Dec. 6, 1938. S. SCHEINMAN ET AL 2,139,520

COLLAPSIBLE FILE

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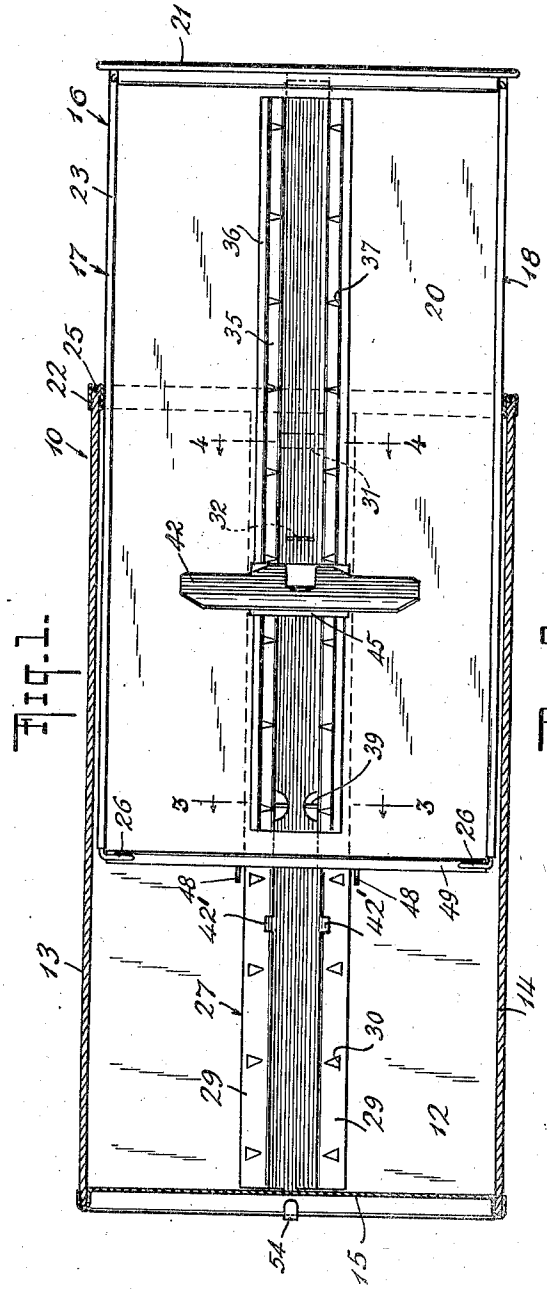


Fig. 1.

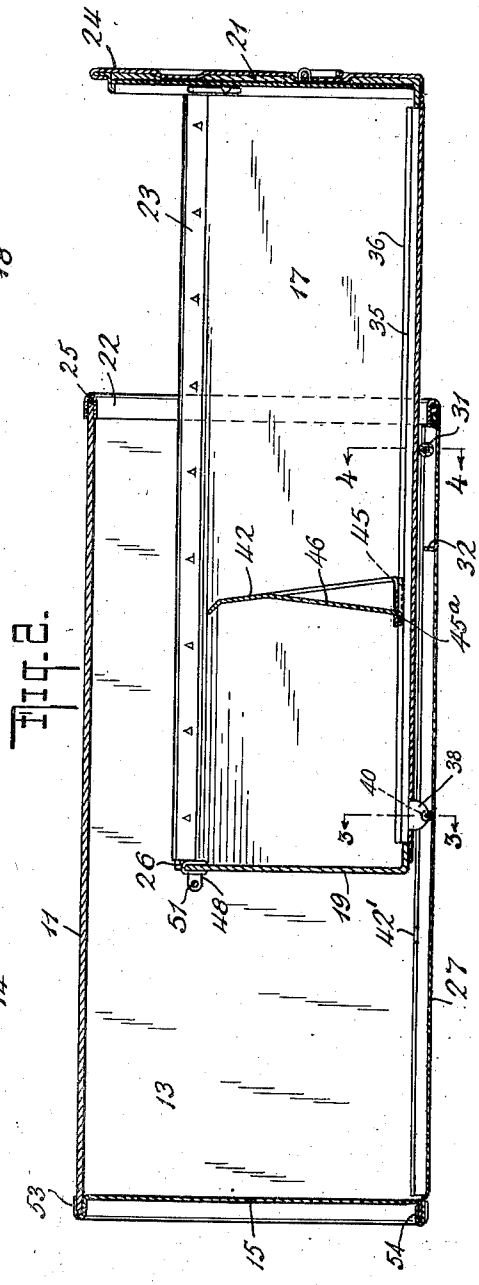


Fig. 2.

