May 12, 1959 P. F. CROSBY 2,886,183

SLIDE-TILT TRAY FILING SYSTEM

Filed Nov. 14, 1956 2 Sheets-Sheet 1

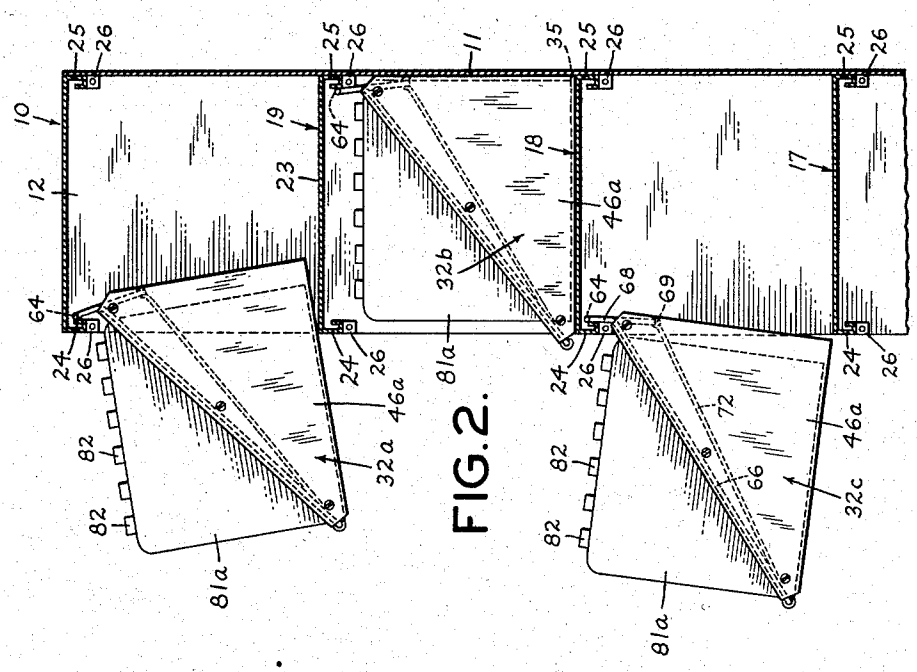
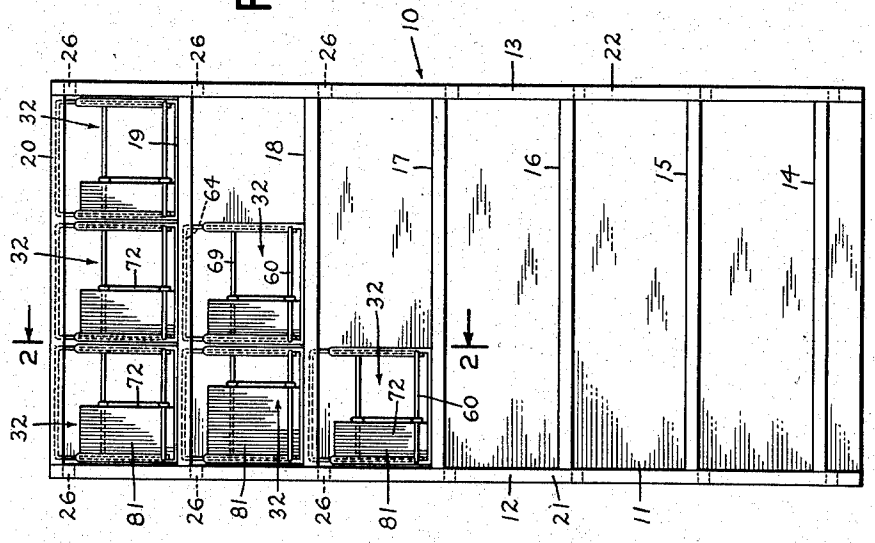


FIG. 2.

FIG. 1.



