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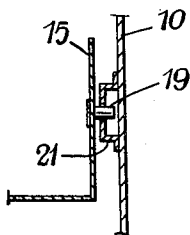
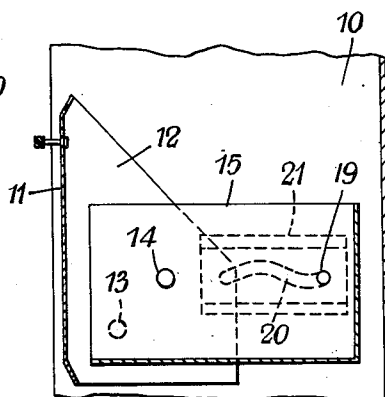
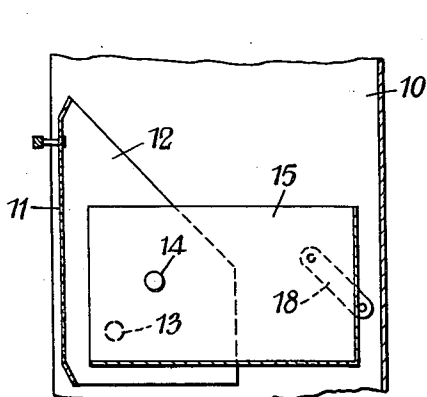
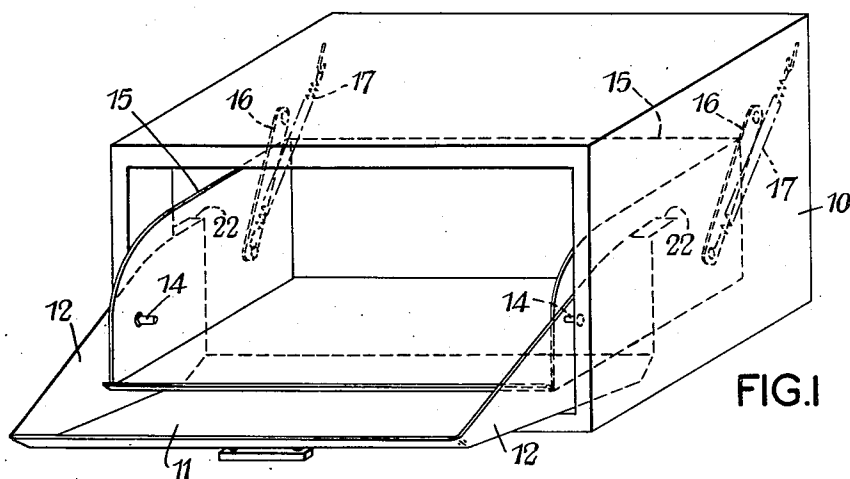
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3,009,753

FILING OR STORAGE CABINETS

Filed Feb. 4, 1958

2 Sheets-Sheet 1



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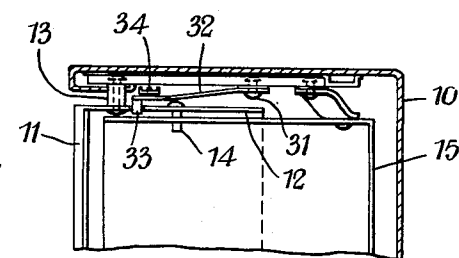
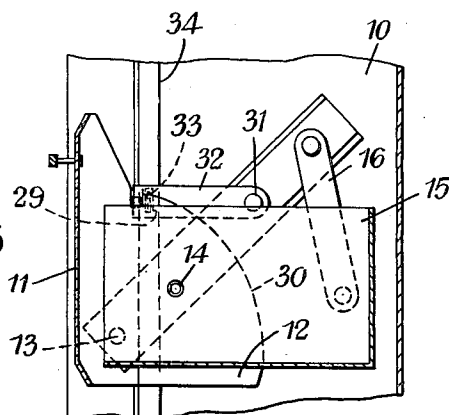
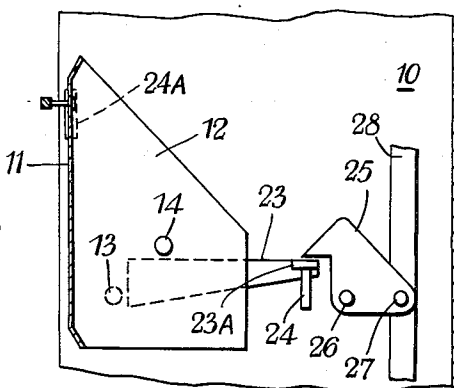
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3,009,753

