Jan. 24, 1967 R. H. WILMER ETAL 3,300,265

TUB FILE

Filed July 29, 1965 2 Sheets-Sheet 1

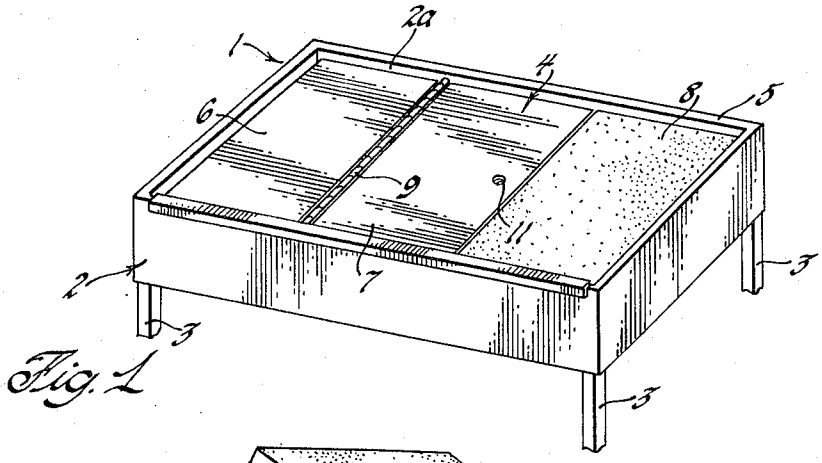


Fig. 1

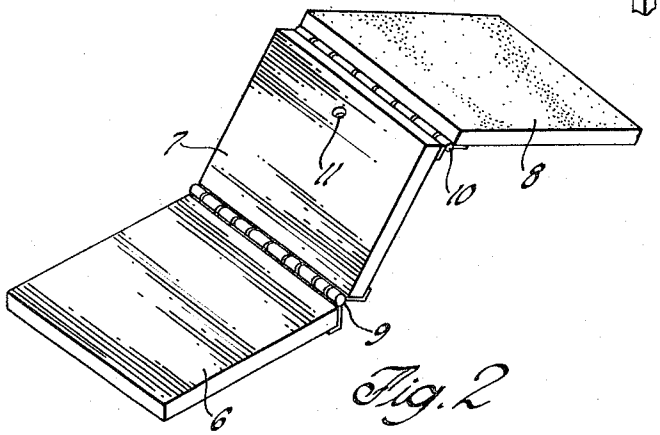


Fig. 2

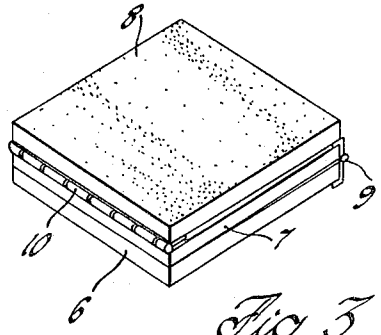


Fig. 3

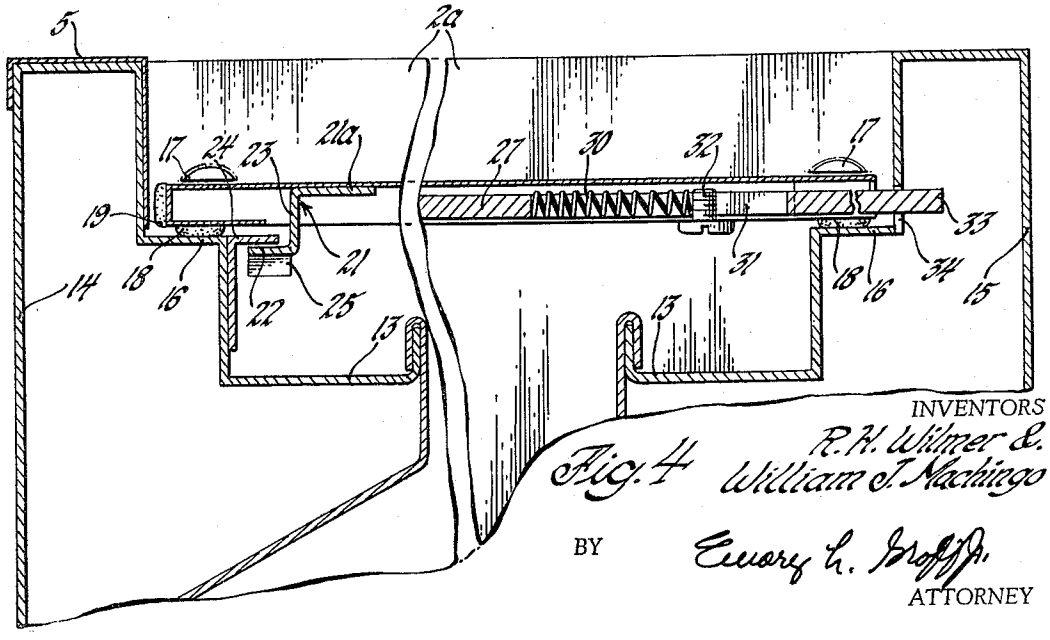


Fig. 4

INVENTORS
R. H. Wilmer &
William J. Machingo

BY Emory L. Groff Jr.
ATTORNEY

Jan. 24, 1967 R. H. WILMER ETAL 3,300,265

TUB FILE

Filed July 29, 1965 2 Sheets-Sheet 2

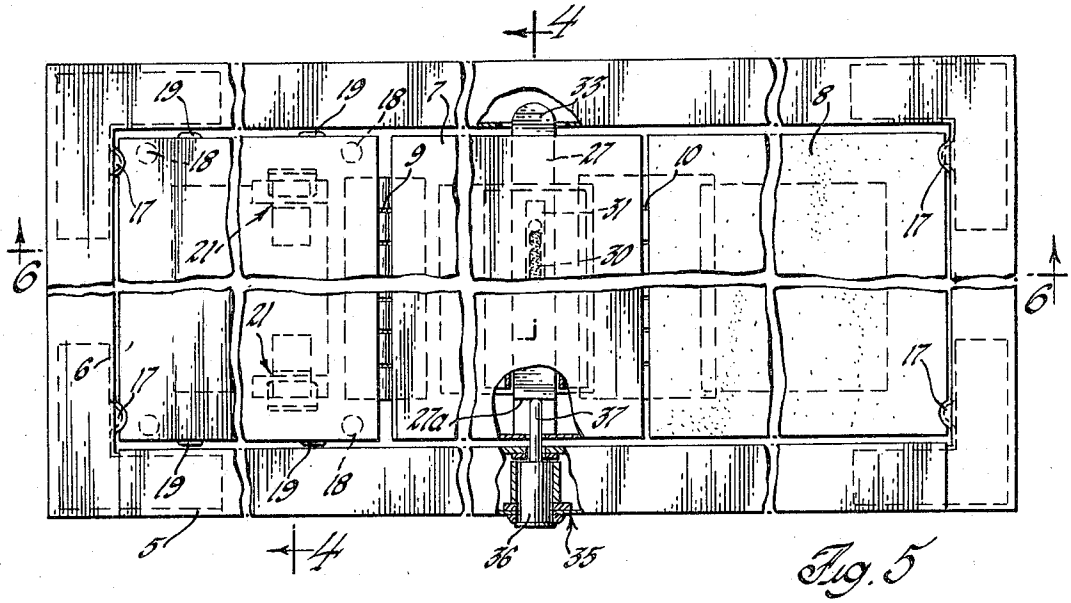


Fig. 5

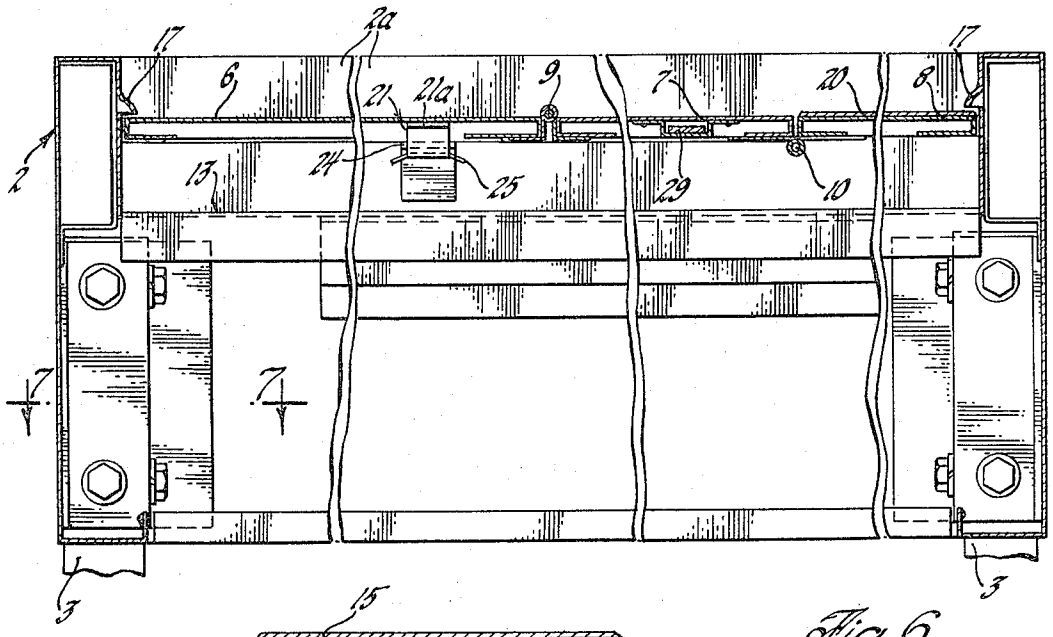


Fig. 6

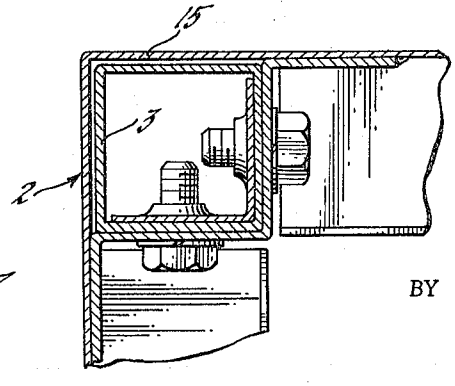


Fig. 7

INVENTORS
R. H. Wilmer &
William J. Machingo

BY Emory L. Groff Jr.
ATTORNEY

United States Patent Office

3,300,265
Patented Jan. 24, 1967

3,300,265

TUB FILE

Rudolph H. Wilmer and William J. Machingo, Youngstown, Ohio, assignors to The General Fireproofing Company, Youngstown, Ohio, a corporation of Ohio

