June 28, 1955 K. MÖBUS 2,711,941

CUPBOARDS FOR THE HANGING STORAGE OF DRAWINGS AND THE LIKE

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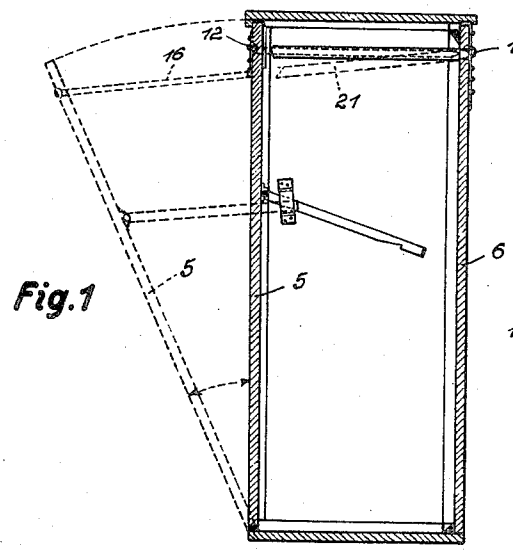


Fig.1

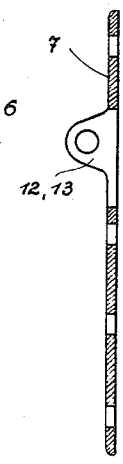


Fig.5

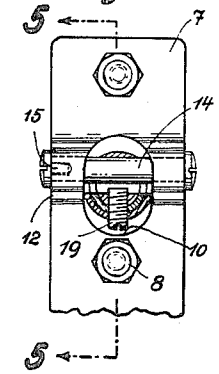


Fig.4

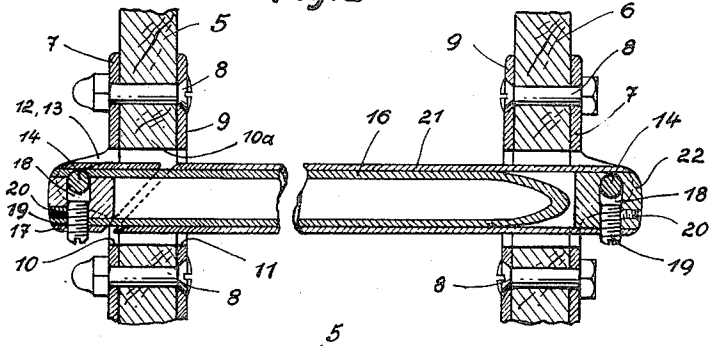


Fig.2

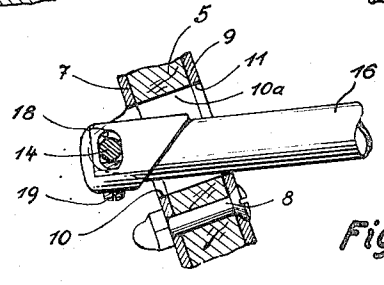


Fig.3

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CUPBOARDS FOR THE HANGING STORAGE OF DRAWINGS AND THE LIKE

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3 Claims. (Cl. 312—184)

This invention relates to a cupboard for the hanging storage of drawings, plans and other materials in which the front panel of the cupboard is hinged to open and close and in which the front and back panels of the cupboard are provided with supporting means for hanging the drawings, plans or other materials, which means telescopically engage with one another in the closed position of the cupboard, for example, rods secured to one panel and tubular sleeves which fit telescopically over such rods secured to the other panel.

In a cupboard of this type, these rods and tubular sleeves are pivotally attached to the front and rear of the cupboard by hinged joints so that the hanging means assume a forwardly inclined position in the opened cupboard. In addition stops are provided to limit the movement of the rods and sleeves, consisting of slotted plates through which the rods and sleeves are passed.

It is an object of the present invention to provide an improved cupboard having the aforesaid pivotally mounted telescopically engaging hanging means and more especially to provide such a cupboard in which the interengagement of the elements of the hanging means during the movement of the front panel to the open or shut position is improved.

A further object of the invention is to provide such a cupboard having an improved stop for limitation of the movement of the pivotally mounted hanging means. A still further object of the invention is to provide a cupboard of the afore-mentioned type which is of simpler construction than known designs and in which the weight of the materials stored in a hanging position is better distributed.

It has now been discovered that the interengaging motion of the hanging means which carry the drawings, plans or the like may be facilitated by arranging that the straight interengaging elements of the hanging means execute an up and down movement, in addition to a pivotal movement at their points of support.

According to the present invention, therefore, a cupboard for storing drawings, plans and other materials in a hanging position comprises a cupboard structure having front and rear panels, a hinged connection for the base of said front panel which allows it to open and shut, substantially straight telescopically interfitting elements pivotally mounted on said front and rear panels respectively adapted when the front panel is closed to be telescoped together to constitute a hanging rail and means at the pivotal connections of said elements to permit such elements a degree of substantially vertical movement.

