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Ozeki

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[45] Aug. 21, 1973

[54] FILM STORING CABINET

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[21] Appl. No.: 230,439

3,446,545	5/1969	Horlacher .....	312/183 X
1,795,699	3/1931	Auerbagh .....	312/193
514,126	2/1894	Marvel .....	312/324 X
3,018,150	1/1962	Wright .....	312/197

[30] Foreign Application Priority Data

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Feb. 10, 1972 Japan ..... 47/16899

[52] U.S. Cl. .... 312/223, 312/11, 312/183, 312/305, 312/310

[51] Int. Cl. .... A47p 63/00

[58] Field of Search. .... 312/11, 120, 136, 312/293, 326, 329, 223, 195, 197, 324, 310, 183, 305; 353/108

[56] References Cited

UNITED STATES PATENTS

1,098,787 6/1914 Doud ..... 312/326 X

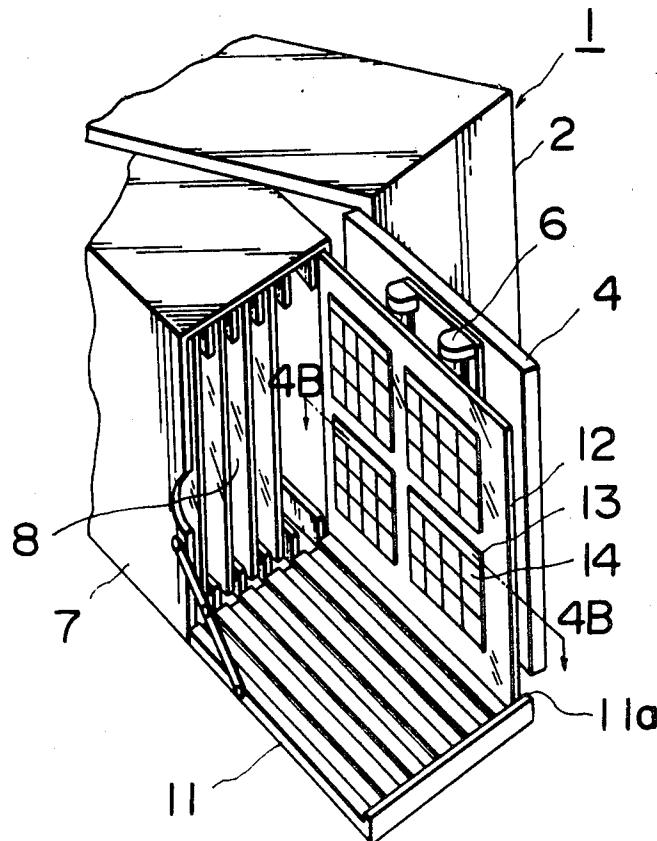
Primary Examiner—James T. McCall  
Attorney—Eric H. Waters, John G. Schwartz et al.

[57]

ABSTRACT

A film storing cabinet, comprising an outer casing with a door means and a film box swingably secured to the inside of the casing through a shaft means. The film box is selectively enclosed by the casing by closing the door means. Upon opening the door, the film box may swing about the shaft means so as to move its open end to the outside of the casing, and films or film-holding sheets slidably stored in the film box can selectively be brought out for inspection of films carried by the film-holding sheets.

4 Claims, 9 Drawing Figures



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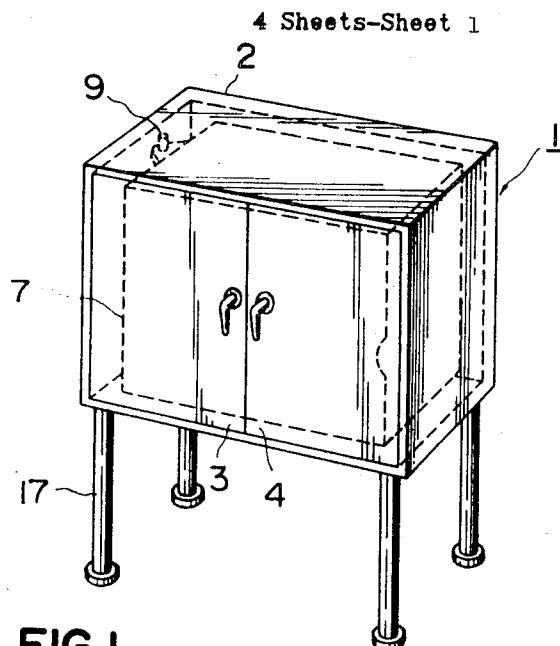


FIG.1.