Filed July 29, 1965, Ser. No. 475,763
10 Claims. (Cl. 312—303)

This invention relates to that type of office equipment generally referred to as a tub file and wherein a cabinet body, usually open at the top, is adapted to receive and retain one or more filing trays or receptacles and includes suitable structure for enclosing the top of the cabinet when it is not in use.

The present invention provides several desirable features not presently found in existing tub file structures, which features lead to a more economically produced structure as well as one which provides advantages to the user not heretofore realized. Covers for existing tub files are usually composed of a plurality of relatively small sections which, if rigid, may be pivotally connected to one another so that when it is desired to open the tub file, the cover may be removed by sliding the cover assembly towards the front, back or either side of the cabinet whereupon it will be guided by means of suitable channels into the sides and/or base of a rather large cabinet body. It will thus be understood that with any form of top cover construction it has been necessary in the past to provide suitable additional storage space in the cabinet body, in addition to that space utilized by the filing trays or receptacles contained therein, in order to receive and store the top cover when the tub file is open for use. In some of the known types of tub files, a substantial cost factor in the manufacture thereof resides in the provision of necessary guiding means in the form of channels, bearings, etc., and in some instances, even motor means, for permitting the opening and closing of the top cover assembly.

Accordingly, one of the primary objects of the present invention is to provide a tub file having an improved collapsible top cover.

