Dec. 24, 1940. J. MANDEL 2,225,958

CASING

Filed March 17, 1939 2 Sheets-Sheet 1

Fig. 1.

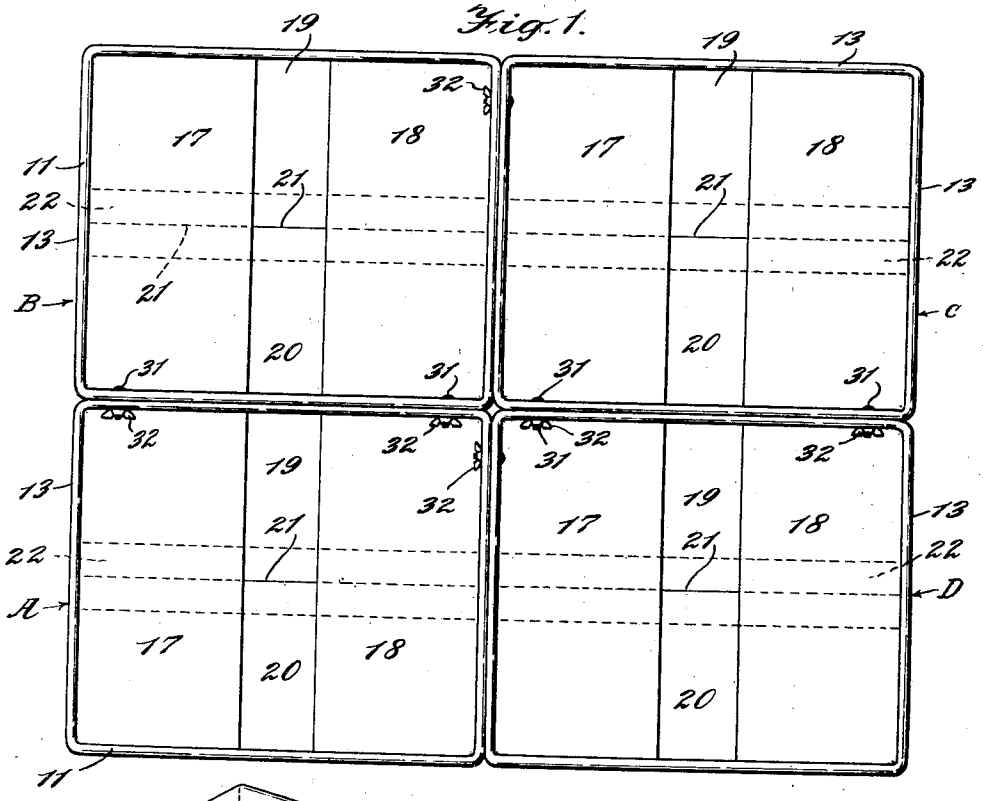
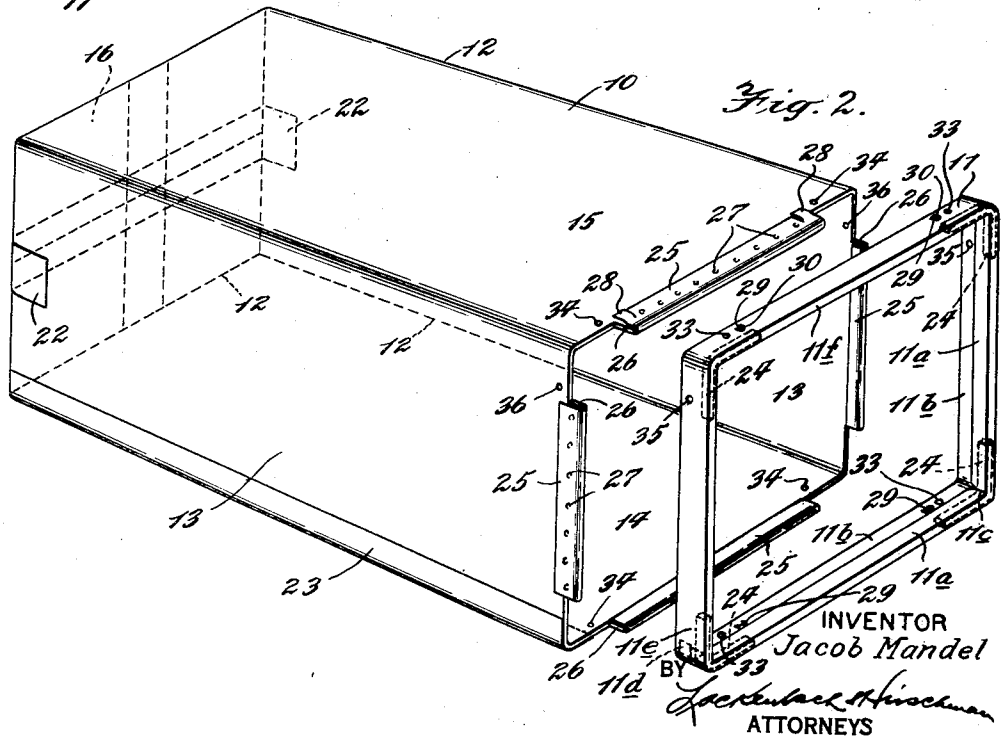