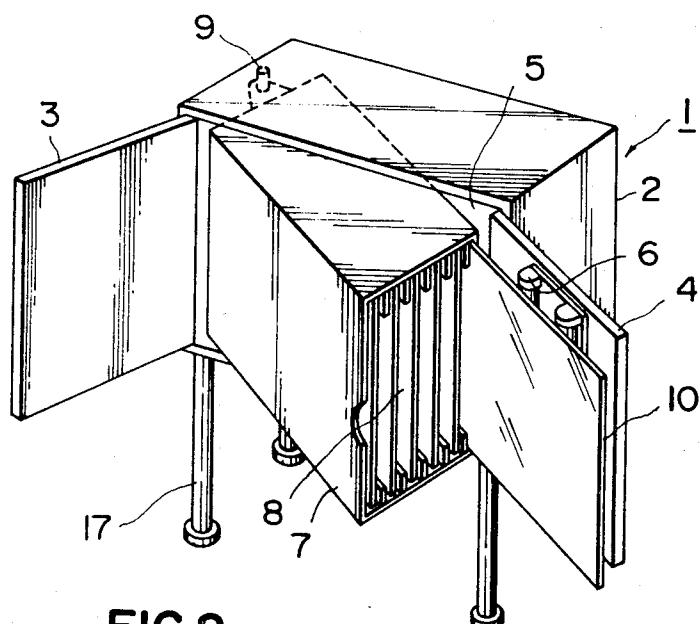
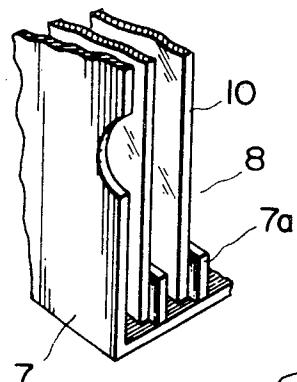


FIG.2.