Another object of the present invention is to provide a tub file having a maximum storage capacity relative to the overall dimensions of the file body and including means whereby the top cover may be collapsed in a single movement by the operator.

Still another object of the present invention is to provide a tub file having a top cover comprising a plurality of pivotally connected segments and including novel means for collapsing these segments into a relatively small area.

A further object of the present invention is to provide a tub file having a top cover comprising a plurality of segments which may be collapsed one upon the other, accordion-style, which collapsed segments may then be moved by the operator across the full length of the file in order to make accessible any of the contents contained within the file.

Another object of the present invention is to provide a tub file having a top cover which when in its closed position lies disposed below the top periphery of the file cabinet body, but when collapsed to provide access to the contents of the file, presents an upper planar surface disposed above the top perimeter of the cabinet body, said upper surface particularly adapted for writing thereupon.

With these and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings in which:

FIGURE 1 is a top perspective view of a tub file according to the present invention.

FIGURE 2 is a diagrammatic perspective view of the top cover of the present invention showing the disposition of the plurality of cover segments as the cover is being collapsed.

FIGURE 3 is a diagrammatic perspective view of the cover as shown in FIGURE 2 as it would appear when fully collapsed.

FIGURE 4 is a partial, enlarged vertical sectional view, taken along the line 4—4 of FIGURE 5.

FIGURE 5 is a top plan view, with portions broken away for clarity, of the tub file of the present invention.

FIGURE 6 is a partial vertical sectional view, taken along the line 6—6 of FIGURE 5.

FIGURE 7 is an enlarged horizontal sectional view taken along the line 7—7 of FIGURE 6.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

Referring now to the drawings, particularly FIGURES 1–3, it will be seen that the present tub file, generally designated 1, comprises a file cabinet body 2 of the tub type which is preferably of rectangular configuration and includes a plurality of support legs 3 depending from the corners thereof. A tub file normally presents a top opening 2*a* to permit the placement of suitable file receptacles therein, which receptacles may comprise trays or any other container for numerous types of office material such as data processing cards and the like. A top cover generally designated 4 is adapted to overlie the contents of the file cabinet body 2 and when in the closed position as illustrated in FIGURE 1 will be seen to be disposed in a plane somewhat below the plane of the top peripheral surface 5 of the cabinet body 2. The cover 4 comprises a plurality of segments, namely, a sliding support segment 6, a center lift segment 7, and a posting board segment 8. As will be most clearly seen in FIGURE 2, the two outermost segments are pivotally connected to the center lift segment 7 by means of suitable hinge means such as the continuous piano-type hinges 9 and 10 illustrated, it being important to note that these hinges are mounted to the juxtaposed edges of the adjacent segments so as to provide for the collapse of the three segments in an accordion-like manner as illustrated in FIGURES 2 and 3.

The hinge disposition is most readily apparent in FIGURE 6 wherein it will be seen that the center axis of the hinge pintle 9 is disposed above the plane of the top cover whereas the axis of the hinge pintle 10 is below the undersurface of the top cover segments. This construction permits the folding of the three segments in the manner shown in FIGURE 3, whereby the center lift segment 7 will be inclined with respect to the support segment 6 and the posting board segment 8. By this arrangement an upper posting surface is presented which will be parallel to the file contents and substantially coplanar with the top 5 of the file. Also, it will be noted that the contact between the superimposed segments is along the juxtposed edges of the segments in view of the aforedescribed relative inclination between the three segments, thereby preventing contact between the opposed surfaces of the support segment 6 and center segment 7 to preclude scratching of these surfaces.

When the top cover 4 is in the closed position as illustrated in FIGURE 1 wherein all three segments will be disposed coplanar to one another, and it is desired to utilize the tub file, the operator merely places a finger in the finger lift opening 11 provided in the center segment adjacent the posting board segment 8 whereafter a simple single lifting movement by the operator will

elevate the center segment 7 about the hinge 9 as the adjacent posting board segment 8 is elevated and pivots inwardly about the hinge 10 to the position substantially as illustrated in FIGURE 2. Continued pivotal movement applied to the center lift segment 7 about the hinge 9 will bring the top surface of the center segment 7 into overlying contact with the top surface of the sliding support segment 6 as the undersurface of the posting board segment 8 in turn overlies the upwardly disposed undersurface of the center lift segment 7 as shown in FIGURE 3.

