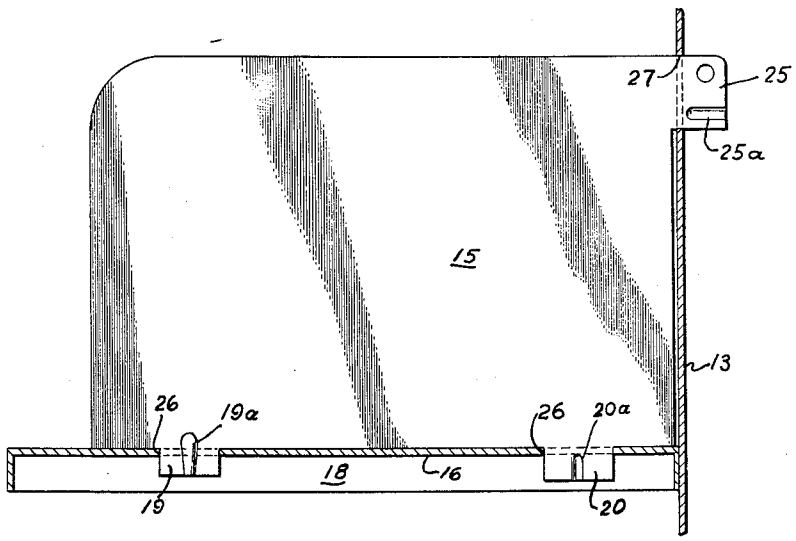

Fig. 7

INVENTORS
FRANCIS S. FOOTE, JR.
HARRY W. LE CLAIRE
BY Edward B. Hogg
ATTORNEY

Dec. 26, 1961 F. S. FOOTE, JR., ETAL 3,014,773

DOOR MOUNTING FOR FILING CABINET

Original Filed Nov. 25, 1957 4 Sheets-Sheet 4

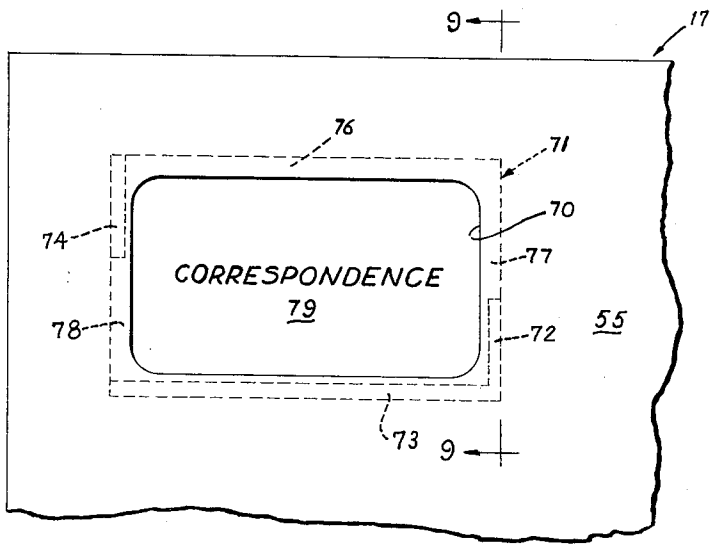

Fig. 8

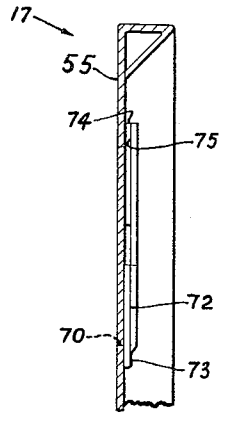

Fig. 9

INVENTORS
FRANCIS S. FOOTE, JR.
HARRY W. LE CLAIRE
BY Edward B. Gregg
ATTORNEY

United States Patent Office

3,014,773

Patented Dec. 26, 1961

3,014,773

DOOR MOUNTING FOR FILING CABINET

Francis S. Foote, Jr., Berkeley, and Harry W. Le Claire, Atherton, Calif., assignors to Tab Products Co., San Francisco, Calif., a corporation of California

Original application Nov. 25, 1957, Ser. No. 698,473, now Patent No. 2,884,295, dated Apr. 28, 1959. Divided and this application Oct. 21, 1958, Ser. No. 768,726

6 Claims. (Cl. 312—323)

This invention relates to a filing cabinet. More particularly this invention relates to a cabinet which is constructed with shelves instead of drawers for support of files, and wherein the files are stored in vertical position and side-by-side as in conventional drawer filing but are spread out laterally parallel to a wall rather than in rows perpendicularly to a wall as in conventional drawer filing.