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Fig. 3.

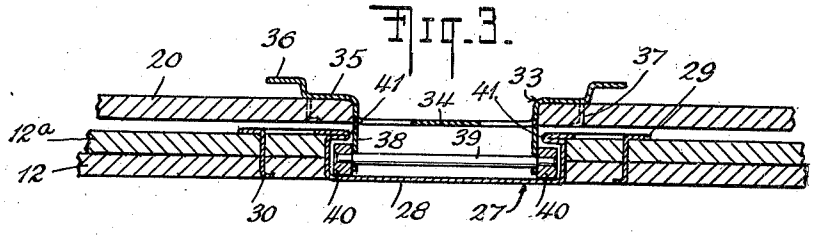


Fig. 4.

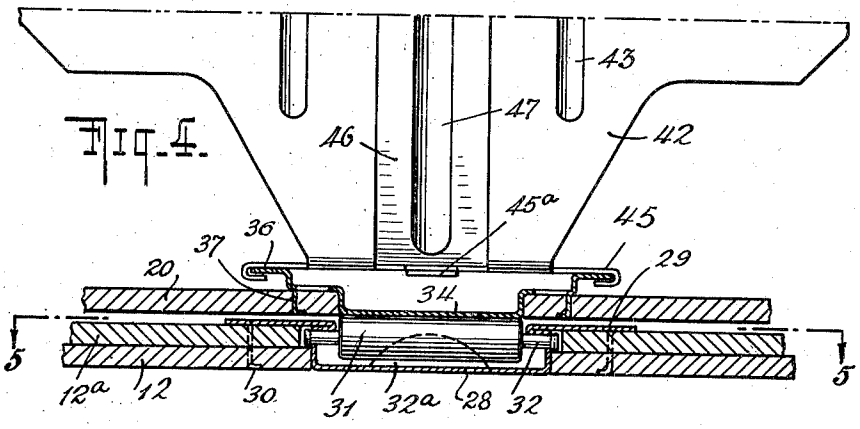
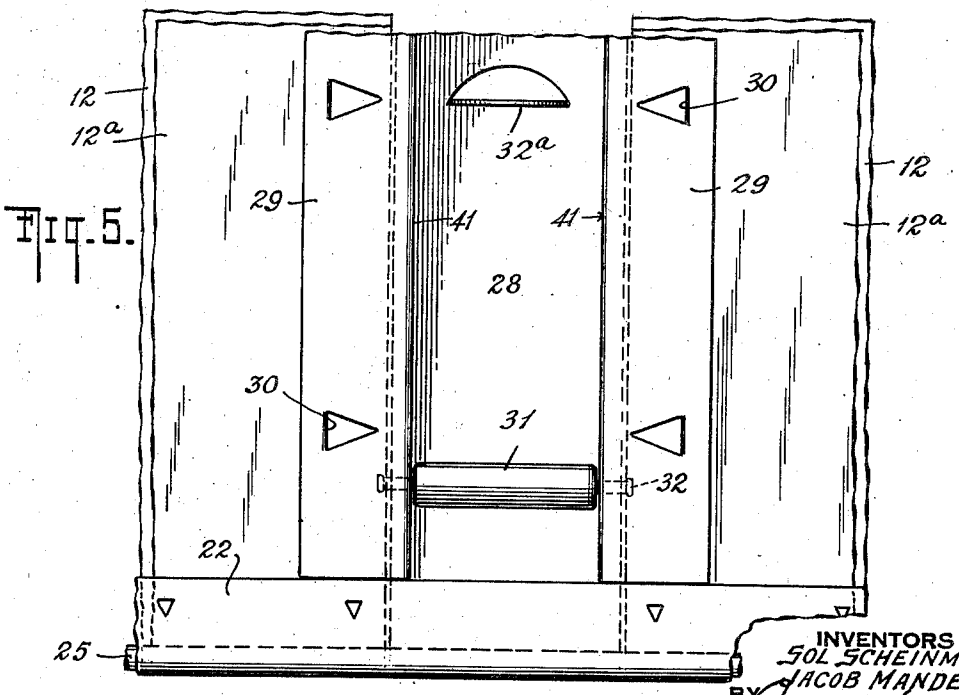


Fig. 5.