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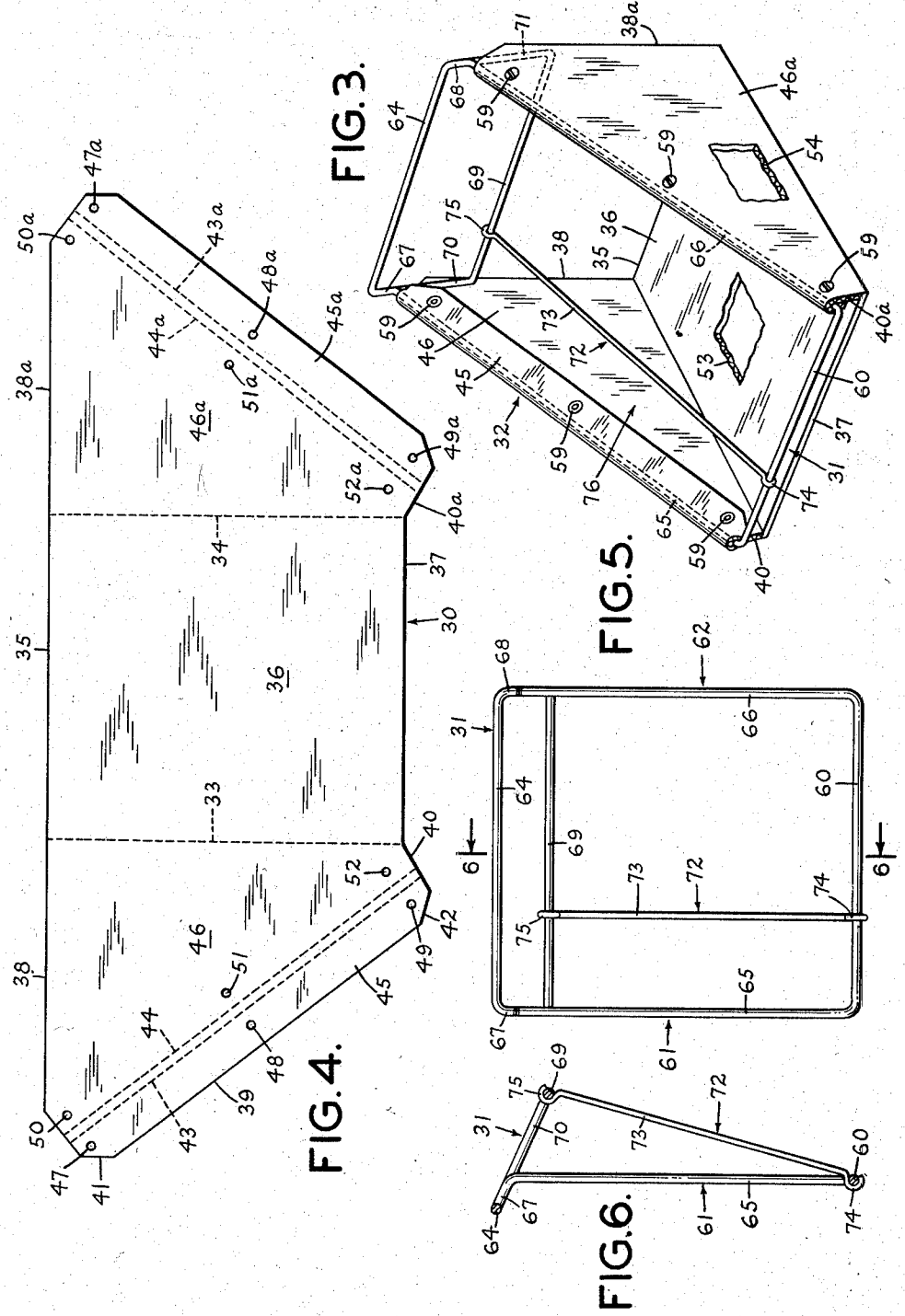


FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

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SLIDE-TILT TRAY FILING SYSTEM

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4 Claims. (Cl. 211—51)

This invention relates generally to filing systems and more particularly to open shelf filing systems.

The open shelf system of filing, as distinguished from the closed drawer type of filing system, has advantages as to space saving and also initial cost. Nevertheless, there have been certain disadvantages in open shelf filing which deter its wider acceptance.