Fig. 2.



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Fig. 3.

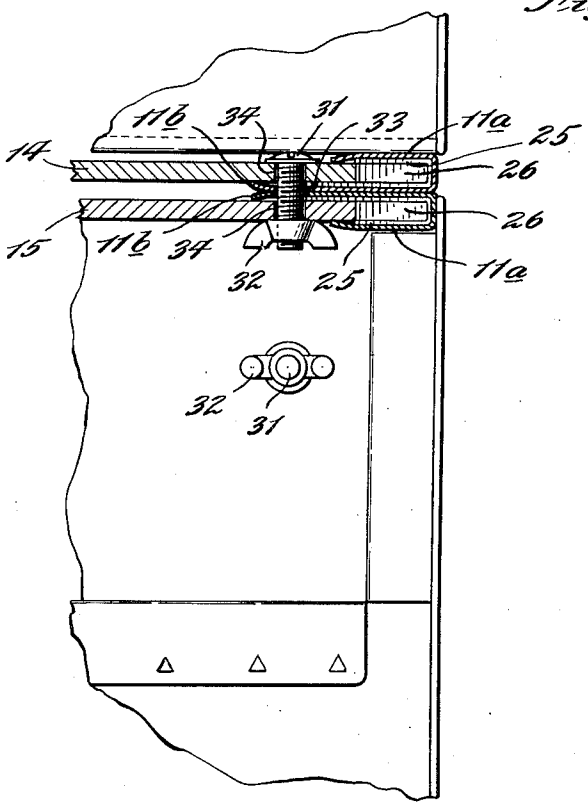
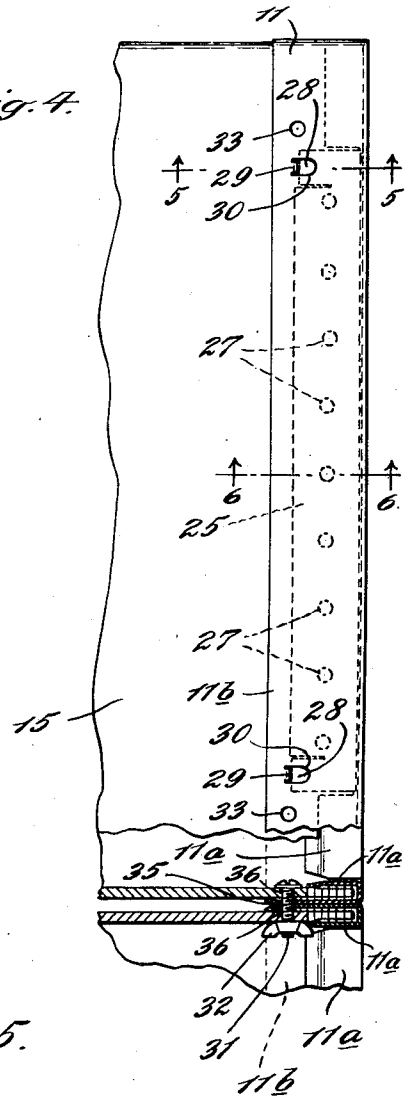


Fig. 4.