To fully understand the subsequent operation of the top cover 4, it will be necessary to consider the details of construction relative to the components forming the file cabinet body 2. Referring now particularly to FIGURES 4–6, it will be seen that the majority of the internal capacity of the file cabinet body 2 is utilized to provide a file storage compartment 12 contained between the front, rear and side walls of the cabinet body. It is within this storage compartment 12 that any suitable form of file tray or container (not shown) is placed. In order to provide a cabinet body 2 which will accommodate filing material of various heights without any alteration to the tub file and at the same time to present the top of all such files at the same working level for the operator it is proposed to provide means for suspending the file trays or receptacles from a point immediately below the top cover 4. This is accomplished by providing a file tray support ledge 13 projecting inwardly within the cabinet body 2 from both the front wall 14 and rear wall 15 thereof. In this manner it will be understood that suitable overhanging projections from the front and rear of the file trays adapted to be disposed within the storage compartment 12 will rest upon the top surface of the two ledges 13 so that the contents of the file trays will be suspended within the compartment 12. Thus, regardless of the height of the file trays and their respective contents, the top surface of each of the cards or other material contained in the trays will always be disposed within the same plane, making it convenient for the operator to manipulate same.

Along the front and rear of the tub file the innermost edge of the top peripheral surface 5 of the cabinet body 2 drops downwardly to connect with an upwardly facing top cover support ledge 16 intermediately spaced between the file tray support ledge 13 and the top peripheral surface 5, as will be most clearly seen in FIGURE 4. The reason for disposing the top cover support ledges 16 well below the top surface 5 of the cabinet body will become clear hereinafter.

When all of the cover segments 6, 7 and 8 are disposed in a coplanar or closed position as shown in FIGURE 5, it will be noted that suitable clearance is provided between the outermost edges of all three segments and the adjacent vertically disposed portions of the cabinet body 2. An important feature of this invention is that when the three segments are in the collapsed relationship as illustrated in FIGURE 3, the thus collapsed top cover 4 may be manually passed along the two cover support ledges 16, 16 from one end of the tub file to the other, depending upon the wishes of the operator. This movement is facilitated by the inclusion of a plurality of anti-friction bearings or plastic glide buttons 18 attached to the undersurface of the sliding support segment 6 and engaging the support ledge 16. As will be seen in the left-hand portion of FIGURE 4, as well as in FIGURE 5, additional plastic glide buttons 19 are mounted on the vertically disposed front and rear edges of the sliding support segment 6. It is understandable that the collapsed top cover 4 may be urged towards either the rear or front of the tub file as it is traversed from one end to the other and thus it will be seen that anti-friction means are provided at all possible points of contact for the cover when in its collapsed position. Inasmuch as the center lift segment 7 and posting board segment 8 are not any longer in their greatest dimension than the length of the sliding support segment 6, and the fact that the plastic glide buttons 19 project outwardly from the front and rear edges of the sliding support segment 6, it will follow that it is not necessary to have any anti-friction means on the segments 7 and 8 since the glide buttons 19 on the sliding support segment 6 will serve to prevent the other two superimposed segments from engaging any portion of the file cabinet body 2 when in the collapsed position.

Preferably, the top surface of the posting board segment 8 is provided with a finish making it more conducive to writing thereon. This finish may take the form of any construction desired by the customer, such as a dull coating which would prevent glare being formed to hinder an operator writing upon the top surface of the posting board segment 8, or may comprise a separate layer of composition 20 of usual top covering material.