(1) For example, if it is desired to change files from a file cabinet system to open shelf filing, it is usually necessary to change the position of the identification (usually a tab) from the top to the front edge of each file folder, so that the tab will be visible and the folder readily identified when placed on a shelf. The change, while it may seem simple, becomes very expensive when a large number of folders are required, and a single open shelf of standard three foot length is capable of accommodating up to 800 folders. So it is readily seen how the cost of changing the folders or tabs may easily cancel the savings gained through using open shelves which are less expensive than drawer filing cabinets.

(2) In prior art open shelf filing systems the space directly over the top of the row of folders resting on the shelf is covered by the next upper shelf which overlies the folders. To file papers on or to remove them from the shelf, it is necessary to remove the folder from the shelf, then do the filing work outside the file and then return the folder to its proper place on the shelf.

(3) Folders using clip type fasteners or using staples to hold the papers in the folder present difficulty when they are filed on open shelves of the prior art. Unless the folders are filed very loosely, the clips or the ends of the staples tend to get interlocked so that it is very inconvenient to pull an individual folder from the file.

(4) Identifications printed vertically, as a general rule, are not as easy to read as the usual horizontal notations. In prior art open shelf filing systems, the identifications are usually placed at the vertical edge of the folder and this usually requires vertical printing.

(5) Papers or records in many filing systems are not static or fixed in location, particularly if a record retention system is used. It is common to change file locations, as they progress from active, to semi-active, to inactive classifications. It is more inconvenient and difficult to move individual records from shelf to shelf than to move a whole classified group of records from shelf to shelf.

This invention provides an open shelf filing system which overcomes most, if not all, of the drawbacks of prior art open shelf filing systems. According to the invention a filing unit is provided which comprises an open shelf or preferably a plurality of open shelves arranged in vertical alignment in combination with a plurality of filing trays which are mounted for slidable movement in and out of the space provided by an open shelf and the shelf immediately overlying it. The individual filing trays are of novel construction, designed to cooperate with the construction of an open shelf unit so that a number of folders may be conveniently filed in an individual tray and

the tray is slidable inwardly on the shelf, to rest there out of the way; or, outwardly from the shelf to bring the tray of folders into full view and into a convenient position for withdrawing or inserting folders or for placing papers into and removing them from the folders, the trays being so constructed that they provide a frame having stops which permit the trays to be moved outwardly a limited distance and then tilted for more convenient access to them by the person working on the files. Furthermore, the tray, by tilting it upwardly may be removed bodily from the open shelf together with its contents of folders and papers, and then may itself serve as a convenient carrier device for transporting the files contained therein from place to place without disturbance of the order of the papers in it. Also, the tray is provided with a compresser element attached to and slidable on the tray frame to maintain papers filed in the tray in neat, compact order.

The open shelf unit including both the metal shelves and the filing trays themselves which are made of a light weight sheet material (preferably, corrugated paper board) mounted on a metal frame member, may be shipped "knocked-down" and set up and assembled at the place of installation without requiring unusual skill.

Although the novel features which are believed to be characteristic of the invention are pointed out in the annexed claims, the invention itself, as to its objects and advantages and the manner in which it may be carried out may be better understood from the following more detailed description, taken in connection with the accompanying drawings, forming a part hereof, in which:

Fig. 1 is a front view in elevation of an open shelf filing unit embodying the invention, showing a representative number of filing trays mounted for slidable movement on the open shelves;

Fig. 2 is a view in elevation on line **2—2** of Fig. 1 and illustrates various positions into which the trays may be moved when mounted for slidable movement in accordance with the invention;

Fig. 3 is a view in perspective of a typical filing tray made according to the invention;

Fig. 4 is a plan view of a corrugated paper board blank cut and scored to form, with the frame member, the filing tray illustrated in Fig. 3;

Fig. 5 is a plan view of the metal frame member to which the corrugated paper board blank is attached to make the tray illustrated in Fig. 3; and

Fig. 6 is a view of the metal frame on line **6—6** of Fig. 5.