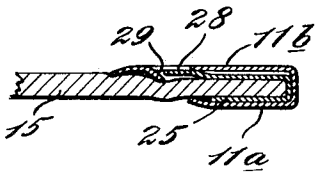


Fig. 5.

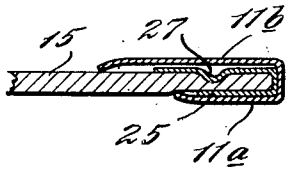


Fig. 6.

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Patented Dec. 24, 1940

2,225,958

UNITED STATES PATENT OFFICE

2,225,958

CASING

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Application March 17, 1939, Serial No. 262,450

6 Claims. (Cl. 229—49)

The present invention relates to collapsible files, such as are employed, for example as storage files.

It is the general object of the invention to provide a collapsible casing for files of the drawer and casing type which can be conveniently collapsed and erected and in its erected condition presents a neat and pleasing appearance.

It is the further object of the invention to provide a file casing of rectangular form whose main body portion is made of relatively inexpensive material, such as paper board, or very thin sheet metal, which itself is not quite able to withstand the weight of a number of superposed files without distortion and excessive wear, but which, in accordance with the invention, is provided with a reinforcing structure of simple configuration which stiffens the casing at the corners and receives and transmits vertical loads on the casing.

It is the still further object of the invention to provide an improved means for connecting superposed casings to each other to prevent lateral or endwise displacement of one with respect to the other; and to provide also means for holding horizontally adjacent stacks or columns of files against similar displacement.

More specifically, it is an object of the invention to provide a casing interlocking means which can be used both to tie vertically superposed casings to each other and likewise horizontally adjacent casings; the stacking or tying means being of such character that any casing of a group of vertically and horizontally interlocking casings can be removed from the battery of casings without disturbing the other casings.

Further objects and advantages of the invention will appear from the following more detailed description.

In the accompanying drawings forming part of the specification, are illustrated by way of example satisfactory embodiments of my improved casing and stacking or interlocking constructions. In said drawings,

Fig. 1 represents a front view elevation of four casings constructed in accordance with the invention and interlocked both vertically and horizontally, the drawers being omitted for the sake of greater clearness;

Fig. 2 is a perspective view of a casing, the body of the casing being shown in position for receiving the front end reinforcing frame;

Fig. 3 shows a fragmentary side elevation, partly in section, of two superposed casings with the stacking or interlocking mechanism in position thereon;

Fig. 4 illustrates a fragmentary plan view of two horizontally adjacent casings, the adjacent walls being in section to show the interlocking mechanism therebetween; while

Figs. 5 and 6 are sections taken on the lines 5—5 and 6—6 of Fig. 4.

The four casings A, B, C, D shown by way of example in Fig. 1, are composed essentially of a main body portion 10 and a front end reinforcing frame 11. The main body portion 10 may be made of any suitable light material such as corrugated or other paper board, or thin sheet metal. In the form of the invention illustrated in the drawings, the casings are shown as made of paper board which is provided with scorings, as shown at 12, along which the blank of which the casing body is composed may be molded to provide the side walls 13, bottom wall 14, top wall 15 and end wall 16 in a manner well understood in the art and as shown, for example, in the patent to Scheinman and Mandel No. 2,110,556. The casing body is preferably made of a single integral piece of material, the end walls being formed of four flaps extending from the top, bottom and side walls. As can be best seen from Fig. 1, the flaps 17 and 18 extend from the side walls of the casing and the flaps 19 and 20 from the top and bottom walls, the latter flaps meeting upon the outside of the casing along the line 21 and the end wall being held in erected condition with the aid of an adhesive paper or cloth tape 22. The free ends of the casing blank may meet at the lower left-hand corner of the casing as viewed in Fig. 2 and be connected by an adhesive paper or cloth tape 23. The construction so far described is well known and need not be set forth in further detail except to point out that for shipping purposes the casing is in completely collapsed condition, the tape 22 being secured to only one of the adjacent end wall flaps 19, 20; the casing being designed to be erected to the rectangular condition shown in Fig. 2 at the place of use, at which time the tape 22 is secured to the other of the end wall sections 19, 20, while its free ends are secured to the side walls 13.

