March 25, 1958 J. E. FELLOWES 2,828,062

PROTECTING STRUCTURE FOR STORAGE CONTAINERS

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FIG. 1

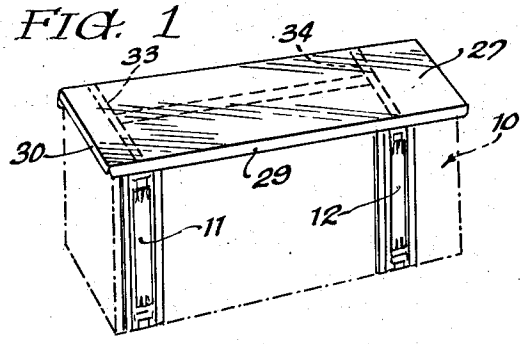


FIG. 2

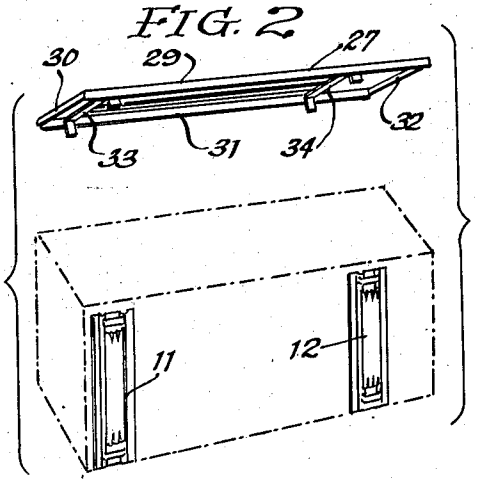


FIG. 3

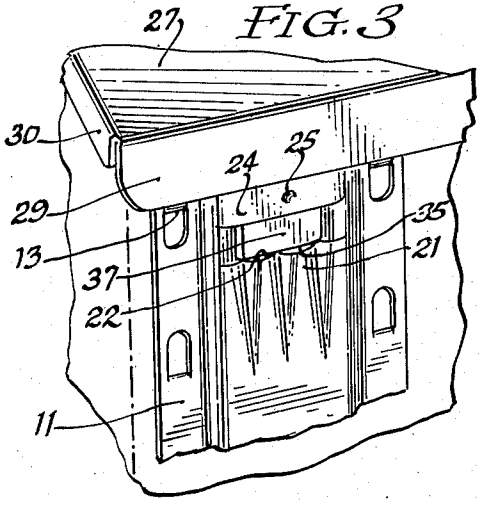


FIG. 4

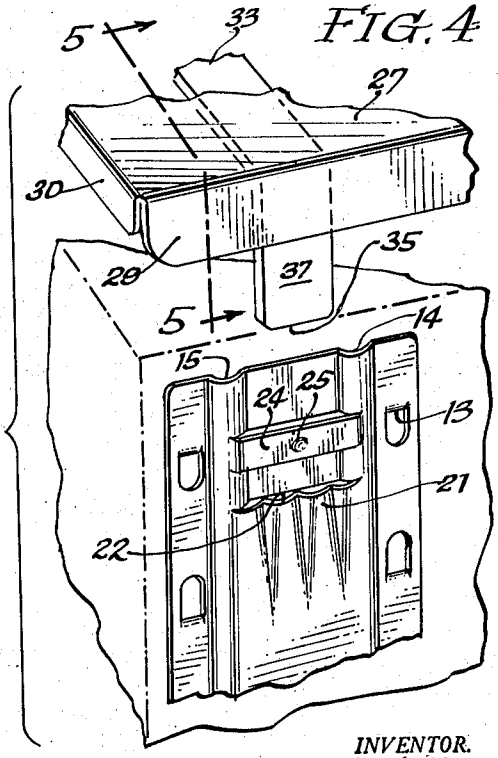
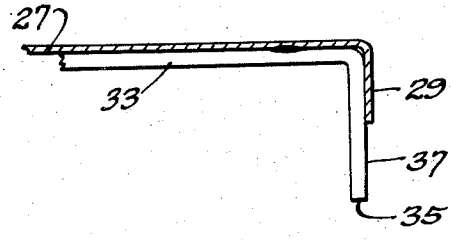