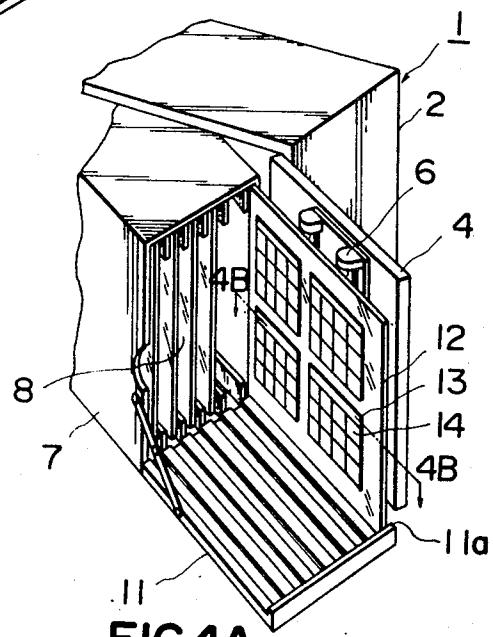
Patented Aug. 21, 1973

3,753,606

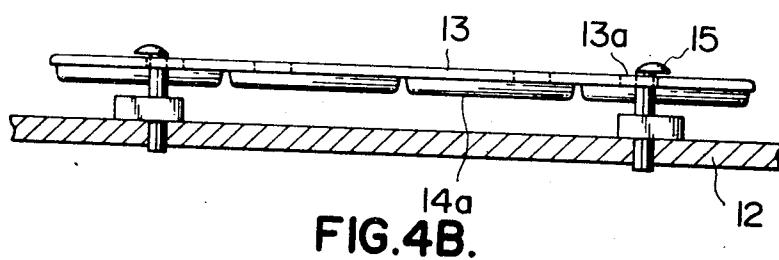
4 Sheets-Sheet 2



**FIG.3.**



**FIG.4A.**



**FIG.4B.**

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4 Sheets-Sheet 3

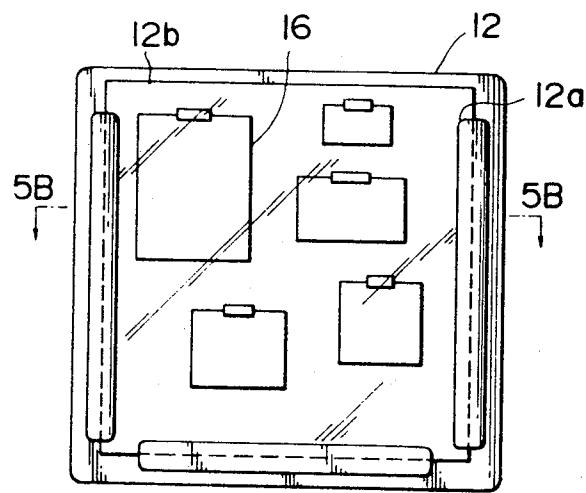


FIG.5A.

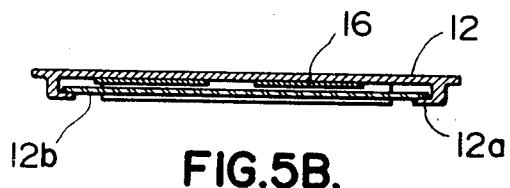


FIG.5B.

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4 Sheets-Sheet 4

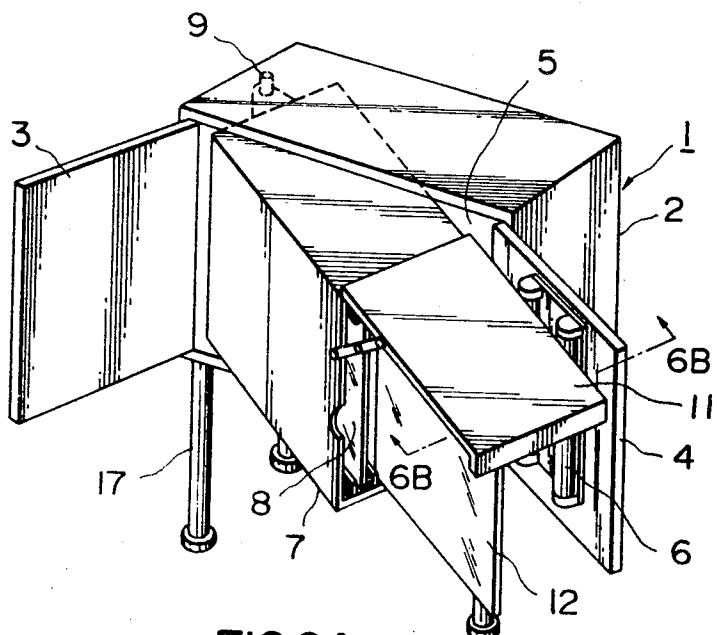


FIG.6A.

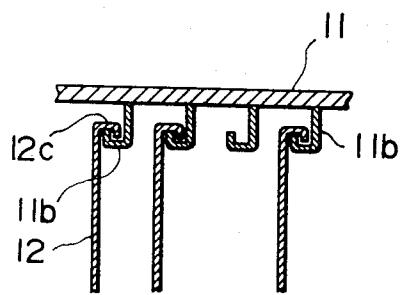


FIG.6B.

## **FILM STORING CABINET**

## BACKGROUND OF THE INVENTION

## 1. Field of the Invention

This invention relates to a film storing cabinet, and more particularly to a cabinet for storing a large number of color slides, X-ray films, and the like within a limited space in an orderly and easily inspectable manner.

## 2. Description of the Prior Art

To use a large number of color slides or other information-carrying films in an effective manner, such slides or films must be stored in an orderly fashion. The inventor proposed a slide file sheet in his U.S. Pat. No. 3,466,126, which was issued to Yoshichika Sakamoto on Sept. 9, 1969. Although such slide filing sheet is convenient for orderly storing slides and films, a comparatively wide space has been necessary for handling the filing sheets. For instance, the dimension of a slide filing sheet capable of carrying twenty pieces of 5cm×5cm paper mounted slides is about 25cm times 30cm. To manipulate such slide filing sheets require a considerably large space, unless there is provided a means for facilitating the orderly handling thereof.