FILING OR STORAGE CABINETS
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2 Claims. (Cl. 312-274)

This invention relates to cabinets or the like incorporating one or more trays, drawers or the like for the storage of articles.

According to the invention a cabinet or the like will comprise a box like casing which is open at one side, at least one door adapted to close the open side of said casing and so mounted as to be capable of pivotal movement about a horizontal axis from a closed to an open position and vice versa, and a tray, drawer or article supporting member directly pivotally connected to said door in such a manner that as the latter is swung about its pivot axis towards the open or closed position said tray, draw or member will be drawn forwardly from or moved rearwardly into said cabinet, the arrangement being such however, that on opening of the door the fore part of the tray will be caused initially to move forwardly along an upwardly inclined path and subsequently along a downwardly inclined path so that the force of gravity will be effective to maintain the door in both its open and closed positions.

In order that the said invention may be clearly understood and readily carried into effect the same will be hereinafter more fully described with reference to the accompanying drawings in which:

FIGURE 1 is a perspective view illustrating a storage cabinet in the open position,

FIGURES 2 and 3 are diagrammatic sectional views illustrating the slightly modified arrangements for supporting the rear part of the drawer or tray,

FIGURE 4 is a section on the line 4-4 of FIGURE 3,

FIGURE 5 is a diagrammatic sectional side elevational view illustrating one form of locking mechanism which may be employed,

FIGURES 6 and 7 are diagrammatic part sectional side elevational and plan views respectively illustrating an alternative form of locking mechanism.

Referring now to the drawings 10 denotes a box like casing or cabinet which is provided at one side with a door 11 capable of a hinge or pivotal movement about a transverse horizontal axis from a closed position as shown in FIGURES 2, 3, 5 and 6 wherein it will lie in a substantially vertical plane to a fully open position as shown in FIGURE 1, wherein it will lie in a substantially horizontal plane and vice versa. At or adjacent its opposite ends the door is provided with a pair of rearwardly directed wings or side portions 12 which extend in planes at right angles to the plane of the door and parallel to the sides of the casing or cabinet. The hinge or pivot axis of the door which is indicated at 13 in FIGURES 2, 3, 5, 6 and 7 may be provided by means of two inwardly directed pins or stub shafts which are fixedly mounted one on each of the sides of the casing or cabinet, such pins being axially aligned and adapted to engage in appropriate apertures or bushes formed in or mounted on the respective wing portions 12. Alternatively the wing portions 12 may carry a pair of axially aligned pins arranged to engage in bushes or the like mounted on or formed in the sides of said casing or cabinet.

Pivotally connected to the rearwardly directed wing portions 12 as by means of the axially aligned pins 14 is a tray 15. As will be clearly seen from FIGURES 2, 3, 5 and 6 the axis of the pivotal connection between the tray and the wing portions 12 is situated above and rearwardly of the pivot axis 13 of the door, so that as the

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latter is swung downwardly about its pivot axis towards the open position the tray 15 will be drawn forwardly, there being a slight lifting of the forward part of said tray during its initial forward movement followed by a slight lowering as the axis of the pivotal attachment of said tray to said wing portions passes a point vertically above the pivot axis of the door. Preferably the axis of pivotal attachment of the tray will be spaced from the pivot axis of the door by a distance of not less than two and not more than six inches an imaginary line joining the two axes being inclined at an angle of between 30° to 60° to the horizontal. By virtue of the relative positioning of the aforesaid pivot axes the force of gravity will be effective to maintain the door in both its closed and open positions irrespective of whether the tray is supporting a load or not.

