M. MÜNZNER.

HINGED CASE.

APPLICATION FILED SEPT. 15, 1913.

1,128,620.

Patented Feb. 16, 1915.

2 SHEETS—SHEET 1.

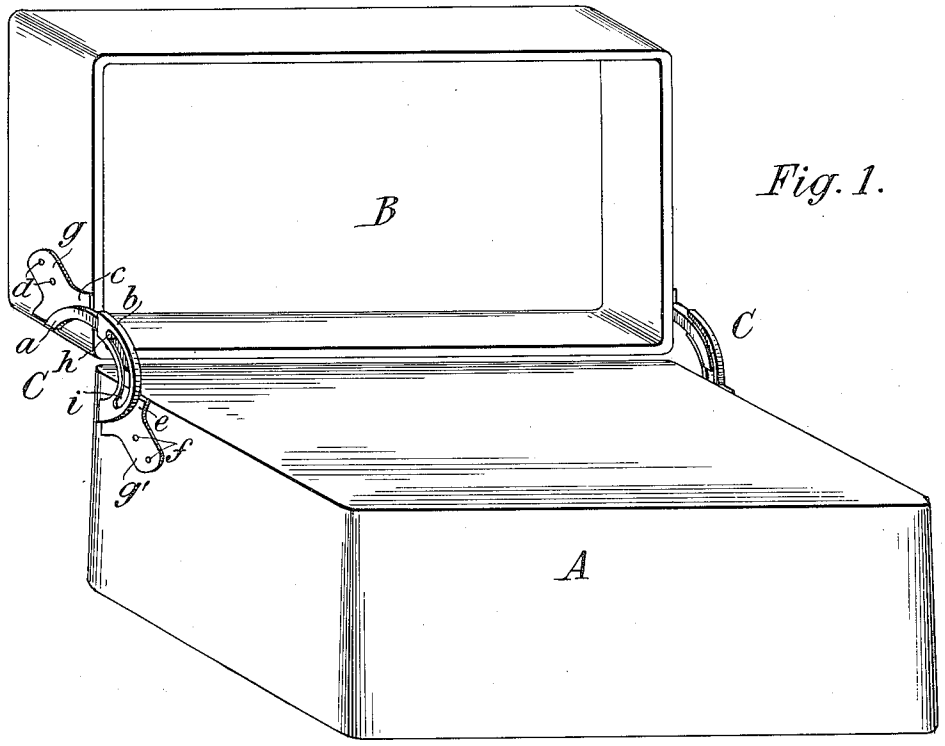


Fig. 1.

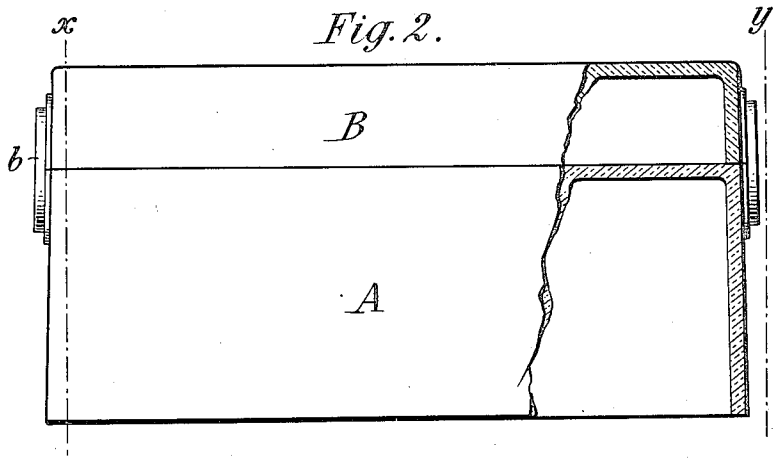


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

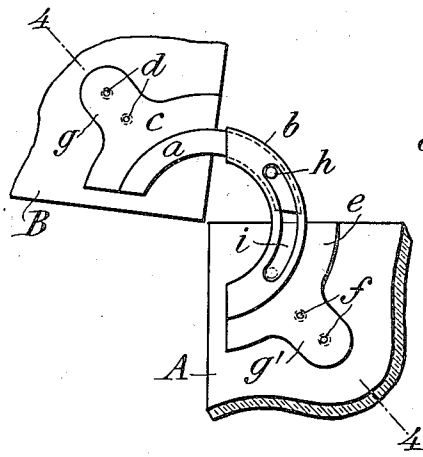


Fig. 4.

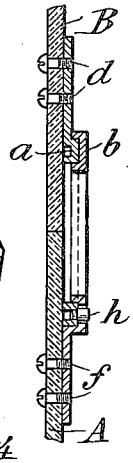


Fig. 5.