To further insure the proper sequence of operation during the collapsing of the top cover 4, hold-down means are provided to prevent the sliding support segment 6 from being elevated from its flat position in contact with the cover support ledges 16, 16 since it will be noted that at all times, whether the cover is closed or in the collapsed position, this support segment 6 is intended to remain flatly disposed upon the top cover support ledges. Attached to the undersurface of the sliding support segment 6, close to the hinge member 9 and both adjacent the front and rear of the segment are a pair of cover hold-down members 21, which members each comprise an attaching foot 21*a* suitably secured such as by welding to the undersurface of the segment, and a horizontally offset platform 22 spaced below the bottom of the segment 6 by means of a vertical drop arm 23. Cooperating with each of the hold-down members 21 is a keeper flange 24 projecting inwardly as an extension of the top cover support ledges 16. As will be seen in FIGURE 4, the platform 22 and keeper flange 24 are parallel to one another, but normally spaced apart. Depending downwardly from both sides of the platform 22 is an inclined ramp 25, the purpose of which will become apparent immediately hereinafter.

Should an operator grasp the finger lift opening 11 of the top cover 4 in order to collapse the cover from its closed position as shown in FIGURE 1 and he applies too great a vertical movement in lifting the center segment 7, it will be seen that this movement will be transmitted through the hinge 9 as a reduced lifting movement to the right-hand portion of the sliding support segment 6. However, support segment 6 will be limited in any vertical displacement by the immediate abutment of the top of the platform 22 with the undersurface of the keeper flange 24, thereby insuring the proper pivotal movement of the three segments to achieve the collapsed cover as in FIGURE 3. The inclined portions 25 depending from the platform 22 serve the purpose of guiding the sliding support segment 6 during the closing of the cover assembly from its collapsed position since it is conceivable that an operator may carelessly apply too much pivotal force in closing the cover segments, which force may have a tendency to slightly elevate the right-hand portion of the support segment 6. However, any slight vertical displacement of this segment will be corrected as the side edge of the keeper flange 24 strikes the inclined portion 25, thereby forcing the support segment 6 downwardly into full engagement with the top cover support ledges 16 as the keeper flange 24 rides up the inclined portion 25. It will follow that the clearance between the opposed vertical surfaces of the hold-down member 21 and the keeper flange 24 must be no less than the corresponding distance between the plastic glide buttons 19 and the adjacent inner walls of the cabinet body to insure that there is no binding between these portions of the hold-down member and keeper flange before the glide buttons 19 engage the cabinet body.

Locking means for preventing unauthorized opening of the top cover 4 may be included in the present invention as shown by the lock device illustrated in FIGURES

4–6. This locking means is provided on the one hand by forming retaining means in the nature of a pair of extrudes **17** struck from each end wall of the cabinet and projecting inwardly of the top opening **2***a*, and on the other hand by including a reciprocating lock bar **27**, slidably mounted within the center left segment **7**. As will be clearly seen, the extrudes **17** extend inwardly of the top opening **2***a* a sufficient amount to overlie the respective side edges of the support and posting segments when the top cover **4** is in the closed position.

The longitudinal lock bar **27** is mounted within a guide channel **29** suitably secured, as by welding, to the undersurface of the center lift segment **7** and is disposed adjacent the edge of the segment juxtaposed the hinge **10**. The lock bar **27** is substantially as long as the center lift segment **7**, and when in its normal unlocked position, will be disposed within the confines of the front and rear edges of this segment. Spring means are provided for maintaining the bar **27** in this normal at-rest position and includes a return spring **30** disposed within a longitudinal spring slot **31** formed in the lock bar. An abutment screw **32** anchored through the bottom of the lock bar channel **29** and projecting upwardly through the spring slot **31** is positioned so that when the rear of the slot **31** strikes this screw, the lock bar **27** will be fully enclosed within the center lift segment **7**. The rear end of the lock bar **27** is provided with a rounded nose **33** adapted to engage, by passing therethrough, a cut-out in the file cabinet body when the top cover **4** is in its fully closed position. As explained, however, the lock bar **27** will normally be withdrawn from the cut-out **34** by reason of the return spring **30**, bearing on the one hand against the fixed abutment screw **32** and on the other against the forward end of the slot **31**. In order to actuate the lock bar mechanism, a suitable lock set **35** is provided in the cabinet body **2** at a point axially aligned with the position of the lock bar **27** when the top cover **4** is fully closed. Included in the lock set **35** is a cylinder lock **36** which is of the removable type, that is, it is designed to be placed into and removed from the lock set by means of a proper key. Forming a part of the cylinder lock **36** is a lock bar actuating rod **37** which, as the cylinder lock is installed within the lock set, extends inwardly from the inner wall of the cabinet body to engage the forward end **27***a* of the lock bar **27** to longitudinally displace the lock bar against the force of the return spring **30**, whereupon it will be seen that the lock bar nose **33** will be projected from the rear of the center lift segment **7** and enter the lock bar cut-out **34** and the rear of the file cabinet body **2**.