## SUMMARY OF THE INVENTION

Therefore, an object of the present invention is to propose a film storing cabinet which can store a large number of films or the like in a limited space in an orderly fashion. What is meant by the "films or the like" includes color slides, X-ray chest pictures of actual chest size or enlarged, drawings and photographic prints of full size (e.g., 1,030mm×1,456mm), slide filing sheets of the aforesaid type, and other similar film-like materials.

According to the present invention, there is provided a film storing cabinet comprising an outer casing, which is preferably made of steel sheets and provided with a door means capable of selectively closing the casing, and an inner box swingably secured to the inside of the outer casing through a shaft means. The inner box is selectively enclosed by the casing by closing the door means. Upon opening the door means, the film box may swing about the shaft means, so as to move its open end to the outside of the casing, and films or film-holding sheets slidably stored in the film box can selectively be brought out for inspection of the films.

With the film storing cabinet of the invention, a large number of films can be stored in a compact small space in an orderly manner, while shielding the films from moisture and dust particles. Furthermore, with the cabinet of the invention, any one of the films stored can easily be selected and inspected.

### **BRIEF DESCRIPTION OF THE DRAWING**

For a better understanding of the invention, reference is made to the accompanying drawings, in which:

FIG. 1 is a perspective view of a film storing cabinet, according to the present invention;

FIG. 2 is a schematic perspective view of the film storing cabinet, shown as opened for selective inspection of a film stored therein;

FIG. 3 is a fragmentary perspective view, showing details of the open end of a film box swingably held in a steel casing of the cabinet of FIG. 1;

FIG. 4A is a partial perspective view, showing a modification of the film storing cabinet of FIG. 1;

FIG. 4B is a sectional view, taken along the line 4B—4B of FIG. 4A;

FIG. 5A is a schematic view of a film-holding sheet which can be used together with the film storing cabinet of FIG. 1 or 4A;

FIG. 5B is a sectional view, taken along the line 5B—5B of FIG. 5A;

10 FIG. 6A is a schematic view of a film storing cabinet including an upwardly swingable end plate cooperating with an inner box; and

15 FIG. 6 B is a sectional view taken along the line 6B—6B of FIG. 6A.

15 Like parts are designated by like numerals throughout the drawings.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

20 Referring to FIGS. 1 to 3, an embodiment of a film storing cabinet is generally represented by a numeral 1. The cabinet includes an outer casing 2, which is preferably made of steel plates forming top and bottom walls, opposite end walls, and rear wall while leaving a front opening 5 to be selectively closed and opened by a pair of front doors 3 and 4. An inner box 7 is swingably connected to the inside of the casing 2 by a shaft means 9. In the embodiment of the FIGS. 1 to 3, the shaft means 9 consists of a pair of vertically aligned pins which connect the inner box 7 to the outer casing 2 in a horizontally swingable manner about the shaft means 9. The inner box 7 itself is a parallelepiped, in which only one vertical end 8 is open but all the remaining five side walls are closed. The inner box 7 is pivotally connected 30 to the inside of the outer casing 2 at a suitable position of the outer casing 2, for instance at the left-hand end thereof, as shown in FIGS. 1 and 2. It is understood that the location of the shaft means 9, i.e., the position of the pivotal connection of the inner box 7 to the outer casing 2, is not restricted to the left-hand end of the outer casing 2; for instance, the shaft means 9 may be located at the left or right front corner of the outer casing 2, or at the right-hand end of the outer casing 2.

40 In the embodiment of FIG. 6A, the inner box 7 is swingable in a clockwise direction, when moving out of the outer casing 2, with the shaft means 9 located at the left-hand end thereof. It is also possible to make the inner box 7 swing in a counterclockwise direction to move out of the outer casing 2, by disposing the shaft means 9 at the right-hand end of the inner box 7. Furthermore, if the shaft means is removably connected to the outer casing 2, while providing a plurality of bearing means in the outer casing at different locations for detachably holding the shaft means 9, the inner box 7 45 may be made swingable in various directions so that the films 10 stored in the cabinet 1 may be removed either right-hand or left-hand side of the inner box 7.