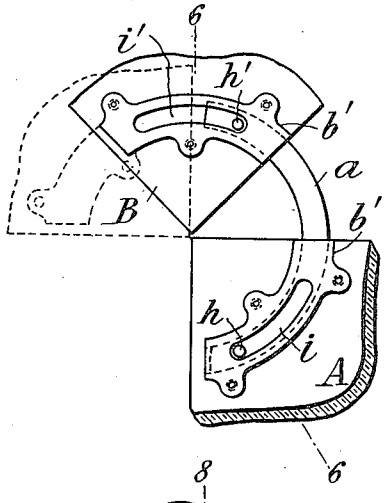


Fig. 6.

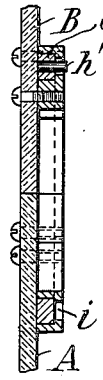


Fig. 7.

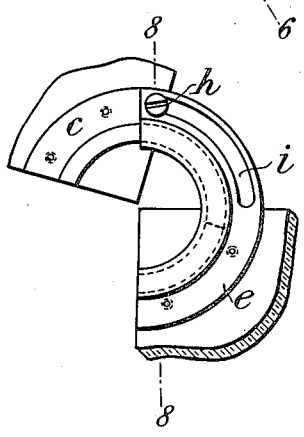
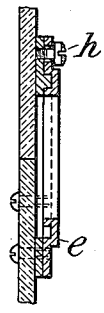


Fig. 8.



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UNITED STATES PATENT OFFICE.

MAX MÜNZNER, OF ARLINGTON, NEW JERSEY, ASSIGNOR TO THE TORSION BALANCE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

HINGED CASE.

1,128,620. Specification of Letters Patent. Patented Feb. 16, 1915.

Application filed September 15, 1913. Serial No. 789,815.

To all whom it may concern:

Be it known that I, MAX MÜNZER, a citizen of the United States, residing in Arlington, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Hinged Cases, of which the following is a specification.

This invention relates to means for hinging cases or boxes, preferably of glass, for inclosing various objects. An important use of such cases is to incase a scale or balance.

It is common to construct scale cases of plate glass united by a metal framework at the corners where the plates of glass join, and to apply a cover or lid of similar construction, the two being hinged together by ordinary pivot or pintle hinges fastened to the metal frame. It is desirable to eliminate such metal frame and make the case and its lid each of one piece or box of pressed glass. Such construction involves, however, a difficulty in the hinging of the lid to the case. Ordinary pintle hinges might be used, but difficulty would be involved in attaching them to the glass, and some special means would have to be added for holding the lid in place when wholly or partially raised, in order to avoid the breakage of the lid or case by the falling of the lid. It is desirable to provide a hinging means which shall not only connect the lid to the body of the case, but also hold the lid either fully open or in any intermediate position in which it may be desirable to leave it. The present invention provides a suitable and advantageous construction for this purpose.

The invention in its preferred and modified forms will be understood by reference to the accompanying drawings, wherein,—

Figure 1 is a perspective view of the glass case or box A and its lid B showing the latter raised or turned back; Fig. 2 is a front elevation partly in section, showing the case with its lid closed or turned down; Fig. 3 is an elevation of the hinge and adjacent portions of the casing and lid, showing the lid open, while Fig. 4 is a section thereof on the line 4—4 but assuming the parts to be turned to the closed position of the lid: Fig. 5 is an end elevation similar to Fig. 3 but showing a different construction of hinge; Fig. 6 is a section thereof on the line 6—6, in Fig. 5, the lid being closed; Fig. 7 is an end elevation showing a further modification, of which Fig. 8 is a cross section on the line 8—8.

Referring to the drawings, the glass case or box A is open at the bottom and has a closed top, as shown in Fig. 2, and the lid B is similarly constructed. The case and the lid may have any special proportions or fitting provisions that may be required or desirable to adapt them to receive a weighing scale or any other thing which it is desired to inclose within them. Being made of pressed glass, they are necessarily tapered or inclined as shown by the dotted lines *x* and *y* in Fig. 2, which are lines perpendicular to the base line, it being apparent that the ends of both the case A and lid B are in planes inclined to the perpendicular planes denoted by these lines.

C C are the hinges. These have no pivot or pintle, but instead are arc hinges consisting of segments of rings fitting one another and sliding upon one another, the respective segments being attached to the case A and the lid B respectively.

The hinge may be made in various ways, of which the three constructions shown in Figs. 3 to 8 are examples.