In accordance with the present invention, the open front end of the casing which receives the drawer (not shown) is provided with a reinforcing frame 11 which can be easily and conveniently fitted over the front end of the casing and secured thereto. The frame 11 is structurally separate from the casing and is preferably made of sheet metal. The frame is of channel cross-section, and may be made of an integral piece of sheet metal, suitably bent, the inner flange 11a

being preferably shorter than the outer flange 11b. The inward bending of the inner flange may be facilitated by removing triangular portions of metal from the original flat blank at points corresponding to the joints 11c. The ends of the reinforcing frame may meet at one of the corners, for example, as shown at 11d, and be suitably united by soldering, welding or the like. If desired, thin angled members may be soldered or welded to the meeting edges of two adjacent flanges, preferably the outer longer flanges, upon the inner face thereof, as indicated at 11e. If desired, the frame may be made with one of the sides, such as the bottom side, separate from other three, the two being then united at their ends by welding or the like.

The reinforcing frame 11 is made sufficiently strong, not only to keep the walls of the casing in their normal right angular relationship, but also to withstand a weight of loaded casings stacked above it. To this end, the frame is made of suitably strong metal, the channel cross-section of the frame contributing greatly to its strength, as is well understood. If desired, relatively flat angle irons may be inserted between the inner and outer flanges at certain or all of the corners of the frame in order to increase the rigidity thereof. These angle irons are suitable fixed within the frames, as by soldering or welding.

The metallic reinforcing frame is intended to be fitted, as already indicated, upon the front edges of the walls of the casing. In order to facilitate the assembly of these parts and at the same time insure a strong although releasable union therebetween, I provide upon the front edges of the casing walls (by which term I include the side, bottom and top walls) or at least upon certain of such walls, relatively rigid clips 25 preferably made of metal which may be mounted upon extensions 26 of the casing walls and secured thereto in any suitable manner, as by pinching, as indicated at 27. The ends of the extensions 26 and their covering clips 25 are short of the adacent corners of the casing by an extent sufficient to accommodate the angle irons 24 embedded within the frame 11. The frame can thus be mounted upon the casing with the clips 25 reaching as far as possible into the space between the flanges 11a and 11b, and in fact until they contact the inner surface of the front wall 11f of the frame. By properly dimensioning the clips 25 and the angle irons 24, the edges of these parts would be substantially in contact with each other when the frame is in assembled position upon the casing; thereby, the clips and angle irons act substantially as a continuous metallic filler within the outer frame 11 and act to reinforce the latter and hence strengthen the casing. It will thus be seen that my improved front end reinforcing structure comprises a complete and rigid frame 11 which is completely detachable from the casing to enable the latter to be collapsed during shipping or for storage, and parts 25 which are intended to be permanently secured to the casing but in no way interfere with the collapse thereof, the parts 25 cooperating with the parts 24 to provide an additional reinforcing structure.

In order to fix the reinforcing frame upon the casing to prevent displacement thereof upon opening of the drawer, especially when the casing is not secured to vertically or horizontally adacent casings in the manner described hereinbelow, as when only a single file is used, I provide spring tongues upon certain of the clip members 25, such as those located on the top and bottom walls of the casing. These spring tongues may be struck from the body of the clips themselves, as shown at 28. The raised rear ends of this tongue are adapted to be engaged by relatively rigid lugs 29 struck downwardly from the body of the longer flanges 11b of the metallic frame. It will, of course, be understood that the flanges 11b are longer, in the direction of the longitudinal axis of the casing, than the clip members 25 and in the assembled condition of the frame on the casing, the forward edge of the lugs 29 passes just beyond the rear edge of the spring tongues 28. To release the frame from the casing for purposes of collapse of the latter, the spring tongues may be depressed by inserting a suitable tool into the opening 30 in the frame 11 in advance of the lug 29 so that the frame can be slipped forwardly over the depressed spring tongues 28.