FIG. 5



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FIG. 6

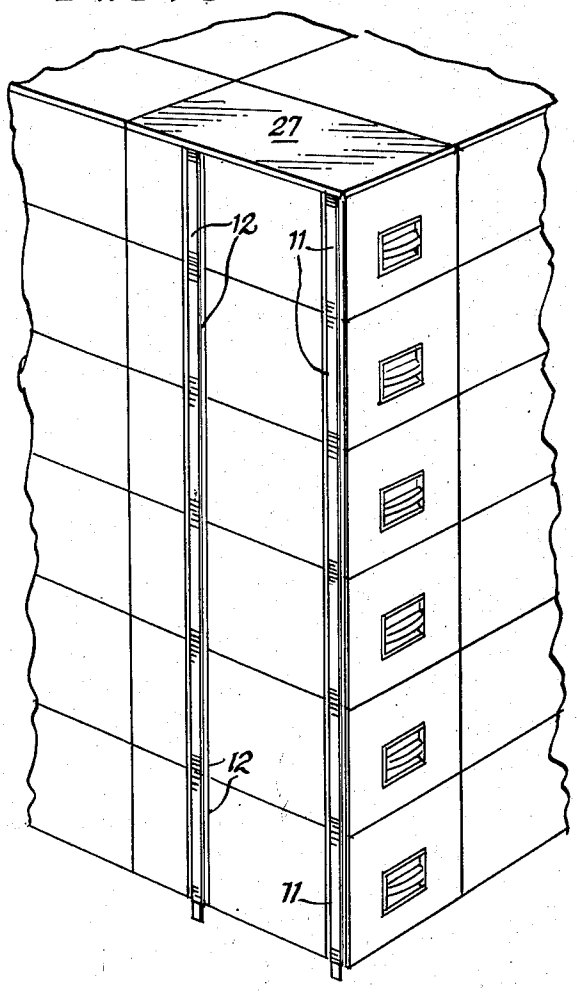


FIG. 8

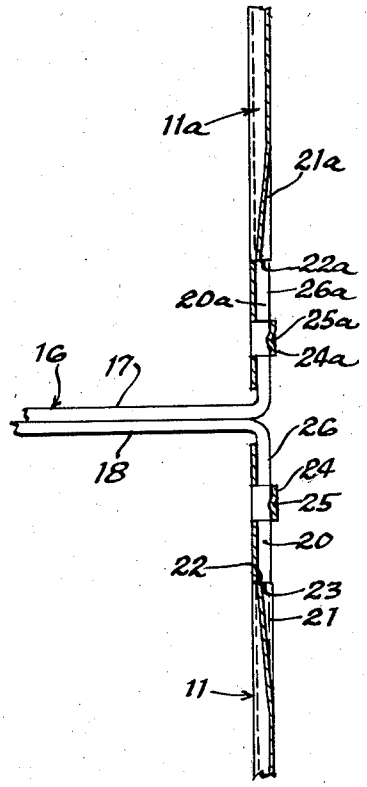


FIG. 9

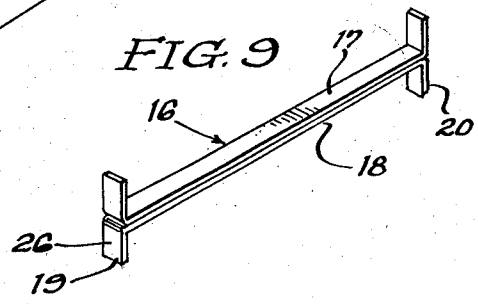
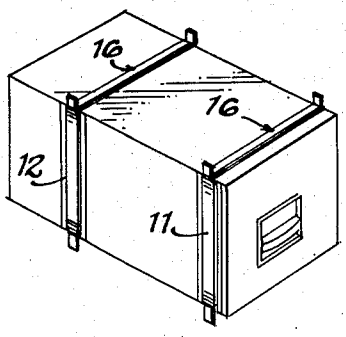


FIG. 7



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PROTECTING STRUCTURE FOR STORAGE CONTAINERS

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Application September 6, 1955, Serial No. 532,693

6 Claims. (Cl. 229—49)

This invention relates to storage containers for documents, files, etc., and particularly to a protecting structure therefor.

It is customary in the larger business organizations to transfer inactive or seldom used files and documents from containers of the slidable drawer type designed for constant use to storage containers which resemble the former containers in size and in the availability of a pull type drawer, but which are constructed of less expensive materials since their function is primarily as receptacles for little used files and documents and hence are seldom opened. Such storage files may be made of some form of paper or fibrous material just sufficiently reinforced to provide the strength necessary for their limited use.

It has been proposed to stack the storage containers one upon the other in numbers varying from two or three to a dozen or more, which imposes severe loads upon the lowermost container. To avoid overstressing the lowermost container, it has been proposed to build around each individual container or box a metal structure which takes the vertical stresses off each box so that the lowermost box in a stack is no more stressed than the topmost box, and, in fact, each container or box is substantially independent of its neighbor above or below it, insofar as vertical stresses are concerned.

Where the height of the stack of temporary storage containers or boxes is not very great, there is a tendency to use the upper surface of the topmost container as a table surface upon which to lay various articles. Continued abrasion of the paper upper surface by such articles soon scuffs the paper and may in time actually rupture the upper surface, thereby exposing the contents of that particular container to dirt, moisture, and the like. The weight of the articles may also cause the top of the container to sag into the drawer space, with the result that the contents of the drawer are scraped each time the drawer is moved.