This application is a division of our copending application Serial No. 698,473, filed November 25, 1957, entitled "Card Mounting Means for Horizontally Mounted Doors of Filing Cabinets and the Like" issued April 28, 1959, as U.S. Patent No. 2,884,295.

Filing cabinets of the character described are finding widespread and increasing acceptance because of certain space advantages. Thus, conventional drawer type filing cabinets require drawers of considerable depth, that is to say, drawers which are quite long from front to rear. For example, in a conventional legal file, the depth of the file is about 28". Therefore, the file must project inwardly into a room in excess of 28". Also, a working space must be left in front of a file of this character to allow pulling out a file drawer to its maximum extent, and to allow room for a person working on a file.

Shelf type filing cabinets overcome this disadvantage because the files are spread out laterally, parallel to a wall, rather than being arranged in rows which extend perpendicularly to a wall.

However, shelf type filing cabinets have several disadvantages. Thus, it is frequently desired to equip such cabinets with doors or front covers. To be completely satisfactory such doors must be retractable. Oftentimes a customer will purchase a set of open filing cabinets and will later wish to equip them with doors. This presents a particularly difficult problem because it is more difficult to mount doors after the cabinets have left the factory. The doors provided should be sturdy and should operate smoothly. Careless handling of doors must be allowed for.

It is an object of the present invention to provide improvements upon filing cabinets.

It is a further object of the invention to provide improved shelf type filing cabinets.

Yet another object of the invention is to provide shelf type filing cabinets (which may also be used as book cases) wherein retractable doors are provided as an optional element, such doors being very easily and speedily mounted and being very efficient and durable in operation.

These and other objects of the invention will be apparent from the ensuing description and the appended claims.

One form of the invention is illustrated by way of example in the accompanying drawings, in which:

FIGURE 1 is a perspective view of a shelf type filing cabinet constructed in accordance with the invention.

FIGURE 2 is a sectional view taken along the line 2—2 of FIGURE 1 and partly broken away to reveal

certain important elements of construction, particularly for mounting retractable doors.

FIGURE 3 is a perspective view of one of the door supporting elements of the invention.

FIGURE 4 is a view taken along the line 4—4 of FIGURE 2, showing door supporting element of FIGURE 3 installed and in side elevation.

FIGURE 5 is a fragmentary top plan view of the upper edge of one of the retractable doors of the invention showing one end thereof and one of the glide members employed with the door.

FIGURE 6 is a perspective view of the retractable door of FIGURE 5 as seen from the interior of the door.

FIGURE 7 is a section taken along the line 7—7 of FIGURE 2 showing the manner in which the divider members are mounted.

FIGURE 8 is a fragmentary, front elevational view of one of the retractable doors of the invention showing the means employed to mount an identification card.

FIGURE 9 is a sectional view taken along the line 9—9 of FIGURE 8 showing the mounting means of FIGURE 8 in end elevation.

Referring now to the drawings and first to FIGURE 1 the filing cabinet of the present invention is there shown and is generally designated by the reference numeral **10**. It comprises a top **11**, two side walls **12**, a rear wall **13**, a base **14**, divider elements **15**, shelves **16** and retractable doors **17**.

Referring now to FIGURE 7, one of the divider elements **15** is there shown in side elevation and mounted in operating position. It will be seen that the divider element **15** is formed with projecting ears **19** and **20** along its lower edge and with an ear **25** which projects rearwardly from the rear edge and the top of the divider element. It will also be seen that each of the ears **19**, **20** and **25** is equipped with a projecting ridge **19***a*, **20***a* or **25***a*, respectively. The shelf **16** is formed with mounting slots **26** and the rear wall **13** is formed with a mounting slot **27**. The slots **26** and **27** are located to register with the ears **19**, **20** and **25**, respectively. The projecting ribs **19***a*, **20***a* and **25***a* secure the divider **15** firmly in the slots **26** and **27** and the rib **19***a* is tapered so that it wedges securely in its slot **26**.

Referring now to FIGURES 2, 3 and 4, it will be seen that the forward edge of each of the side walls **12** is folded to a channel shape so as to provide a flange **28**. The flange **28** abuts one end **29** of a diagonal brace **30**, the other end of which is designated as **31**. The ends **29** and **31** of each brace **30** are soldered, welded or otherwise secured to the adjacent surfaces of the side wall **12**.

Referring now to FIGURE 3, one of the door mounting elements is there shown and is designated by the reference numeral **32**. It will be understood that there are two such elements for each door, one on the left-hand side of a filing cabinet (as viewed from the front) and the other on the right-hand side of the cabinet. The element **32** shown in FIGURE 3 is a left-hand element. The right-hand element is identical except that it is, in effect, a mirror image of the left-hand element **32** shown in FIGURE 3.