Collapsible files now on the market are provided with means for securing vertical stacks and horizontal rows of individual casings against displacement relative to each other. In one form of construction, the stacking devices comprise elongated sheet metal members which are received in straps provided at the sides of the casings, the straps being struck from the body of the metal composing vertical reinforcing members, the stacking device passing through the straps on superposed casings and the ends of the stacking device extending considerably below the lower strap and considerably below the upper strap, thereby requiring a considerable vertical displacement between superposed casings to effect disengagement of one from the other. Interlocking between adjacent vertical straps is effected by means of lateral hooks on the stacking devices which can be engaged with each other only by relative vertical movement between the horizontally adjacent files. In a battery of such horizontally and vertically interlocked files, it is impossible to remove a centrally positioned file, that is, one surrounded on all sides by other files, without dismantling practically the whole battery. Thus, where the battery of files is employed for more or less frequent use and it is desired to remove a file to store it away more or less permanently as a "dead" file, it is extremely difficult to remove the file without disturbing a large number of the other files.

In another type of stacker mechanism now on the market, the stacking member is provided with ribs which interlock with similar ribs on a sacking member positioned on a vertically adjacent stack of casings, the two being held together by a pin or bolt entering the more or less circular passageway formed between the interlocked ribs. Upon removal of the pin, the adjacent stacks can be moved horizontally with respect to each other, so that a whole stack can be removed without disturbing the other stacks. However, to remove a lower file in a stack of files, the upper files must be lifted to enable the stacking members to be released from the file to be removed. This usually means the removal of all of the files positioned above the one to be separated.

In accordance with the present invention, a stacking mechanism is provided which enables a file to be removed quickly and easily, no matter where it is located in a battery of files, practically without disturbing any of the other files. I accomplish this result by providing interconnecting means between the files which can be readily released to enable a file to be detached from the

adjacent files and removed from a battery of files. In the preferred embodiment of the invention illustrated in the drawings, these interlocking means pass through the juxtaposed walls of adjacent casings perpendicularly to the planes of such walls and preferably through the reinforcing structures associated with the front ends of the walls. These interlocking devices are accessible from the interior of the individual casings upon opening of the drawers. To remove any particular file, therefore, it becomes necessary only to open the drawer of the file and if necessary also the drawers of the adjacent files, and release the interlocking means.

The interlocking devices that may be employed in my improved mode of securing vertically and horizontally stacked files to each other may take a great variety of forms and in fact may comprise any known and suitable type of fastening means. In the construction illustrated by way of example in the accompanying drawings, these interlocking means are shown in the form of a bolt and wing nut, but as already pointed out, any other known type of fastening devices may be employed. The screws and nuts are shown respectively at **31** and **32**. The top and bottom portions of the reinforcing frame are provided with apertures **33** which are adapted to register with openings **34** in the top and bottom walls of the casing and with similar apertures on vertically superposed and underlying casings. The superposed casings can thus be secured to each other to prevent lateral and longitudinal movement with respect to each other, by inserting the bolt through the registering apertures **33** and **34**, as shown in Fig. 3, and then engaging the nut **32** upon the protruding end of the screw. The side portions of the reinforcing frame **11** are similarly provided with apertures **35** disposed to register with similar apertures **36** in the side walls of the casing, the screws being sufficiently long to pass through the two adjacent walls and reinforcing frames of horizontally juxtaposed casings. Suitable washers may be employed to bear against the paper walls, or the clip members **25** may be extended to provide bearing surfaces for the screw heads or nuts at the inside surfaces of the casing walls.

It will be noted that the openings **34**, **35** and **36** are conveniently arranged in the corner portion of the casing and reinforcing frame between the projecting clip members **25**. They may, however, be arranged elsewhere along the periphery of the open end of the casing and correspondingly along the metallic frame. I prefer, however, to arrange them as illustrated, as in such position the mounted screws **32** cause no interference with the movement of the drawer or with the insertion or removal of the contents of the drawer of the file.

Similar securing means may be provided at the rear of the casing, the side walls and, if desired, also the top and bottom walls, being provided with suitable metallic reinforcing members which are suitably apertured to receive the screws. In general, it will be sufficient to provide only vertical reinforcing members at the rear portions of the side walls, such members extending along substantially the whole height of such walls but not interfering with the clips of the casing. For most purposes, however, the securing of the rear portions of the casings to each other can be dispensed with.