Referring now to the drawings, in which like reference characters indicate like parts throughout the several views, the metal shelf unit itself, designated **10**, comprises a back wall **11**, side walls **12**, **13** and open shelves **14**, **15**, **16**, **17**, **18**, **19** and top shelf **20**. This open shelf unit **10** is made of sheet metal. The side walls are formed to have vertical reinforcing flanges **21** and **22** and the sheet mettal shelves are formed to have reinforcing flanges **24** and **25** along their front and rear edges. A typical shelf **18** comprises a horizontal shelf surface **23**, a front edge flange **24** and a rear edge flange **25** formed by bending the metal as illustrated perhaps best in Fig. 2. The shelves rest upon vertically adjustable brackets or cleats **26** secured to the shelf side walls **12** and **13**. The sheet metal open shelf unit just described is standard construction already known in the art. It is also known that such open shelf units may be made in different lengths and wtih a greater or lesser number of shelves in vertical alignment. Units three feet and four feet in length, measured along the front edges of the shelves, are standard units in the art and a height of twelve inches from shelf to shelf is also a common standard.

A typical filling tray constructed according to the invention is made from a one piece blank 30 of corrugated paper board (see Fig. 4) and a bar metal frame 31 (see Figs. 5 and 6), which when set up and assembled produce the filing tray 32 shown in perspective in Fig. 3.

The paper board blank 30 (see Fig. 4) is scored along parallel lines 33 and 34 which are at right angles to the rear edge 35 of the blank thus providing a bottom panel 36 defined by rear edge 35, side edge 33, front edge 37, and side edge 34. Extending outwardly from side edge 33 of bottom panel 36 is a side wall portion which is generally triangular in shape, this portion of the blank being bounded by rear edge 38, inclined edge 39, and front edge 40, the corners being cut off at 41 and 42. The side wall portion is scored at lines 43 and 44 parallel to each other and at an angle to score line 33. The distance between score lines 43 and 44 is sufficient to accommodate the side rails of the bar metal or wire frame 31 later described. Thus a clamping flap 45 is provided which in effect is hinged to the triangular side wall panel 46 along score lines 43, 44. The clamping flap 45 is provided with cut out holes 47, 48, 49, which register respectively with cut out holes 50, 51, and 52 in side wall panel 46, when the clamping flap is bent over on score lines 43, 44 onto side wall panel 46. The corresponding side wall panel 46*a* extending outwardly from side edge 34 of bottom panel 36 is the same as side wall portion 46 but other hand thereto and corresponding parts bear the same reference characters having a sub-letter "*a*." As shown at 53 and 54 (see Fig. 3), the corrugations or ribs of the corrugated paper board blank 30 run parallel with the rear edge 35 of the blank.

The metal frame 31 is made of bar metal or relatively rigid wire stock, preferably of circular cross section because this type of bar stock lends itself more readily to bending to the peculiar shape of the frame. The metal frame comprises a front rail 60, side rails 61, 62 and a rear rail 64. The side rails each have a portion 65 and 66 from which extend upwardly bent short portions 67 and 68, the portions 65, 66 assuming a position inclined to the horizontally disposed bottom panel 36 when the tray is set up and assembled as shown in Fig. 3. Extending downwardly from the short frame portions 67 and 68 is a U-shaped member comprising a cross rail 69 and upwardly extending short legs 70 and 71 secured respectively to the short portions 67 and 68 of the frame. So much of the frame 31 as has been described is made as an integral piece as by welding or in any way suitable to form a fairly rigid integral frame member.

The frame 31 is also provided with a compresser member 72 for holding papers filed in the filing tray in neat compact order when the papers are filed on their edges and there is not a sufficient number of papers in the file to occupy the total width of the tray. The compresser member 72 comprises a wire having a paper or folder engaging portion 73 at the front end of which is a loop 74 extending around the front guard rail 60 and at the rear end of which is a loop 75 extending around the rear cross rail 69. The length of this wire compresser member 72 is such that when it lies parallel with the side rails 61 and 62, it is slidable sidewise of the tray from side wall to side wall, but may be clamped at any position therebetween by moving one loop or the other so that the wire 73 is not parallel with the side rails but is placed under slight tension. Hence, when papers 81 are filed in the tray, the compresser member 72 may be moved and held against them to keep them in compact order.