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Fig. 6.

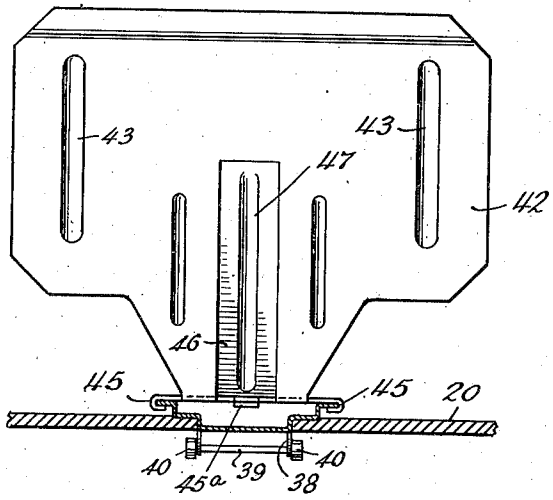


Fig. 7.

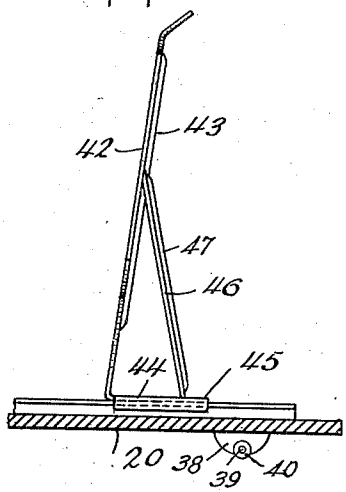


Fig. 8.

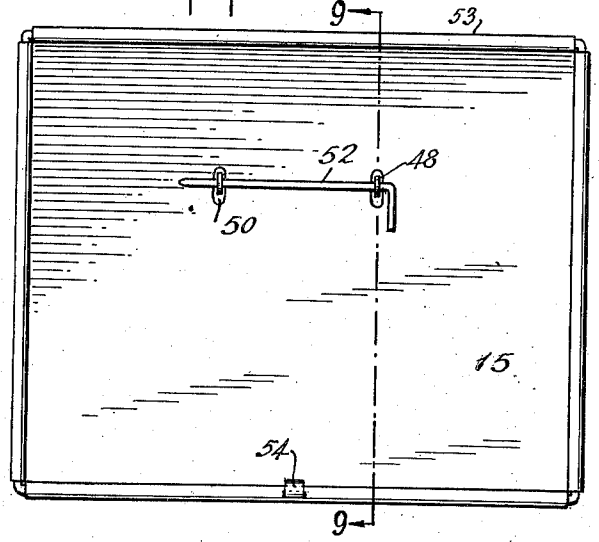


Fig. 9.

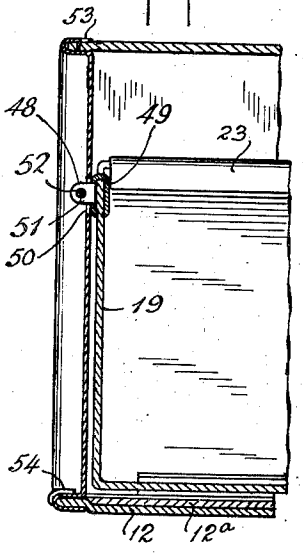
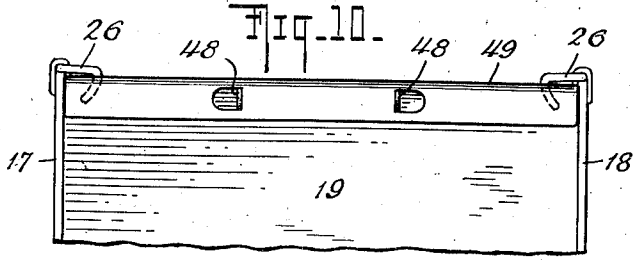


Fig. 10.