In order to support the rear end of the tray a pair of links such as are indicated at 16 FIGURES 1 and 6 may be provided each such link being pivotally connected at one end to the appropriate side wall of the tray 15 and at the end to the adjacent side wall of the casing or cabinet. In the embodiment shown in FIGURE 1 springs indicated by 17 are provided to assist in the return movement of the links 16 and of the tray 15 into its retracted position as the door is moved from the opened towards the closed position. The provision of such springs is not really necessary and they may be omitted altogether or alternatively they may be associated with the wing portions 12.

In FIGURE 2 a slightly modified supporting link arrangement for the rear end of the tray is indicated at 18.

Instead of supporting the rear end of the tray by means of links such as indicated in FIGURES 1 or 2, it may be desirable to adopt a construction such as is indicated in FIGURES 3 and 4. In this case one or each side wall of the tray is provided with an outwardly directed pin 19 adapted to engage in a slot 20 formed in a plate 21 attached to the side wall of the cabinet. Preferably as indicated the slot 20 will be inclined or shaped somewhat as shown so that the rear of the tray will follow a path of movement related to that of the fore part on opening and closing of the door. It may be mentioned here that instead of engaging in a slot such as 20 the pin 19 may be adapted to cooperate with and to ride on an appropriately shaped surface formed on a block or abutment suitably disposed internally of the casing.

If desired one or both of the wing portions 12 of the door may as indicated in FIGURE 1 be provided with an outwardly directed lug or the like 22 adapted to cooperate with appropriate abutment surfaces within the casing or cabinet and to constitute stop means limiting the movement of the door in either direction.

Instead of the limiting stop means indicated in FIGURE 1 it may be desirable to adopt a construction such as is indicated in FIGURE 5 which also provides means whereby the door may be positively locked in its closed position. Referring now to FIGURE 5 it will be seen that one wing portion 12 of the door has an outwardly directed arm 23 attached thereto such arm carrying at its outer end a laterally directed lug or projection 23a, 24 and 24a denote fixed abutments against which the lug or projection on the arm 23 is adapted to abut at the limits of opening and closing movement of the door. Cooperating with the lug or projection 23a when the door is in its closed position is a latch plate 25 which is mounted for pivotal movement about a fixed pin 26 said latch plate being also pivotally connected as indicated at 27 to an axially movable rod or bar 28. It will be appreciated from FIGURE 5 that if the rod or bar 28 is locked or held in the position shown then the latch plate 25 will also be held in the position shown so that the door will be locked in its closed position. Upon release of the rod

or bar 28 and appropriate axial movement thereof (downward as shown) the latch plate 25 will be swung about its pivot 26 out of engagement with the lug or projection 23a so that the door will then be free to be opened. If desired the rod or bar 28 may normally be urged axially into the position corresponding to the operative or locking position of the latch plate by means of a spring or the like and it will be obvious that any one of numerous methods available may be adapted for effecting locking of such rod or bar which will of course be manipulatable from outside the casing or cabinet. With the construction shown in FIGURE 5 the lug or projection 23a will be effective to abut against the abutments 24 and 24a when the door reaches either its fully closed or fully open position thereby positively to limit the movements of the door.

Instead of the construction indicated in FIGURE 5 it may be desirable to adopt one such as is illustrated in FIGURE 6 and referring now to that figure it will be seen that one of the wing portions 12 of the door is formed to incorporate a slot 29 and an arcuate edge portion 30. Mounted for pivotal movement about a fixed pivot 31 is a latch element 32 having a laterally directed projection 33 at the outer or free end thereof which is adapted when the door is in the closed position to engage in the slot 29 in the aforesaid wing portion 12. Cooperating with the latch element 32 is an axially movable rod or the like 34 manipulatable from outside the casing or cabinet the arrangement being such that on upward movement of said rod the latch element 32 will be lifted so that the projection 33 will be disengaged from the slot 29 whereafter the door may be opened said projection riding along the arcuate edge 30 of the wing portion 12. Upon closing movement of the door the projection 33 will ride along the arcuate edge 30 until it reaches the slot 29 whereupon it will drop into said slot and positively lock the door against opening.