The mounting element **32** comprises a channel portion **33** which is formed by a top horizontal flange **34**, a vertical face **35** and a bottom horizontal flange **36**. The bottom flange **36** projects somewhat farther than the top flange **33**. As will be seen, the bottom flange **36** is recessed at **36***a*. At its forward end the flange **36** is turned up at **40** and the projecting end of the vertical

face 35 is turned at a right angle at 41 to provide a very sturdy end stop for a purpose explained hereinafter. The element 32 is also formed with a downturned, vertical flange 42 which is formed at its forward end with a screw hole 43 for a purpose described hereinafter. At its rearward end, at the left in FIGURE 3, the vertical flange projects beyond the channel portion 33 for a purpose explained hereinafter. The element 32 is also formed with a horizontal flange or spacer member 45 which projects outwardly from the bottom of the vertical flange 42. As will be seen, the forward end of the flange 45 is tapered at 46.

In mounting the element 32, its end projection 44 is passed through a slot 47 formed in the rear wall 13 of the cabinet 10 (see FIGURE 2). The tapered end 46 of flange 45, as will be seen, fits snugly against the diagonal brace 30, as is most clearly shown in FIGURE 2. The element 32 is brought up to horizontal position and a screw, such as that shown at 48 in FIGURE 4, is passed through the screw hole 43 and through holes (not shown) in the flange 28 of the side wall 12 and in the adjacent end portion 29 of the diagonal brace 30. These holes formed in the members 28 and 29 may be threaded, or the screw 48 may be of self-tapping variety which will lodge itself securely in the metal. If desired, a rivet or grommet may be used for the purpose.

It will be apparent that the mounting element 32 is itself very easily mounted in a cabinet and requires very little in the way of skill or experience to mount it in place.

Referring now to FIGURES 5 and 6, one of the front covers or doors 17 is there shown in fragmentary perspective, rear view in FIGURE 6 and in fragmentary top view in FIGURE 5. As will be seen the door 17 is formed with a front panel 55, with two side flanges 56 (one of which is shown in FIGURES 5 and 6) and with a tapered top flange 57 of triangular cross section. Each door is also provided with a handle 57*a*. (See FIGURE 1.) There is also provided a pair of runners, bearings or glide members, one of which is shown at 58 in FIGURES 5 and 6. The glides 58 may be of metal or other suitable material. Preferably, however, they are constructed of nylon because of the self-lubricating properties of this material, its good wear resistance, its relatively silent operation and the absence of metallic sounds as it operates. (Nylon is the trademark of E. I. du Pont de Nemours Company of Wilmington, Delaware for a polycarboxylic acid-polyamine copolymer.) The glide 58 has a body portion 59 which, at its forward end, is recessed at 60 to provide a shoulder 61. A pivot pin 62 is provided which pivots the runner 58 on the side flange 56. The pivot pin 62 has a rather large head 62*a* which is countersunk by reason of the recess 60. It will be understood, of course, that a similar glide 58 will be provided at the opposite side of the door 17 and will be similarly mounted.

In mounting the door 17, the glides 58 are inserted in the channels 33 from their open, rear ends. (See FIGURE 3.) The projections 44 on the mounting elements 32 are inserted in their slots 47 (see FIGURE 2) and the forward ends of the elements 32 are brought up to level position. Screws 48 are inserted and tightened.

Yet another method of mounting the door 17 is as follows: The mounting elements 32 are mounted, each with its rear projection 44 within a slot 47, and the screws 48 are inserted but are only partly threaded in so that the mounting elements 32 are held away from their normal positions (i.e., from the tight positions they occupy when the mounting has been completed). In this position each pair of end ears 40 and 41 will be in alignment with a clearance space 65 which is shown in FIGURES 5 and 6 between the flange 57 and the respective glide member 58. The glide member will be in alignment with the respective flange or ledge 36. Therefore the glides can be inserted. Then, when the screws 48 are tightened, the end ears 40 and 41 will be drawn into alignment with the glide members 58 and will act as stops.

This alternative method of mounting is advantageous because it permits mounting a door in a cabinet that is fitted with files. From time to time it is necessary to replace or repair a door. If it is necessary to remove the files, more bother and nuisance result. By the method just described this is not necessary. It is merely necessary to loosen the mounting screws 48 without detaching them, rotate the door to horizontal position, pull it out completely, insert a new door (or reinsert the same door after repairs) and then tighten up the screws 48.