To assemble the filing tray, shown in Fig. 3, the side wall panels 46 and 46*a* of the one piece blank 30 are folded upwardly along score lines 33 and 34 to assume a perpendicular position with reference to the horizontally disposed bottom panel 36. Clamping flaps 45 and 45*a* are folded over the side rail portions 65 and 66 of the frame 31 and downwardly into engagement with the inside surfaces of side wall panel portions 46 and 46*a*. Then suitable fasteners are inserted through the registering holes 47—50, 48—51, 49—52 and the corresponding registering holes in clamping flap 45*a* and side wall panel 46*a*. Although any suitable fastening means may be used, that type of separable fastener 59 has been found satisfactory which comprises a hollow threaded female part and a threaded stud part which may be fastened together tightly by means of a simple tool such as a screw driver. These are cheap and readily obtainable. When thus set up, as illustrated in Fig. 3, the tray provides a paper board cradle (designated by reference character 76) in which papers may be filed on edge in folders or without folders; the cradle being secured to the bar metal frame in which the cross rails 60 and 64 may serve as convenient handles if it is desired to transport the tray and contents bodily from one place to another.

The filing trays cooperate with open shelves constructed as a unit to provide an open shelf filing unit and system, as illustrated in Figs. 1 and 2. It will be observed that in the three foot wide shelf unit illustrated in Fig. 1 that each open shelf of the unit will accommodate three filing trays (designated generally by reference character 32). The trays themselves are slightly wider than eleven inches and the height of the cross rail 64 from the bottom panel 36 being slightly less than the distance from shelf level to shelf level, so that when the tray is mounted on a shelf and then moved forwardly and outwardly from the shelf the cross rail 64 serves as a stop member engaging the downwardly extending flange 24 of the shelf immediately overlying the tray and the tray may be tilted downwardly with the bottom panel 36 resting upon the shelf upon which it is mounted. See, for example, tray 32*a* in Fig. 2. It will now be seen that papers may be filed in folders 81*a* with identification tabs 82 on the edges of the folders and the tabs are exposed to full view of the file clerk.

When the filing of papers or removal of them has been done, the tray may then be moved rearwardly in the shelf out of the way, as illustrated by tray 32*b* in Fig. 2. Or, if it is desired to remove the tray and contents together bodily from the shelf, this may be done by moving the tray forwardly and then tipping the front end upwardly as illustrated by tray 32*c* in Fig. 2. By reverse movements the tray may be inserted into the shelf space.

Fig. 1 further illustrates the manner of filing folders or papers 81 in the cradle of a tray 32 and holding them in neat compact order by means of the compresser member 72.

It will be seen from the foregoing description that the invention provides an open shelf filing unit or system which is economical in construction. The entire unit may be shipped in knocked-down condition and assembled at the place of use without requiring unusual skill. The system provides most if not all of the advantages of a closed cabinet or drawer system but at much less cost and provides a useful open shelf system wherein more papers may be filed in a given storage space than in a drawer or cabinet system.

Furthermore, the filing trays may be shipped knocked down and assembled by anyone and without unusual skill. The wire rod side rail members of the frame, being on a diagonal to the vertical corrugations of the side wall panels of the paper board cradle, impart unusual rigidity to the assembled tray. Moreover, any excessive forces from mishandling, crushing or pulling are carried by the frame itself and are not transferred to the paper board cradle to any material degree. The metal rod of the frame carries the shock load as a stop, front and back, and the paper board cradle merely carries the

load of the papers contained within the cradle. The front cross rail **60** provides a pull handle and also serves as a guard rail to prevent papers from sliding out of the cradle when the tray is tilted. The rear upper cross rail **64** provides a stop member to engage the flange of a shelf when the tray is moved forward on a shelf and it also serves as a convenient carrying handle. The lower rear cross rail **69** provides a means for mounting the slidable compresser member **72** and also serves as a guard rail when the tray is tilted upwardly. It will be noted that the top rear cross rail **64** is located forwardly of the rear edge **35** of the cradle **76** so that when the tray is moved the whole way into the shelf space, there is no interference with the rear flange **25** of the overlying shelf.