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UNITED STATES PATENT OFFICE

2,139,520

COLLAPSIBLE FILE

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Application April 19, 1935, Serial No. 17,218

23 Claims. (Cl. 45—2)

The present invention relates to collapsible storage files of the type consisting of a drawer member and a casing member composed at least in part of corrugated paper or other light and inexpensive materials, and has for its general object to provide an improved construction of this type of file which is characterized by great strength and rigidity and a high degree of durability in use combined with ease of operation and simplicity of construction.

The storage files which have recently appeared on the market comprise essentially a casing member and drawer member made of corrugated paper, the casing member being reinforced at various points to enable it to support a number of other files stacked above it and fully loaded. The drawer member is arranged within the casing member and rests directly upon the bottom wall of the casing member. While these storage files are not ordinarily intended to contain articles which require daily examination or filing but are rather to be opened at relatively long intervals, nevertheless it has been found in practice that the considerable friction between the bottom of the drawer and the bottom wall of the casing results in rapid wear of these parts, which not only impairs their appearance but finally reduces their original strength to the point where they are no longer reliable.

It has also been found that because of the great coefficient of friction between corrugated paper and corrugated paper, it is often difficult to pull out a fully loaded storage file, the effort usually taxing the strength of girl file clerks and when the file contains heavy objects such as metal ware, it requires considerable exertion even on the part of a man. In fact, so great is the friction between the drawer and the casing that there is frequently danger of upsetting a whole stack in the attempt to open an upper one of a stack of files.

One of the important objects of the present invention is to provide a storage file which is made primarily of corrugated paper or other light material and thus possesses the advantages of lightness and inexpensiveness of paper files, but which is provided in a very simple fashion with means for reducing the friction between the drawer and the casing member. In particular, it is an object of the invention to provide a simple and inexpensive storage file wherein the drawer member is provided with antifriction supports, such as a roller support or mounting, the parts bearing the weight of the contents of the drawer being preferably made of metal.

It is a further object of the invention to provide collapsible drawer and casing members of a storage file which are capable of being shipped and stored prior to use in knocked-down condition and which have permanently attached thereto the parts constituting the anti-friction support for the drawer.

It is also an object of the invention to provide a casing member having one or more metallic track-ways upon which the drawer member rests and by which it is guided, thereby insuring against binding and resulting friction between the side walls of the casing and drawer.

Other objects of the invention are to provide a casing member wherein a track upon the bottom wall furnishing an anti-friction support for the drawer also forms the joint for the ends of the blank of which the casing member is composed; to provide a simple manner of assembling the drawer in the casing member; to provide means for preventing complete withdrawal of the drawer member; to provide an improved device for preventing tilting of the drawer member within the casing as it is drawn out of the casing; to provide a follower element in the drawer member of a storage file; and to provide locking means for holding the drawer within the casing and preventing accidental movement of the drawer when the file is being moved or shipped or when it is stored away as a completely "dead" file.

A further object of the invention is to provide an anti-friction support for the paper drawer of a storage file characterized by the fact that the stress-bearing parts are so supported and arranged that they do not become distorted even under heavy loads, so that the danger of binding is eliminated, while at the same time the metallic parts are so connected to the paper body of the drawer and casing that a minimum of stresses is exerted in a direction tending to tear the paper or loosen the connection of the metal parts therewith.

Still other objects and features of the invention will be apparent from the description following and the features of novelty to be set forth in the appended claims.

The accompanying drawings illustrate a preferred embodiment of the invention but it is to be understood that the illustration is by way of example only.

In said drawings,

Fig. 1 is a top plan view, partly in horizontal section, of my improved file construction, the drawer member being shown in partly withdrawn or open condition;

Fig. 2 is a central vertical section of the structure shown in Fig. 1;

Figs. 3 and 4 are enlarged vertical sections along the lines 3—3 and 4—4, respectively, of Figs. 1 and 2;

Fig. 5 represents a horizontal view of the forward roller support and is taken along the line 5—5 of Fig. 4 ;

Fig. 6 is a front view of the follower;

Fig. 7 shows a side view thereof;

Fig. 8 is a rear view of the casing showing the manner of locking the drawer to the casing;

Fig. 9 is a vertical section taken along the line 9—9 of Fig. 8, and

Fig. 10 is an end view of the drawer member.