Preferably according to the invention, the elements consist of straight rods pivotally secured to one panel and tubular sleeves pivotally secured to the other panel, the sleeves sliding telescopically over the rods when the cupboard is closed.

In the preferred form of the invention means are provided to permit the adjustment of the magnitude of the vertical, i. e. up and down, movement of the rods and sleeves and such means also serves as stops or supports for the elements.

Further, according to one form of construction, the end of each telescopic hanging element is provided with

a slot through which may be passed a rod rigidly attached to the panel support. The up and down movement of the telescopic hanging elements may be limited and adjusted by the provision in such slot of an adjustable pin which may, for example, be in the form of a set-screw which may be secured in various positions from time to time.

The bearing and support for the telescopic elements may be constructed so as to be insertable into the front or rear panel of the cupboard respectively from the outside. For this purpose, according to a further form of the invention, the panel support for the telescopic elements may be provided with an opening so that the telescopic elements may be passed through the support from the outside and then secured by the introduction of the transverse bearing-pin. The assembly of a cupboard according to the invention is thereby facilitated.

The invention has the particular advantage over known designs that, by the substantially straight construction of the telescopic elements, the pivotal movement and the limited up and down movement of these parts, and by the oblique disposition of the telescopic elements in the open position of the cupboard, the insertion and removal of drawings or the like is susceptible of easy manipulation. At the same time, however, the movement and the mutual engagement of the telescopic elements are facilitated by their up and down movement at their points of support. Further, there is obtained the advantage that, by the adjustability of the degree of the up and down movement of the telescopic elements, a very exact adjustment of the degree of their pivotal movement may be effected from the outside.

One form of construction according to the invention is shown in the attached drawing by way of example.

Figure 1 shows diagrammatically a longitudinal section of a cupboard which embodies the invention,

Figure 2 shows a perpendicular longitudinal section through a part of the front and back panels of the cupboard according to the invention, in which parts of the telescopic elements are omitted,

Figure 3 shows a similar partial section of the front panel, in the hinged-open position, and shows a telescopic element in the forwardly inclined position,

Figure 4 shows a partial front view of a detail of Figure 2,

Figure 5 shows a section on line 5—5 of Figure 4.

Referring to these drawings, the front panel **5** of a cupboard for the hanging storage of drawings, whose general construction may be as shown in Figure 1, is hinged to open as shown in dotted line. The rear panel is indicated at **6**. A supporting plate **7** is fastened securely with a number of screw-bolts to a counter-plate **9** placed on the inner side of the front panel **5**. The supporting plate **7**, the front panel **5** and the plate **9** have an elliptical opening **10**, **10***a*, **11**. A bearing pin **14** with a slotted head is attached to the supporting plate **7** in a horizontal position by means of a shoulder-piece **12**, **13** and it is held in its working position by a headed screw **15** inserted into it. A rod **16** with a pointed end is provided at its other end with an external and internal bush **17** which is pierced by a slot **18** through which the bearing pin **14** is passed. In the lower part of the slot **18** there is engaged in a threaded hole a stop, for example in the form of a grub-screw **19**, which can be held in various positions by a further securing grub-screw **20**.

The support on the rear panel **6** of the cupboard corresponds in construction to the support on the front panel **5** with the difference, however, that instead of the rod **16** there is provided an element **21** which takes the form of a tube or sleeve into which the rod **16** can enter. The

tube 21 is obliquely shaped at one end and into the other end of the tube 21 an internal sleeve is securely fixed. The remaining parts of the support correspond to those on the front panel 5 and are therefore indicated by the same reference numbers.

As is shown in Figure 1, in the closed position of the front panel 5 the upper surfaces of the slot 18 lie against the bearing pins 14, 14 so that the weight of the drawings, plans or the like is applied directly to the bearing pins 14, 14 and from thence to the supports 7, 7.

On swinging open the front panel 5 of the cupboard, the rod 16 and tube 21 (a plurality of which are preferably arranged side by side in pairs at a distance from one another) execute a pivotal motion around their bearing pins 14, 14. At the same time, however, these elements 16 and 21 can move up and down to a certain adjustable extent and the relative telescopic movement of these elements 16 and 21 is thus facilitated. On swinging open the front panel 5 the central axis of the bearing pin 14 executes a movement in an arc of a circle around the line of attachment of the front panel 5 to the cupboard structure, the radius of the arc being equal to the distance of the bearing pin 14 from the pivotal line of the front panel 5 on the cupboard, while the sleeve 21 pivots about its bearing-pin 14 on the stationary back-panel 6. As result of their mutual engagement the elements 16 and 21 must execute, in addition to a pivotal motion, a relative motion in a straight line in the direction of their longitudinal axes, whereby the rod 16 slides out of the tube 21. In order to compensate for this difference in the motions—displacement in a straight line on the one hand and a movement in a circular arc on the other—the additional up and down motion of the elements 16 and 21 at their points of support is provided according to the invention by the slots 18.