In operation, when a door is in closed position as shown in the bottom two compartments of the filing cabinet 10 in FIGURE 1 and as also shown in FIGURE 4, the ends of the glides 58 will abut the ears 40 and 41 of the respective mounting elements 32 and the door will hang in vertical closed position. When it is desired to open a door it is rotated to horizontal position and pushed inwardly. The glides 58 will slide freely through the channel portions 33 of the respective mounting elements 32 until they abut the rear wall 13. To close a door, it is pulled out. The glides 58 will slide freely through the channel portions 33 of the mounting elements 32 but in a forward rather than a rearward direction. The end ears or stops 40 and 41 will prevent dislodging the door.

As illustrated in FIGURE 1, not only do the doors 17 serve as covers but they may be arrested in semi-extended position as shown in the second compartment of the filing cabinet of FIGURE 1 and used as shelves.

Referring now to FIGURES 8 and 9, another feature of the filing cabinet of the invention is there shown which comprises a means for mounting identification cards and the like. As there shown, a generally rectangular opening 70 is formed in the front face of each door 17 and a rim 71 is provided which is pressed inwardly along the lower right side (as viewed in FIGURE 8) at 72, along the bottom at 73 and along the upper left side at 74. These depressed areas 72, 73 and 74 abut the inner surface of the face 55 to which they are secured by means of soldering, welding or otherwise. It will, therefore, be apparent that a pocket 75 is provided having open areas 76 at the top, 77 at the upper right and 78 at the lower left. It is an important advantage of the pocket 75 that it is accessible from the front of a door. Thus an identification card such as shown at 79, which is rectangular and has dimensions slightly greater than the opening 70, can be inserted from the front as follows: It is first rotated counter clockwise so that its long sides (which are normally horizontal) are at an angle of about 45° and it is inserted within the opening 70. The upper end of the rotated card will pass through the open spaces 76 and 77 of the pocket 75. The card is pushed up until its lowermost end (the lower left-hand corner) has cleared the bottom of the opening 70. The card is then rotated back 45° to its normal position with its bottom edge resting on the depressed area or ledge 73 and its side edges confined by the depressed areas 72 and 74. By this means, it will be apparent, a card can be inserted and removed without the necessity of reaching behind a door. Yet the pocket 75 is entirely within the door and no outwardly projecting structure is required. Also the card is securely confined and will not drop out with the door 17 in any of its normal positions; i.e., vertical and closed, horizontal and open or inclined.

It will, therefore, be apparent that a filing cabinet has been provided of the shelf rather than the drawer type and which has the advantages of space economy. This cabinet has certain very advantageous features among which may be mentioned a door which is easily retractable to a position where it is out of the way and the respective shelf or compartment is open and accessible, such door being easily moved to a vertical, closed position for closing the respective compartment. Such door construction is very simple, the mounting means employed is easily installed and the drawer operates with the greatest of ease. The glide construction 58 is simple and inexpensive; it is rugged; and the recessed pin 62 does not

catch or bind. The tapered upper edge 57 is advantageous because, if it contacts a file, it will not tear it but will tend to push the file gently out of the way. The pocket 75 is very advantageous because it is accessible from the front and holds a card securely.

We claim:

1. In a cabinet of the character described comprising at least one horizontal shelf and vertical side walls at each end of the shelf, the improvement which comprises a door for closing the space above said shelf and door mounting means which permits swinging the door about its upper horizontal edge between a vertical closed position and a horizontal, open position; which permits movement of the door when in said horizontal, open position between an extended position external to the cabinet and a retracted position within the cabinet; and which permits mounting and demounting of the door while said shelf is filled with files; said door comprising a panel extending the length of said shelf and adapted to cover a space above said shelf, an inwardly projecting side flange at each end of said panel and an inwardly projecting top flange along the upper edge of said panel, each end of said top flange being spaced from the adjacent side flange to provide a clearance recess therebetween, said top flange having an inwardly extending top portion and an outwardly and downwardly extending return portion thereby giving said top flange the shape, in transverse cross section, of a V; said mounting means comprising an elongated glide member pivotally mounted on each side flange to swing in said clearance recess with a substantial clearance between such glide member and the adjacent end of the top flange, said glide member being capable of swinging out to a position wherein it projects substantially beyond its side flange; said mounting means also comprising a mounting strip for each glide member, such mounting strip being in the form of an elongated member having a longitudinally extended channel formed by a closed vertical midportion and top and bottom flanges projecting from said midportion, said channel having a fourth, open side facing the adjacent side wall, attachment means at each end of said mounting strip securing the same to said side wall with its open side facing the wall, the front securing means being of a character to permit separation of the front end of the mounting strip from the adjacent wall without detaching such front end from the wall, such separation being sufficient to permit inserting the respective glide member between the open face of the said channel and the adjacent side wall, and means closing the front end of said channel whereby, when the respective glide member has been thus inserted and the front end of the mounting strip is then secured firmly against the respective side wall, said stop means will preclude removal of the respective glide member from its channel.