Referring more particularly to Figs. 1 and 2, the casing member 10 comprises a top wall 11, a bottom wall 12, side walls 13 and 14 and an end wall 15. The drawer member 16 is composed of side walls 17 and 18, a rear end wall 19, bottom wall 20 and a front wall 21. The walls of the casing and drawer members are preferably made collapsible so that they may be stored and shipped in knocked-down condition, to be erected by the purchaser at the place of use. The front edges of the casing member 10 may be faced or lined with reinforcing members 22, made preferably of sheet metal so as to enable the casing to withstand the pressure of a number of filled files stacked above it, and also to prevent wear upon the edges of the casing and thereby preserve its neat appearance. The drawer member may likewise be provided with metallic reinforcements 23 along the upper edges of its side walls for taking up the stresses when the drawer is pulled open or shut. If desired, the front wall of the drawer member may be faced with metal, as shown at 24, both to preserve its appearance and to make the structure more fire-resisting, the file thus resembling an all-metal structure from in front thereof.

In the erected condition, the casing and drawer members may be held rigidly in their predetermined shapes by means of wire or other holding members 25 and 26, all as described in our copending application Ser. No. 666,895. The end wall 15 of the casing may be made of corrugated paper or other relatively light material, which may be reinforced at its periphery to enable the casing to withstand heavy pressures at the rear thereof; or it may be made of a plate of sheet metal, as illustrated, and as shown in greater detail in our copending application Ser. No. 14,518. The general construction of the walls of the drawer and casing members and their mode of collapse and erection form no part of the present invention except as hereafter set forth, and it will be understood that any suitable construction for the casing and drawer members may be employed which is not inconsistent with the features and improvements about to be described.

In accordance with the present invention, we provide antifriction supports between the casing and drawer, the supports being so designed and disposed that while they are of simple and light construction they effectively facilitate movement of the drawer within the casing no matter how heavily it is loaded. In the embodiment of the invention illustrated, the anti-friction supports include a trackway 27 upon the bottom wall 12 of the casing, such wall being preferably thickened by the insertion of a filler piece 12a upon each side of the trackway. The trackway is preferably made of sheet metal and includes a central depressed or trough section 28 of a depth approximately equal to that of the bottom wall 12 (which includes the filler pieces 12a) and having horizontal flanges 29 overlying the top surface of the bottom wall. Lugs or tongues 30 are struck at spaced intervals from the body of such flanges and are made to bite into the bottom wall 12 and are then struck down upon the outer surface of the casing, as shown in Figs. 3 and 4, so as to hold the trackway 27 securely within the bottom wall of the casing.

It may be mentioned at this point that while the bottom wall of the casing may be continuous except for an opening cut to receive the trackway 27, the free ends of the blank forming the casing member being joined along a line outside of the bottom wall of the casing, or at least removed from the track 27, we prefer to have the free ends of the blank of the casing meet at such trackway, the trackway thus forming the joint or connection between the free ends of the blank. In this way the use of tape or other glued elements for connecting the ends of the casing member is avoided, the use of such glued elements being objectionable because they attract roaches, mice and other vermin which eat the glue and thus cause disintegration of the file.

Adjacent to the forward end of the casing there is mounted a roller 31 (see Fig. 4) whose trunnions 32 are received within suitable openings in the side walls of the trough member 28. As will be seen from Fig. 4, the roller 31 projects a short distance above the upper surface of the flanges 29. A short distance to the rear of the roller 31 a stop member 32a is provided which, as shown, may be struck up from the the material of the bottom wall of the trough 28. The purpose of this stop will be explained hereinbelow.

Mounted within a suitable opening within the bottom wall of the drawer member in position to register vertically with the track member in the casing is a track member 33 having a depressed central portion 34, horizontal intermediate portions 35 clamped against the top surface of the bottom 20, and raised end sections 36. The track may be clamped or anchored to the bottom wall 20 of the drawer by means of lugs or teeth 37 struck from the intermediate section 35 and driven into the material of the bottom wall 20, the free ends of the teeth being struck down as will be seen more clearly from Fig. 3. The trackway is preferably made of sheet metal and at a point near the rear end thereof, two ears 38 (see Figs. 1, 2, 3 and 6) are struck from the bottom of the trackway, and bent into the vertical plane. These ears are apertured to receive and act as bearings for a rod or axle 39 having rollers 40 fixed to its free ends, the axle 39 being free to rotate within the openings in the ears 38. The rollers 40 are adapted to rest upon the bottom of the trackway 28. To prevent upward displacement of the rollers and hence of the drawer member, the trackway 27 is provided with inwardly extending horizontal flange portions 41 which normally overlie the rollers 40. It will thus be seen that upon longitudinal movement of the drawer member, the rollers 40 will move within the guide-ways formed by the bottom of the trackway 28 and the inwardly extending flange portions 41.