The magnitude of this up and down motion of the elements 16 and 21, in addition to the pivotal motion, may be adjusted quite accurately by moving the grub-screw 19 and securing with the second grub-screw 20, so that free motion of the elements is thereby ensured.

Moreover, when a small relative displacement of the parts is caused by the heavy weight of the drawings or the like or by the warping of the wood, a quite accurate readjustment of the stops 19 to limit the up and down movement of the elements 16 and 21 may be simply effected from the outside.

In the open position shown in Figure 1, the rod 16 and tube 21 have moved so far apart that they are disposed with their ends at a distance from one another so that the desired drawings, plans or the like may be removed.

In this position the lower edge of the slot 18 or the inner end of the screw 19 lies for the time being against the stationary bearing-pin 14 so that the rod 16 and tube 21 may then be supported on the lower end of the slot 11. In the return motion of the open front panel 5 to the closed position the rod 16 and tube 21 automatically re-engage until the closed position is reached as shown in full line in Figure 1.

By the arrangement of an opening 10, 10*a*, 11 through the supports of the rod and tube 21 and through the front panel 5 and the back panel 6 of the cupboard, and by the detachable arrangement of the bearing pins 14, 14, it is possible, for the purpose of assembling the cupboard, to pass the filing means 16 and 21 through the openings 10, 10*a* and 11 from the outside and to secure them after the introduction of the bearing pins 14 by screwing in the headed screws 15. Moreover, it is possible to adjust the magnitude of the up and down movement of the rod 16 and tube 21 in a simple manner by moving the grub-screw 19 after loosening the grub-screw 20.

The use of a special internal stop to limit the pivotal motion of the rod 16 and tube 21 is not necessary since in the open position of the front panel 5 the rod 16 and tube 21 simply rest upon the undersides of the openings 11, 11 of the inner plates 9 and further movement of the rods and tubes is impossible because the stops 19 abut the bearing pins 14, 14.

I claim:

1. A cupboard for storing drawings, plans and other materials in a hanging position which comprises a cupboard structure having front and rear panels, a hinged connection for the base of said front panel which allows it to open and shut, substantially straight rod elements each pivotally mounted at one end on one of said panels and substantially straight tubular sleeve elements each pivotally mounted at one end on the other of said panels, the said sleeve elements fitting over said rod elements telescopically when the front panel is closed to form a hanging rail, pivotal bearings for the mounted ends of said elements rigidly secured to said panels, and elongated slots in said elements receiving said bearings and adapted to permit the said elements a degree of substantially vertical movement relative to such bearings, adjustable set-screws extending into said elongated slots and adapted to adjust the limits of free relative movement of said bearings and said slots, and abutment means on said panels cooperating with said setscrews and bearings to support said elements in axial alignment when the latter are separated by opening of said front panel.

2. A cupboard for storing drawings, plans and other materials in a hanging position which comprises a cupboard structure having front and rear panels, a hinged connection for the base of said front panel which allows it to open and shut, substantially straight rod elements each pivotally mounted at one end on one of said panels and substantially straight tubular sleeve elements each pivotally mounted at one end on the other of said panels, the said sleeve elements fitting over said rod elements telescopically when the front panel is closed to form a hanging rail, pivotal bearings for the mounted ends of said elements rigidly secured to said panels, and elongated slots in said elements receiving said bearings and adapted to permit the said elements a degree of substantially vertical movement relative to such bearings, and adjustable set-screws extending into said slots and adapted to adjust the limits of free relative movement of said bearings and said slots, the said pivotal bearings and set-screws being disposed for access from the outside of the panels, said panels having apertures therein through which the related elements extend and acting as abutments cooperating with said set-screws and bearings to support said elements in axial alignment when the latter are separated by opening of said front panel.

3. A cupboard for storing drawings, plans and other materials in hanging positions which comprises a cupboard structure having front and rear panels, a hinged connection for the base of said front panel which allows it to open and shut, substantially straight rod elements each pivotally mounted at one end on one of said panels and substantially straight tubular sleeve elements each pivotally mounted at one end on the other of said panels, said sleeve elements fitting telescopically over said rod elements when the front panel is closed to form a hanging rail, said panels having apertures through which said elements pass and acting as abutments, brackets secured to the outsides of said panels, pivotal bearings rigidly secured in said brackets, elongated slots in said elements receiving said bearings to mount said elements on said bearings and to permit said elements a degree of substantially vertical movement relative to said bearings, and set-secrews carried by said elements and extending into said elongated slots to restrict the length of the latter and thereby vary the relative movement permitted between said bearings and elements and cooperate with said apertures to maintain said elements in axial alignment when the latter are separated by opening of said front panel.

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