2. The structure of claim 1 wherein the bottom flange forming the channel of each of said mounting strips projects farther than the respective top flange and stop means, thereby providing a support for the respective glide member while mounting and demounting the respective door.

3. The structure of claim 2 wherein said mounting strip is formed with a mounting flange extending downwardly from the outer edge of said bottom flange and with an abutment flange extending outwardly from the bottom edge of said mounting flange, said mounting flange having at its rearward end a projection for insertion in a slot in a rear wall of the cabinet, said cabinet having a slotted rear wall so receiving said projection, said mounting flange having a hole at its front end and a screw received therein; said mounting means including a mating threaded member carried by the adjacent side wall for threaded engagement with said screw.

4. The structure of claim 1 wherein said glide member has a recessed end portion located within the clearance recess between the glide member and said V-shaped top flange and facing said V-shaped flange, and the pivotal mounting of said glide member is in the form of a pin whose head is located within said recessed portion and is thereby countersunk.

5. A mounting strip of the character described comprising an elongated channel formed by a vertical side wall and top and bottom horizontal walls extending from opposite edges of said side wall to form a channel having a vertical open face; at least two of the three walls forming said channel being bent at one end to form adjacent tongues forming a double-thickness, reinforced end closure for one end of said channel, the other end of said channel having a projecting tongue for insertion in the slotted rear wall of a cabinet; said bottom wall projecting beyond said closure; a mounting flange extending downwardly from the outer edge of said bottom wall, the end of said mounting flange adjacent said closure being formed with means for detachably securing such end to the side wall of a cabinet; and a spacer and abutment flange extending outwardly from the lower edge of said mounting flange.

6. In a cabinet of a character described comprising at least one horizontal shelf and vertical cabinet side walls at each end of the shelf, the improvement which comprises a door for closing the space above said shelf and door mounting means which permits swinging the door about its upper horizontal edge between a vertical closed position and a horizontal open position; which permits movement of the door when in said horizontal, open position between an extended position external to the cabinet and a retracted position within the cabinet; and which permits mounting and demounting of the door while said shelf is filled with files; said door comprising a panel extending the length of said shelf and adapted to cover a space above said shelf, an inwardly projecting side flange at each end of said panel and an inwardly projecting top flange along the upper edge of said panel, each end of said top flange being spaced from the adjacent side flange to provide a clearance recess therebetween; said mounting means comprising an elongated glide member pivotally mounted on each side flange to swing in said clearance recess with a substantial clearance between such glide member and the adjacent end of the top flange, said glide member being capable of swinging out to a position wherein it projects substantially beyond its side flange; said mounting means also comprising a mounting strip for each glide member, such mounting strip being in the form of an elongated channel formed by a vertical channel side wall and top and bottom horizontal walls extending from opposite edges of said channel side wall to form a channel having a vertical open face; at least two of the three walls forming said channel being bent at one end to form adjacent tongues forming a double thickness, reinforced end closure for one end of said channel, the other end of said channel having a projecting tongue, the rear wall of said cabinet being formed with a slot receiving said tongue with the open side of the channel facing the adjacent cabinet side wall, the bottom wall of said channel projecting beyond said end closure; a mounting flange extending downwardly from the outer edge of said bottom wall, the end of said mounting flange adjacent said end closure being formed with a hole for reception of a screw; a spacer and abutment flange extending outwardly from the lower edge of said mounting flange, and a screw received in said hole and in the adjacent cabinet side wall serving to secure the front end of the mounting strip to the cabinet, said screw providing support for such front end when loosened without being detached whereby the front end of the mounting strip can be separated from, without being detached from, the cabinet side wall to permit insertion and removal of said door.

(References on following page)

References Cited in the file of this patent

UNITED STATES PATENTS

1,577,445	Bremken	Mar. 23, 1926
1,833,882	Attwood	Nov. 24, 1931
2,620,252	Restivo	Dec. 2, 1952
2,789,025	Regenhardt	Apr. 16, 1957

FOREIGN PATENTS

265,403	Great Britain	Feb. 10, 1927
189,530	Switzerland	June 1, 1937
853,049	Germany	Oct. 20, 1952
181,398	Austria	Mar. 10, 1955
1,107,206	France	Aug. 3, 1955
1,110,373	France	Oct. 12, 1955