The terms and expressions which have been employed herein are used as terms of description and not of limitation, and there is no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. A slidable, tiltable filing tray for an open shelf filing system in which the filing trays are mounted for slidable movement on open shelves which are superimposed in vertical alignment and each shelf having a downwardly extending flange member along its front edge, said filing tray comprising a cradle of light weight sheet material, and a bar metal frame to which said cradle is secured, said cradle having a rectangular shaped horizontally disposed bottom panel, and perpendicular side walls extending upwardly from the side edges of said bottom panel, said metal frame comprising side rails, a front and rear rail, said side rails being inclined downwardly from said rear rail to said front rail and the upper edges of said side walls of the cradle being secured to said side rails of the frame and said front and rear rails of the frame extending from side wall to side wall, said front rail serving as a guard rail to prevent papers filed in said cradle from sliding out when the front end of said cradle is tilted downwardly and said rear rail serving as a stop member to engage the flange member of an immediately overlying shelf to permit said tray when mounted on a given shelf for slidable movement to be tilted downwardly with a portion of the bottom panel adjacent its rear end resting on said given shelf when said tray is moved forwardly on said given shelf.

2. A slidable, tiltable filing tray for an open shelf filing system in which the filing trays are mounted for slidable movement on open shelves which are superimposed in vertical alignment and each shelf having a downwardly extending flange member along its front edge, said filing tray comprising a paper board cradle, and a bar metal frame to which said cradle is secured, said cradle having a rectangular shaped horizontally disposed bottom panel, and perpendicular side walls of generally triangular shape extending upwardly from the side edges of said bottom panel, the upper edges of said side walls being inclined upwardly from front to rear, said metal frame comprising side rails, a front and rear rail, the inclined edges of said side walls of the cradle being secured to said side rails of the frame and said front and rear rails of the frame extending from side wall to side wall, said front rail serving as a guard rail to prevent papers filed in said cradle from sliding out when the front end of said cradle is tilted downwardly and said rear rail serving as a stop member to engage the flange member of an immediately overlying shelf to permit said tray when mounted on a given shelf for slidable movement to be tilted downwardly with a portion of the bottom panel adjacent its rear end resting on said given shelf when said tray is moved forwardly on said given shelf, thereby affording ready access to papers filed in said tray.

3. A slidable, tiltable filing tray for an open shelf filing system in which the filing trays are mounted for slidable movement on open shelves which are superimposed in vertical alignment and each shelf having a downwardly extending flange member along its front edge, said filing tray comprising a corrugated paper board cradle, and a wire metal frame to which said cradle is secured, said cradle having a rectangular shaped horizontally disposed bottom panel, and perpendicular side wall panels extending upwardly from the side edges of said bottom panel forming side walls of said cradle and each of said side wall panels having a clamping flap, said metal frame comprising two inclined side rails, a front and rear rail, the flap of one of said side wall panels being looped over one of said side rails and the flap of the other side wall panel being looped over the other side rail for securing said cradle to said frame and said front and rear rails of the frame extending from side wall to side wall, said front rail serving as a guard rail when the front end of said cradle is tilted downwardly and said rear rail serving as a stop member to engage the flange member of an immediately overlying shelf to permit said tray when mounted on a given shelf for slidable movement to be tilted downwardly with a portion of the bottom panel adjacent its rear end resting on said given shelf when said tray is moved forwardly on said given shelf, thereby affording ready access to papers filed in said tray.

4. A filing tray constructed according to claim 3 in which the metal frame has a second rail extending across the rear end of said cradle from wall to wall and a wire slidably secured at one end to said second rail and slidably secured at its other end to said front rail and slidable sidewise from side wall to side wall for maintaining papers filed in said cradle in compact order.

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