An object of this invention is the provision of means for protecting the upper exposed surface of a storage container or box, and of means for affixing the protecting means to the structure normally furnished with such a storage box for taking vertical stresses from the weaker components thereof.

As a more specific object, this invention seeks the provision of a steel or other metallic cover for a storage container made of fibrous material, with friction means on the container for affixing the cover thereto.

A further specific object of this invention is the provision of interlocking vertical and horizontal members to provide a rigid frame for storage boxes in which laterally spaced units of such frame are held together at the top by means running horizontally between spaced vertical sections of said frame.

Among the more general objects of this invention are the provision of means for enhancing the appearance of the upper surface of a storage box or container, the protection of the corners of such container, the transfer of

the weight of objects placed upon the upper surface of the container from such upper surface to metal reinforcing members affixed to the sides of the container, and to close the space between adjacent stacks thereof.

These and other objects of this invention will become apparent from the following detailed description when taken together with the accompanying drawings in which,

Fig. 1 is a front elevational view in perspective of a storage container showing the cover of this invention affixed thereto;

Fig. 2 is an exploded view of the container of Fig. 1 showing the cover removed;

Fig. 3 is an enlarged fragmentary view of a corner of the container of Fig. 1;

Fig. 4 is an exploded view of the corner of Fig. 3;

Fig. 5 is a section along line 5—5 of Fig. 4, the section showing the construction of a portion of the cover;

Fig. 6 is an elevational view in perspective of a plurality of stacks of file containers, the top container of each stack being protected by the cover of this invention;

Fig. 7 is an elevational view in perspective of an intermediate container in the stack shown in Fig. 6;

Fig. 8 is an enlarged end elevational view of a fragment of the reinforcing structure used in connection with the containers of Figs. 1 and 6; and

Fig. 9 is a perspective view, somewhat enlarged over that of Fig. 7, showing the construction of a load transferring member of the reinforcing means.

The internal construction of the storage container to which this invention may be applied is not material to this invention and accordingly a detailed description thereof will not be given here. A typical construction, however, is shown in my copending application Serial No. 345,093, filed March 27, 1953, now Patent No. 2,723,073, for Collapsible Filing Container from which it may be apparent that the storage container includes an open ended rectangular box made of pressed board, cardboard or the like, and a drawer of similar material adapted to slide into the container. The drawer may be of precisely the same size as an ordinary file drawer of the steel or wooden type equipped with the relatively elaborate track and roller means for reducing the friction and wear between the steel or wooden drawer and its container. Such pressed board storage container is shown in dotted outline at 10 in Fig. 1.

Vertical loads imposed by the contents of the container 10 are transferred to vertically disposed struts 11 and 12 preferably made of heavy gauge steel. As shown more clearly in Fig. 2 the upper and lower regions of each strut are identical and each region includes, as shown in Fig. 4, a plurality of inwardly bent tabs 13 which pierce the sides of the container and are then bent over in the interior thereof (not shown) to lock each strut to the side of the container. Columnar rigidity is given each strut by forming parallel beads 14 and 15 inwardly of the side edge regions thereof. Each strut of one container is interlocked with the strut of the vertically adjacent container by means of a tie bar or rod 16 (shown more clearly in Fig. 9), said tie rod preferably being formed of a pair of U-shaped steel strips 17 and 18 welded back to back. The ends 19 and 20 of each strip are adapted to embrace corresponding struts on opposite sides of a box 10 and to slide between the beads 14 and 15 thereof.

Since each tie rod 16 extends across the upper surface of one container and the bottom surface of the vertically adjacent container, the weight of the latter is taken by the tie rods and is then transferred to the struts by a laterally displaced and corrugated region 21 near the upper end of each strut which forms a horizontal surface 22 upon which the edge 23 of a strip rests. The ends 19

and 20 of the strip are held frictionally in place at the end of a strut by a laterally displaced strap 24 disposed between surface 22 and the end of the strut adjacent thereto, said strap having a dimple 25 formed substantially in the central region thereof and extending inwardly with reference to the container 10 into contact with the outer surface 26 of the tie bar 16. The dimple serves to produce a friction clamping action between the strap and bar to hold the bar in place. The strap 24 and corrugated region 21 constitute, in effect, a socket within which the end of a strip may be received.

The relationship between the struts and tie rod is shown more clearly in Fig. 8. Two vertically adjacent struts 11 and 11*a* are shown, the parts of the strut 11*a* corresponding to the similar parts of strut 11 being designated by the same reference character with the letter "*a*" added. It may be apparent from Fig. 8 that loads impressed from above upon strut 11*a* are transferred to the end 20*a* of strip 17 through its contact with the surface 22*a* of the corrugated region 21*a* and thence through strip 18, end 20 and surface 22 of corrugated region 21 to strut 11. Such transfer of load occurs serially from top to bottom of a stack of containers equipped with the struts 11 and 12 and tie rods 16 so that the weight of a container is effectively taken by the struts therebelow and not by the subjacent container.