To enable the rollers 40 to be inserted within the trackway 28, we provide slots 42' (Figs. 1 and 2) in the rear portion of the flanges 41, that is, the slots are located at a point where there is no tendency of the rollers 48 to move upwardly, the drawer member being then only partly with-

drawn from the casing. By the time that the drawer member has been withdrawn sufficiently for its rear end to tend to move upwardly, the rollers 40 have moved forwardly of the slots 42 and are prevented from moving out of the trackway 28 by the overhanging flanges 41. It will thus be seen that no matter how far the drawer member has been pulled out, it remains interengaged with the casing member.

To prevent tilting of the casing and drawer assembly when the drawer has been pulled out to more or less its full extent, and when such assembly forms the top or one of the intermediate members of a stack of files, the lower rear edge of the casing member may be secured to the next lower casing in any suitable way, as by means of a clip, as shown in an application about to be filed by us.

It will now be clear that the stop member 32 is located in the path of the rod 39 and thus operates to limit the forward movement of the drawer member. It will therefore be impossible for anyone to pull the drawer member out of the casing and thus spill the contents of the drawer and perhaps cause injury to persons in the vicinity.

From the above it will be seen that the drawer member is supported both by the roller 31 mounted upon the bottom wall of the casing and by the rollers 40 supported from the bottom wall of the drawer member. The width of the roller 31 and the distance between the rollers 40 should be sufficiently wide to eliminate lateral tilting of the drawer member. The two trackways and cooperating rollers thus not only facilitate movement of the drawer no matter how heavily it is loaded, but keep the drawer member properly centered with respect to the casing, so that friction between the walls of the drawer and casing is avoided. The trackways also reinforce the drawer and casing members to a very great extent in the longitudinal direction and prevent buckling thereof.

The flanges 36 and 37 are adapted to serve as guide-ways for a follower member or block 42 which is made preferably of sheet metal and may be provided with indentations 43 to strengthen the same in the longitudinal direction. The lower portion of the follower extends horizontally as shown at 44 and is provided with inwardly bent end portions 45 which embrace the flanges or guide-ways 36 and 37. It will be noted that the latter are sufficiently spaced from the bottom 20 of the drawer member to enable the follower member to slide on the guide-ways 36 and 37 without engagement with the drawer bottom. The face 42 of the follower is preferably slightly inclined to the vertical as shown in Fig. 7, and is cut away at its center and bent rearwardly to provide a reinforcing strut 46 which may serve also as a handle member, the lower edge of the strut member 46 being secured in any suitable manner, as by soldering or welding to the horizontal portion 44 of the follower, or by being passed through a slot in the horizontal portion 44 and then bent under, as shown at 45a in Fig. 2. The strut member may be indented as shown at 47 to increase its strength.

In Figs. 8, 9 and 10 is shown a suitable device for locking the drawer to the casing to prevent displacement of the drawer when a filled file is being moved or when it is desired to store away a file more or less permanently. In the embodiment of the invention illustrated, such locking device includes a pair of ears 48 struck from the body of a metallic or other rigid reinforcing member 49 attached to the upper edge of the rear wall 19 of the drawer member, such reinforcing member 49 being provided also with apertures which receive the hook-like ends of the locking devices 26 which hold the drawer member in assembled condition, as described in our copending application Ser. No. 666,895.

The rear wall 15 of the casing is provided with a pair of openings 50 which are arranged to receive the ears 48 when the drawer member has reached the limit of its inward movement within the casing. The ears 48 are provided with apertures 51 which, in the position of the parts shown in Figs. 8 and 9, receive a locking or latch member 52, the latter serving to prevent withdrawal movement of the drawer member. It will be understood that any suitable number of ears 48 and registering openings 50 may be employed and that the locking member 52 may, if desired. be permanently connected to the wall 15 as by being hinged thereto. Thus the member 52 may take the form of one or more angular members hinged to the wall 15 and adapted to be swung to pass through the openings in the ears 48. It will be understood that the openings 50 will be made sufficiently wider than the ears 48 to allow for the possible limited lateral movement of the drawer member.