From the foregoing description it will be understood that a positive means of securing the top cover **4** in its closed position is provided. The extrudes **17** at both ends of the top cover **4** prevent one from prying up the cover at this point while the lock bar actuating rod **37** and lock bar nose **33** securely retain the center lift segment **7** in its closed position at both the front and rear thereof. Anyone attempting to violate the security of this lock system may consider that since the lock bar **27** is disposed well to the right of the center of the lift segment **7** that forceful entry may most readily be made by prying up the sliding support segment adjacent the hinge member **9**, since, to the uninitiated, this would appear to be the least secure portion of the top cover. However, any attempt to pry up the sliding support segment adjacent the hinge **9** will be met by the resistance afforded by the previously described hold-down members **21** and the keeper flanges **24** which positively retain the sliding support segment **6** in its flat position as heretofore described.

It is to be understood that the invention is not limited to the specific features shown, but that the means of construction herein disclosed comprise the preferred form of several modes of putting the invention into effect,

and the invention will therefore be understood in any of its forms or modifications within the legitimate and valid scope of the appended claims.

What is claimed is:

1. In a file apparatus, a cabinet body having a top opening, cover means within said top opening including a plurality of pivotally connected coplanar segments which when in a closed position enclose said top opening, means within said top opening for supporting said cover means, and one of said segments provided with bearing means engaging said supporting means, whereby said plurality of segments may be folded in a stacked arrangement upon said segment having said bearing means to provide an open position and to expose said top opening, and the stacked segments may be moved as a unit upon said supporting means across said top opening.

2. In a file apparatus, an open top body, cover means disposed within said open top and adapted to be folded from a closed coplanar position to an open position exposing said open top, said cover means including a plurality of rigid segments in alignment, hinge means connecting adjacent edges of said aligned segments, means within said body supporting said segments when in a closed position to enclose said open top, said hinge means permitting said segments to be stacked one upon another to expose said open top whereafter the stacked segments may be moved as a unit across said open top upon said supporting means.

3. The file apparatus according to claim **2**, wherein, said aligned segments include a support segment at one end and a posting segment at the other end, whereby when said segments are folded and in stacked relationship said posting segment will be uppermost and said support segment will be disposed on said supporting means in said body.

4. The file apparatus according to claim **2**, wherein, said body includes retaining means projecting inwardly of the open top to overlie the outer two of said aligned segments when said cover means is unfolded and in a closed position.

5. A file apparatus according to claim **3**, wherein said support segment is provided with anti-friction means in engagement with said supporting means in said body.

6. A file apparatus according to claim **3**, whereby when said plurality of adjacent segments are folded in stacked relationship said posting segment will be substantially coplanar with the top of said body.

7. A file apparatus according to claim **3**, wherein, said support segment includes hold-down means operative when said support segment is in its closed position upon said supporting means.

8. A file apparatus according to claim **3**, wherein, one of said segments intermediate said support and posting segments is provided with finger engageable means operable to open said cover means from its closed coplanar position.

9. A file apparatus according to claim **3**, wherein, one of said segments includes lock means adapted to cooperate with said body when said cover means is in its closed coplanar position.

10. A file apparatus according to claim **9**, wherein, said lock means comprises, a lock bar slidably mounted within one of said segments, and means insertable in said body to actuate said lock bar.

References Cited by the Examiner

UNITED STATES PATENTS

2,585,645	2/1952	Freitag	160—206
3,196,932	7/1965	Rosendahl	160—188

CHANCELLOR E. HARRIS, *Acting Primary Examiner.*

F. DOMOTOR, *Assistant Examiner.*