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When the front doors 3 and 4 are closed, as shown in FIG. 1, the inner box 7 and accordingly films stored in the inner box 7 are substantially isolated from the dust and moisture of the outside atmosphere. On the other hand, when the front doors 3 and 4 are opened, as shown in FIG. 2, the inner box 7 can be so swung as to dispose its open end 8 to the outside of the outer casting 2, and films 10 which are slidably sorted in the inner box 7 can easily and selectively be removed from the inner box 7, as shown in FIG. 2. In the embodiment of

FIGS. 1 and 2, a number of films 10 are stored in parallel with each other, so that the storing space for the films can greatly be reduced as compared with that of conventional storing cabinet. Furthermore, the parallel slidable holding of the films 10 in the inner box 7 makes it possible to simplify the handling of a large number of films in a limited space, while ensuring easy selection of any desired one of the films.

To improve the shielding of the films against atmospheric moisture, pedestals 17 may be secured to the bottom of the outer casing 2, as shown in FIGS. 1 and 2. With such pedestals, the film storing cabinet 1 can be spaced from floor on which the cabinet 1 rests. Accordingly, in areas where moisture content in air is very high and the floors and walls have a high dampness, the use of the pedestals 17 prevents harmful moisture from coming in contact with the film 10. It is, of course, preferable to place a suitable desicant, e.g., activated alumina, in the film storing cabinet 1.

To ensure smooth movement of the films 10 in the inner box 7, suitable guide rails 7a may be provided in the box 7, as shown in FIG. 3.

In a preferred embodiment of the present invention, an illuminating means 6 such as fluorescent lamps may be mounted on the inner surface of one off the front doors 3 and 4, as shown in FIG. 2. A suitable power source (not shown) should be provided for actuating the illuminating means 6. With such illuminating means 6, a film 10 can be inspected without removing it from the storing cabinet 1, simply by partially sliding the film 10 to a position facing the illuminating means 6. In the embodiment of FIG. 2, the illuminating means 6 is mounted on the inside surface of the front door 4, but it is also possible to mount it on the inside surface of the other front door 3, especially when the inner box 7 is made swingable in the opposite direction to that of FIG. 2.

FIGS. 4A and 4B illustrate another embodiment of the present invention which is particularly suitable for storing paper-mounted color slides of 5cm×5cm. A plurality of 5cm×5cm color slides 14 are carried by a film filing sheet 13 in a lattice disposition. For instance, 12 such slides 14 are carried by slide pockets 14a of a film filing sheet 13 of the aforesaid U.S. Pat. No. 3,466,126. Several such slide filing sheets 13, e.g., six such filing sheets 13, can be hung on a film-holding sheet 12, as shown in FIG. 4A. The film-holding sheets 12 can be slidably stored in the inner box 7, in the same manner as the film 10 of the embodiment of FIGS. 1 to 3. To facilitate removable hanging of the slide filing sheets 13 on the film-holding sheet 12, hooks 15 are rotatably secured to the sheet 12, which hooks 15 may penetrate through albuming holes 13a of the slide filing sheet 13, as shown in FIG. 4B. Both the slide filing sheet 13 and the film-holding sheet 12 are flexible, so that the insertion of the hooks 15 to the albuming holes 13a can easily be effected while bending either one or both of the sheets 12 and 13. Suitable holding lugs (not shown) may be provided in the film-holding sheet 12 for holding the slide filing sheet 13 at non-perforated end thereof.

A swingable end plate 11 may be hinged to the open end 8 of the inner box 7, as shown in FIG. 4A. The end plate 11 may enhance the sealing effect when it closes the open end 8 of the inner box 7. On the other hand, when the end plate 11 is opened by being turned about its hinged end, the end plate 11 provides a guide plate

5 for holding films 10 or film-holding sheets 12 which are partially removed from the inner box 7 for inspection, as shown in FIG. 4A. A stopper 11a may be formed at the opposite end of the plate 11 to said hinged end, so as to prevent the films 10 or film-holding sheets 12 from slipping out of the end plate 11 during the inspection.