Where the rear end wall 15 of the casing is constructed as a separate unit and is pivoted upon the edge of the top wall of the casing, as shown at 53, being swung downwardly to interengage with the edge of the bottom wall as the casing is assembled, its lower edge may be apertured to receive a tongue extending from the trackway 27 which is then struck down, as shown at 54 in Figs. 1 and 2, to hold the wall 15 in assembled condition, as described and claimed in our copending application Ser. No. 14,518.

It will be noted that the trackways 33 and 28 are so supported on the drawer and casing members that no pull or tension or shearing action is exerted by the relatively rigid and strong load-bearing metallic trackways and other parts upon the relatively pliable and weak paper structure, no forces being thus exerted tending to tear the paper structure along the lines of connection with the metallic parts. Moreover, as the anti-friction elements are located at the bottoms of the drawer and casing, no distorting forces are exerted upon the side walls of such members. Furthermore, the trackway and rollers are embedded within, and in fact are positioned in cut-outs within the walls 20 and 12 of the drawer and casing, thereby reducing the extent to which the structure extends above and below such walls. The drawer and casing in the collapsed condition thus are of smaller maximum thickness than would be the case if the guiding and anti-friction devices were positioned wholly to one side of the respective walls.

It will be understood that where only a single trackway is employed, as illustrated, the roller 31 will be sufficiently long or the rollers 40 will be far enough apart, or both conditions may and preferably do exist, as illustrated, in order to provide a more stable support.

From the above it will be seen that we have provided an extremely simple construction in an inexpensive storage file for supporting the drawer member in relatively frictionless fashion, the anti-friction devices including trackways or equivalent elements which at the same time guide the drawer member and reinforce both the drawer and the casing member. While we have illustrated a preferred mode of construction and assembly it is

obvious that many changes and departures from the structure illustrated will occur to those skilled in the art without departing from the spirit of the invention or the scope of the appended claims.

We claim:

1. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway attached to the paper bottom wall of the casing member and having a depressed central portion mounted within such bottom wall, a roller journalled within said depressed portion, the upper edge of said roller projecting above the upper surface of said casing bottom wall, a metallic trackway attached to and at least partially embedded within the bottom of the drawer member and adapted to bear upon said roller, the bottom surface of said trackway being substantially flush with the lower surface of the bottom wall of the drawer member, and roller mechanism attached to the rear portion of the drawer member and adapted to travel in said depressed casing trackway.

2. A file as set forth in claim 1, wherein the trackway in the bottom wall of the casing is provided with inwardly extending flanges above the depressed central portion of the trackway to provide a channel for confining the roller mechanism connected to the drawer member and hold the same against upward tilting movement.

3. A file as set forth in claim 1, wherein the trackway in the bottom wall of the casing is provided with inwardly extending flanges above the depressed central portion of the trackway to provide a channel for confining the roller mechanism connected to the drawer member and hold the latter against upward tilting movement, said flanges being slotted at the rearward portion of the casing to enable the roller mechanism of the drawer member to be inserted within the depressed trackway of the casing member.

4. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway attached to the bottom wall of the casing member, a roller journalled at the forward end of said trackway and arranged to support the drawer member, roller mechanism attached to the rearward portion of the drawer member and adapted to ride on said trackway, and a stop element in the forward portion of said trackway and adapted to limit the withdrawal movement of the drawer member, said stop member not extending to any substantial extent above the surface of the bottom wall of the casing member in the collapsed condition of the latter and thereby not increasing the thickness of the collapsed casing.

5. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway attached to the bottom wall of the drawer member, a friction-reducing element on the bottom wall of the casing member arranged for cooperation with said trackway, and a follower element interengaging with said trackway and adapted to slide therealong.

6. A file as set forth in claim 5, wherein said trackway includes raised lateral portions, said follower member having inwardly bent sections fitted over said raised portions and adapted to bind against the latter when rearward pressure is applied against the follower element.

7. A file as set forth in claim 5, wherein the central portion of the follower element is cut out and bent rearwardly, the lower free edge of such cut out portion being attached to the bottom of the follower element, said portion serving to reinforce such element and act as a handle therefor.

8. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a trackway attached to the bottom wall of the drawer member and having lateral flanges extending above the upper surface of such wall, a follower element engaging said flanges and adapted to slide along said trackway, a trackway attached to the bottom wall of the casing and forming the joint between the free edges of the blank composing said casing member, a roller journalled in the forward portion of the casing trackway and arranged to engage the bottom surface of the drawer trackway, spaced ears depending from the drawer trackway, and a roller journalled in said ears and arranged to travel in the casing trackway, said casing trackway including inwardly extending flanges disposed above the drawer roller and operating to hold the drawer member against upward tilting movement as the same is drawn out of the casing.

9. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, and means attached to a wall of one of said members and arranged for cooperation with the other member for holding the rear of the drawer member against upward tilting movement throughout substantially the whole range of the movement of the drawer member, said means being substantially flush with the surface of said walls and thereby not substantially increasing the thickness of the member in the collapsed condition.

10. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway attached to the bottom wall of the drawer member and carrying a roller means adapted to bear upon the bottom wall of the casing member, and a follower element interengaging with said trackway and adapted to slide therealong.

11. A file as set forth in claim 10, including a metallic trackway attached to the bottom wall of the casing member and providing a bearing surface for said roller means.

12. A file as set forth in claim 10, including a roller supported on the bottom wall of the casing member in position to be engaged by the lower surface of said trackway.

13. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway attached to the bottom wall of the drawer member, a metallic trackway attached to the bottom wall of the casing member, roller means mounted at the forward end of the casing member in position to bear upon the trackway on the drawer member, roller means attached to the rear portion of the drawer member in position to ride upon the trackway on the casing member, and a follower element interengaging with the trackway on the drawer member interiorly of such member and adapted to slide along such trackway.

14. A file as set forth in claim 13 wherein a single trackway and roller means are attached to each of the drawer and casing members, said trackways and roller means being positioned at the longitudinal center of the file in the assembled condition of said members.

15. A file as set forth in claim 13 including a

stop device for limiting the withdrawal movement of the drawer member.

16. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, a metallic trackway replacing a portion of the bottom paper wall of each of said members and connected to the spaced edges of the wall and forming the joint therebetween, and roller mechanism attached to each bottom wall and engaging the trackway of the other member to facilitate movement of the drawer within the casing member.

17. A file as set forth in claim 16 wherein the bottom surface of the trackway of the drawer member is substantially flush with the lower surface of the bottom wall of such member, while the upper surface of the trackway in the casing member is substantially flush with the upper surface of the bottom wall of such member, the roller mechanism of the casing member comprising a roller projecting only a small distance above the casing trackway, whereby the bottom wall of the drawer member is maintained in close proximity to the bottom wall of the casing member.

18. A file as set forth in claim 9 wherein said means comprises a metallic trackway mounted within a wall of the casing, the drawer member interlocking with said trackway.

19. A file comprising a collapsible drawer member and a collapsible casing member made at least in large part of paper material, roller mechanism attached to the drawer member intermediately of the front and rear ends thereof and including a mounting replacing a part of the paper bottom wall structure of the drawer member, a trackway attached to the bottom of the casing member and engaged by the roller mechanism, and means engaging the roller mechanism and operating to hold the drawer member against upward tilting movement as it is drawn out of the casing member.

20. A file comprising a collapsible drawer member and a collapsible casing member made at least in part of paper material, aligned trackways on the drawer and casing members extending for approximately the length of said members, said casing member having an open front end and comprising top, bottom and side walls formed of a blank having scorings defining the corner edges and running perpendicularly to said open end, the trackway of the casing member forming the joint between the free longitudinal edges of the casing blank, a roller journalled at the forward end of the bottom wall of the casing member and arranged to engage the trackway on the drawer member, roller mechanism attached to the rear portion of the drawer member and adapted to engage the trackway on the casing member, and rigid journal supports for said roller and roller mechanism mounted within the paper bottom walls of said members, whereby the thickness of said members in the collapsed condition is reduced.

21. A file as set forth in claim 16, wherein the tops of the casing trackway and roller are substantially flush with the top surface of the bottom of the casing, and wherein the bottom of the drawer trackway is substantially flush with the lower surface of the bottom of the drawer.

22. A file as set forth in claim 16, wherein the casing trackway is provided with upwardly extending flanges for confining the roller mechanism attached to the drawer member against upward tilting movement.

23. A file as set forth in claim 16 including a stop member within the casing trackway for limiting the withdrawal movement of the drawer.

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