An assembled battery of casings is shown in Fig. 1, which illustrates the manner of securing the casings to each other in such a manner as to prevent displacement of the individual files. From Fig. 1 it will be readily understood that where it is desired to remove one of a battery of files, the fastening means associated with the particular file can be released and the file removed practically without disturbing the other files. It will be noted that the file above the one that is removed will remain in suspended position, being held to the files to each side of it by the fastening means. As the file is removed, the rear end of the file immediately above it can be propped, if desired, where no interlocking means for the rear of the files is provided. Although only one fastening means is illustrated as being provided for the side walls of the casing, it is apparent that more than one such means may be provided, preferably arranged above the side walls of the drawer. Should it be desired to provide an interlocking means adjacent to the bottom of the side walls, the side walls may be provided with an enlarged aperture, to receive the fastening means so as to keep the end surfaces of the fastening means substantially flush with the inner surfaces of the casing side walls. The wing nut should, of course, be made as shallow as possible, as will be clear from Fig. 3, and if desired, ordinary hexagonal nuts may be employed. It will be noted by reference to Fig. 1, that by the elimination of straps or sockets at the sides of the reinforcing frames, the horizontally adjacent casings can be brought into direct contact, thereby not only conserving space, but preventing the accumulation of dust and other matter between columns of casings.

While I have described my invention specifically in connection with a paper casing, it will be obvious that casings made of other materials may be employed, such as a metal coated paper or cardboard casing or an all-metal casing, particularly one which is unable to withstand heavy compressive stresses and accordingly requires the provision of a reinforcing front frame.

I claim:

1. A collapsible casing comprising an open-ended quadrilateral structure having top, bottom and side walls, made of paper material provided with score lines between the adjacent walls along which the walls may be hingedly moved to erect or collapse the casing, a rigid reinforcing frame separate from the casing and adapted to be fitted over the front edges of the walls at the open end of the casing, extensions on at least certain of the casing walls intermediate the lateral edges thereof, and stiffening means associated with said projections and acting to facilitate assembly of the reinforcing frame upon the casing.

2. A casing as set forth in claim 1, wherein the stiffening means comprises reversely bent metallic sheathing members secured to said projections.

3. A casing as set forth in claim 1, wherein the stiffening means comprises reversely bent metallic sheathing members secured to said projections, at least one of said sheathings having a tongue projecting from the outer surface thereof, and lugs extending from the reinforcing frame and adapted to interlock with said tongues to secure the frame to the casing.

4. A casing as set forth in claim 1, wherein the stiffening means comprises reversely bent metallic sheathing members secured to said projections, at least one of said sheathings having

a tongue projecting from the outer surface thereof, lugs extending from the reinforcing frame and adapted to interlock with said tongues to secure the frame to the casing, and an aperture in the frame through which the said tongue may be depressed to disengage the same from the lug and enable the frame to be detached from the casing.

5. A collapsible casing comprising an open-ended quadrilateral structure having top, bottom and side walls, a rigid reinforcing frame separate from the casing and adapted to be fitted over the front edges of the walls at the open end of the casing, extensions on at least certain of the casing walls intermediate the lateral edges thereof, stiffening means associated with said projections and acting to facilitate assembly of the reinforcing frame upon the casing, and angle plates secured to at least certain of the corner portions of the frame inwardly thereof and adapted to occupy the angular interval between the adjacent edges of neighboring stiffening means.

6. A collapsible casing comprising hinged top, bottom and side walls adapted to be erected into quadrilateral form, a rigid reinforcing frame separate from the casing and formed of metal of channel cross-section, extensions on at least certain of the walls of the casing and between the ends of the respective walls, a metallic sheathing for the extensions secured to the casing, said sheathings facilitating assemply of the forward end portion of the casing within the reinforcing frame, angular plates secured within at least certain of the corner portions of the reinforcing frame and adapted to occupy the angular interval between adjacent metallic sheathings on the casing so as to form therewith a reinforcing structure within the reinforcing frame, and releasable interlocking means on the frame and on at least one of the metal sheathings.

JACOB MANDEL.