Referring to FIGS. 6A and 6B, the end plate 11 for the inner box can be made upwardly swingable. In this case, suitable hanger means 11b may be secured to the inner surface of the end plate 11, so that films or film-holding sheets 12 having folded top edge 12c may slide along the hanger means 11b.

15 FIGS. 5A and 5B illustrate a modification of film-holding sheet 12, which is suitable for holding a plurality of comparatively large transparencies 16, such as X-ray chest pictures of actual size and the like transparencies. The film-holding sheet 12 itself is, for instance, made of translucent plastics plate, and ledges 12a are formed on three side edges of the sheet 12 in such a manner that a transparent cover sheet 12b may be held by the ledges 12a, so as to protect transparencies 16 fixed to the film-holding sheet 12, by sandwiching the transparencies 16 with the sheet 12 and the cover 12a. To fix the transparency 16 to the film-holding sheet 12, any suitable fixing means may be used; for instance, an adhesive tape, adhesive paste, pins, tacks, etc.

25 It is understood that the present invention has been described by way of example, and numerous changes can be made to the illustrated embodiment without departing from the scope of the invention. For instance, instead of sliding the films in the inner box while keeping lower edges of the film in contact with the bottom wall of the inner box, a suitable sliding hook means may be incorporated so as to slidably hang the films from the top of the inner box. A suitable film carrier may be used for facilitating the sliding movement of the film 10 in the inner box 7. In the illustrated embodiment, the films 10 or film-holding sheets 12 are slid in parallel to the plane of the films 10, but it is also possible to slide the films 10 or film-holding sheets 13 in a direction perpendicular to the plane of the films 10.

35 I claim:

40 1. A film storing cabinet comprising an outer casing having an open side, a door means hinged to said outer casing so as to selectively close and open said open side of the outer casing, an inner box connected to the inside of said outer casing by a shaft means in a horizontally swingable manner, said inner box having a vertical open end acting as an inlet-outlet of films to be stored in the cabinet, said vertical open end being movable to the outside of said outer casing upon opening of said door means, and an illuminating means secured to the inside surface of said door means so as to face the film when the film is partially removed from the inner box.

45 2. A film storing cabinet comprising an outer casing having an open side, a door means hinged to said outer casing so as to selectively close and open said open side of the outer casing, an inner box connected to the inside of said outer casing by a shaft means in a horizontally swingable manner, said inner box having a vertical open end acting as an inlet-outlet of films to be stored in the cabinet, said vertical open end being movable to the outside of said outer casing upon opening of said door means, and an end plate swingably secured to the vertical open end of the inner box so as to selectively

close and open said vertical open end, said end plate guiding the movement of the films relative to the inner box when the end plate is at its open position.

3. A film string cabinet comprising an outer casing having an open side, a door means hinged to said outer casing so as to selectively close and open said open side of the outer casing, an inner box connected to the inside of said outer casing by a shaft means in a horizontally swingable manner, said inner box having a vertical open end acting as an inlet-outlet of films to be stored in the cabinet, said vertical open end being movable to the outside of said outer casing upon opening of said door means, and a plurality of film-holding sheets to be selectively stored in said inner box, each said film-holding sheet being capable of removably holding transparencies thereon, each of said film-holding sheets having ledges so formed that a separate transparent cover may be held by the ledges for sandwiching trans-

parencies between the film-holding sheet and the transparent cover.

4. A film storing cabinet comprising an outer casing having an open side, a door means hinged to said outer casing so as to selectively close and open said open side of the outer casing, an inner box connected to the inside of said outer casing by a shaft means in a horizontally swingable manner, said inner box having a vertical open end acting as an inlet-outlet of films to be stored in the cabinet, said vertical open end being movable to the outside of said outer casing upon opening of said door means, and a plurality of bearing means located at different positions of the outer casing for removably holding said shaft means, whereby the swinging direction and film-inserting-removing position relative to the outer casing are selectively determined by journaling said shaft means by selected one of said plurality of bearing means.

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