In the embodiment shown in FIGURE 1 a casing or cabinet incorporating a single door and associated tray is shown. It will be appreciated however that the casing or cabinet may incorporate a plurality of compartments superimposed one on the other and/or in side by side relation each such compartment being closed by a door and having a tray or the like connected to such door for movement therewith as above described. When a plurality of storage compartments is present one on the other it will be appreciated that where locking arrangements such as are indicated in either FIGURE 5 or 6 are provided a single actuating rod or bar such as 28 or 34 may be provided so that all the doors may be locked or unlocked simultaneously. In the case where the storage compartments are arranged in side by side relation a single actuating rod may be provided in respect of each compartment or by a simple rearrangement of the latch elements a single rod might also be employed in such cases.

A cabinet incorporating the features of the invention is eminently suitable for the storage or filing of papers, documents or the like. Alternatively such a cabinet may well be utilised for storing such items as microscope, photographic or other similar slides, gramophone records and the like or again it may be designed for domestic purposes as a chest of drawers or other similar item of furniture.

Although reference has been made herein specifically to the provision of a drawer or tray it is to be understood that in place of a drawer or tray such as is illustrated it may be desirable to provide any other article supporting member or structure e.g. a frame structure adapted to support files or folders in the manner of a so-called suspension filing system. Such article supporting member

or structure will of course be pivotally connected to the wings or side portions of the door in a similar manner to that above described so that the force of gravity will be effective to maintain the door in both its open and closed positions irrespective of whether said structure is loaded or not.

I claim:

1. A storage cabinet comprising a box-like casing open at one side and including side walls adjacent the open side, at least one door for closing the open side of said casing, a pair of rearwardly directed wing portions disposed on said door and extending at right angles to the door and also in parallel relation to said side walls of said casing, aligned pivotal connections between said wing portions and said side walls of said casing to provide for pivotal movement of the door about a substantially horizontal axis from a closed to an open position and vice versa, a tray slidable within said casing, axially aligned means directly and pivotally connecting said tray at one end of the same to said wing portions, said means with said door closed being rearwardly of and above said aligned pivotal connections so that as the door is moved towards open position, said means follow an arcuate path about the pivotal connections to a position above and in front of the pivotal connections, said one end of the tray rising and subsequently lowering so that the force of gravity will be effective to maintain the door in its open position, and means pivotally connecting said tray at the other end thereof to said casing so that said other end lowers and rises in contrast to said one end to average out the movement of said one end with respect to movement of said tray.

2. A storage cabinet comprising a box-like casing open at one side and including side walls adjacent said open side, at least one door for closing the open side of said casing, a pair of rearwardly directed wing portions on said door and extending at right angles to the door and also in parallel relation to said side walls, aligned pivotal connections between said wing portions and said side walls of said casing to provide for pivotal movement of said door about a substantially horizontal axis from a closed to an open position and vice versa, a tray slidable within said casing, axially aligned means directly and pivotally connecting said tray to said wing portions, said means being positioned rearwardly of and above said pivotal connections with said door closed, pivots on said side walls, pivots on said tray beneath and behind the first said pivots with the door closed, said pivots being positioned rearwardly of said means, and a pair of links pivotally connecting said pivots and thus the tray and the side walls of the casing and allowing forward and rearward sliding movement of the tray, the said means following an arcuate path about said horizontal axis of the door so that the weight of the tray is effective to maintain the door in both its closed and open positions.

References Cited in the file of this patent

UNITED STATES PATENTS

1,006,983	Schaffert	Oct. 24, 1911
1,142,971	Kurtz	June 15, 1915
2,361,525	Ball et al.	Oct. 31, 1944
2,420,015	Salsman et al.	May 6, 1947
2,501,879	Sulentice	Mar. 28, 1950
2,564,336	Lien	Aug. 14, 1951
2,734,559	Vaughn	Feb. 14, 1956
2,755,154	Mele	July 17, 1956
2,796,310	Anderson	June 18, 1957

FOREIGN PATENTS

1,017,562	France	Sept. 24, 1952
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