It may be observed in Fig. 2 that the upper surface of the top container in a stack is unprotected. In accordance with this invention, protection is afforded such upper surface by a cover 27, preferably made of relatively heavy gauge sheet metal, and formed with depending flanges 29, 30, 31 and 32 (Fig. 2) which provide rigidity for the cover and enhance the appearance thereof. Said cover 27 is provided with transverse U-shaped strips 33, 34 which may be identical in every respect to strips 18. The downwardly extending ends of the U are adapted to be held by a strap 24 and dimple 25 in the upper ends of the struts 11 and 12, and the end surface 35 of each strip is adapted to contact the upper surface 22 of the corrugated region 21 of said struts. Said U-shaped strips 33 and 34 are preferably welded to the underside of the cover 27 in such location thereon as to cause cover 27 to be properly centered with respect to a container 10 so that the flanges 29, 30, 31 and 32 extend over the sides and ends of the container. If desired, a reinforcing strip 36 may be welded to the underside of cover 27 medially thereof and its ends may be secured by welding or otherwise to the central regions of strips 33 and 34.

It may be observed that cover 27 is interchangeable with a container 10 insofar as its connection with the struts 11 and 12 of a container are concerned and that the cover 27 will serve to transfer loads placed thereon directly to the struts, rather than to the upper surface of a container. The cover 27 also provides a protective corner for the upper corners of a container 10, and inasmuch as the cover extends over the outer surface 37 of the depending portion of the U-shaped strips 33 and 34, it serves to cover the space between adjacent stacks of containers to prevent dirt and other particles from falling therebetween and also to prevent pencils or other valuable articles which may be placed on the cover from falling between the stacks and making their recovery difficult if not impossible without actual separation of the stacks.

The covers 27 may be placed upon the uppermost container either before the container is put in place on a stack or after. However, inasmuch as the average container is relatively heavy, it is simpler to put the container in place on a stack and then place a cover 27 on the container, care being exercised in locating the cover in such manner that the depending portions of the strips 33 and 34 are properly located relative to straps 24 and the edges 22 of the corrugated regions 21.

I claim:

1. In combination, a plurality of containers stacked one upon the other, each container including a body of fibrous material and having substantially parallel sides and substantially parallel top and bottom, vertically disposed elongated rigid members secured to opposed sides of each container and adapted to support vertical loads, rigid horizontal tie rods each having vertically disposed ends, sockets in the upper and lower ends of said rigid members, the sockets in said upper ends opening upwardly and those in said lower ends opening downwardly, said sockets being adapted to receive the vertically disposed ends of said tie rods, said vertically disposed ends bottoming on the sockets such that vertical loads imposed upon said tie rods are transferred to said sockets through said vertically disposed ends, a cover for the uppermost container in a stack, protuberances on the cover adapted to be received in and bottom upon the sockets in the upper ends of the rigid members secured to said uppermost container whereby to transfer loads imposed upon the cover to the last said sockets.

2. In a combination as described in claim 1, each said protuberance comprises the depending ends of a U-shaped strip secured to the underside of the cover.

3. The combination as described in claim 1, each said socket comprises a laterally offset region providing a horizontal ledge on the rigid member, a strap spaced vertically and laterally from the said offset region, the vertically disposed end bottoming on the socket by contacting the horizontal ledge of the rigid member.

4. In the combination as described in claim 1, a tie rod secured to the underside of the cover, and said protuberances constituting the depending ends of said tie rod, the tie rod secured to the underside of the cover being interchangeable with one-half of the first-mentioned tie rods.

5. In the combination as described in claim 1, said tie rods comprising U-shaped strips secured back-to-back, a substantially identical U-shaped strip secured to the underside of the cover, said protuberances on the container being formed by the depending ends of the U-shaped strip.

6. In combination, an upright stack of containers, each said container including a body of fibrous material having substantially parallel sides and substantially parallel top and bottom, vertically disposed elongated rigid members secured to opposed sides of each said container and adapted to support vertical loads, vertically extending interlocking means for interlocking oppositely disposed ones of said rigid members secured to adjacent containers in said stack, said interlocking means including support means for each said container, each container in said stack resting on said support means and being supported by said interlocking means, a cover for the uppermost container in said stack, and means on said cover for supporting it from said rigid members whereby loads imposed upon said cover are transferred to said interlocking means, said cover having depending flanges disposed along two opposite sides thereof and embracing the upper portion of the interlocking means and said rigid members, such that the space between laterally adjacent stacks is substantially closed by the adjacent flanges of the covers for said adjacent stacks.

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