In Fig. 3 the hinge is made of an inner arc segment *a* and an outer arc segment *b*, the former being attached to a plate *c* which is united to the lid B by screws *d d;* and the latter being attached to a plate *e* which is united to the box A by screws *f f*. The screws *d f* pass through holes drilled in the glass ends of the lid and case, and screw into the plates *c e*, these latter having preferably ears *g g'* for receiving the screws. The arc plates *a* and *b* are segments of rings struck from a common center at the theoretical hinge axis, and are fitted to slide the one within the other. To form a stop for limiting the opening movement of the lid, a pin *h* is applied to the arc *a* and slides in a slot *i* cut in the arc *b* striking the end of this slot when the lid is fully open, as shown in Fig. 3.

In Figs. 5 and 6 a different construction is shown in which the arc ring *a* is not attached to either the case or the lid but slides within two hollow arcs *b b'*, of which *b* is essentially identical with that shown in Fig. 3, except that it is shorter, while *b'* is a duplicate of *b*. The arcs *b* and *b'* are attached by screws to the case and lid respectively as shown. Each of them has an arc-shaped

slot, these slots being marked *i* and *i'* respectively; and the arc segment *a* has two pins *h* and *h'* which engage in these slots respectively, so that when the lid is fully opened the pins strike the ends of the slots and stop the further opening movement of the lid. The screw attachment of the arc segments *b b'* to the case and lid is the same as in the preceding figure except that the screws are differently arranged and each engages its individual ear, as is obvious from the drawing.

The construction shown in Figs. 7 and 8 is identical with that shown in Figs. 3 and 4, except that the plates *c e* have no ears for receiving the screws, the latter being screwed directly into the plates; and the slot *i* and pin *h* are differently arranged, as is obvious, the pin *h* being here shown as a screw.

In operation, the turning back of the lid causes it to move around an imaginary axis which is the center of the interfitting arc-shaped segments of the hinges. These segments while they move freely, present so large a surface that sufficient friction is generated to hold the lid when fully or nearly opened. It is preferable in order that the weight of the lid may not disturb the center of gravity of the entire structure, to have the lid turn back somewhat less than 90 degrees, preferably about 80 degrees, as shown in Figs. 3 and 7; and the segmental hinge should generate sufficient friction to hold the lid safely in this position and prevent its accidental falling onto the case. This result is more completely attained by arranging the hinges in planes somewhat inclined to each other, so that as the hinge is opened a lateral pressure is automatically brought to bear upon the contacting surfaces of the hinges, whereby they are somewhat tightened and an additional degree of friction is generated. To this end advantage is taken of the inclination of the ends of the case and lid already described (compare their ends in Fig. 2 with the vertical lines *x y*), so that by simply placing the hinges flat against the ends of the case and lid as shown in Fig. 2, they are brought into proper planes sufficiently oblique to accomplish the desired result. The arc segments of the hinges are not absolutely rigid, but have sufficient elasticity to enable them to yield to the lateral pressure generated by the turning back of the lid, whereby the frictional engagement is rendered more uniform, and any binding of the hinges due to the lateral tightening effect is avoided. Thus as the lid is turned back the hinges are slightly flexed, their elasticity enabling them to yield while keeping their respective faces pressed into firm frictional contact. The result is that the lid is not only firmly held when turned back to its limit (say for example 80 degrees from the horizontal), but also is held frictionally at each succeeding point while being lowered until it is brought down almost upon the case, at which point if the hinges are correctly adjusted the frictional engagement should cease, in order to render the weight of the lid effective to hold it closed down upon the case, so that it will then exclude dust from the inclosed mechanism.

The constructions of hinge shown are the best known to me, but it is obvious that the invention may be subjected to considerable variation without departing from the principle herein set forth.

I claim as my invention:—

1. A case and lid and pivotless hinges uniting them applied upon the exterior of the case and lid respectively at their opposite ends, said hinges comprising segments of interfitting rings sliding upon one another, having abutting stops for limiting the opening movement of the lid and serving as the sole support therefor.

2. A case, and a lid adapted to close down upon the top of the case, and pivotless hinges uniting them, said hinges applied on the exterior of the case and lid respectively at the opposite ends thereof, and consisting each of segments of interfitting rings having continuous sliding contact with one another, the one segment having an arc-shaped groove and the other segment fitting said groove and adapted when the lid is open to afford sufficient engagement to support the lid, and said segments having abutting stops for limiting the opening movement of the lid.

3. A case and lid and pivotless hinges uniting them comprising interfitting arc segments, said hinges applied in planes slightly oblique to the perpendicular at the ends of the case and lid, whereby as the lid is turned back the hinges are tightened laterally.

4. A case and lid having their ends obliquely inclined, and arc hinges uniting them applied in oblique planes parallel to said inclined ends, whereby as the lid is turned back the hinges are tightened laterally.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

MAX MÜNZNER.

Witnesses:
GEORGE M. CONWAY,
AUGUST ENGLEMANN.