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F. A. KUNTZ

1,895,466

HINGE

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FIG. 1

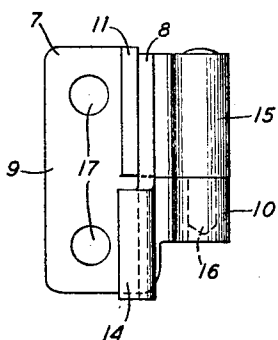


FIG. 2

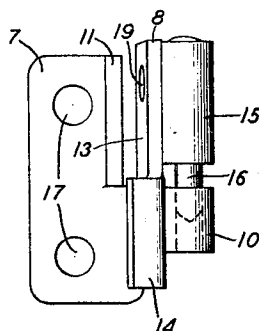
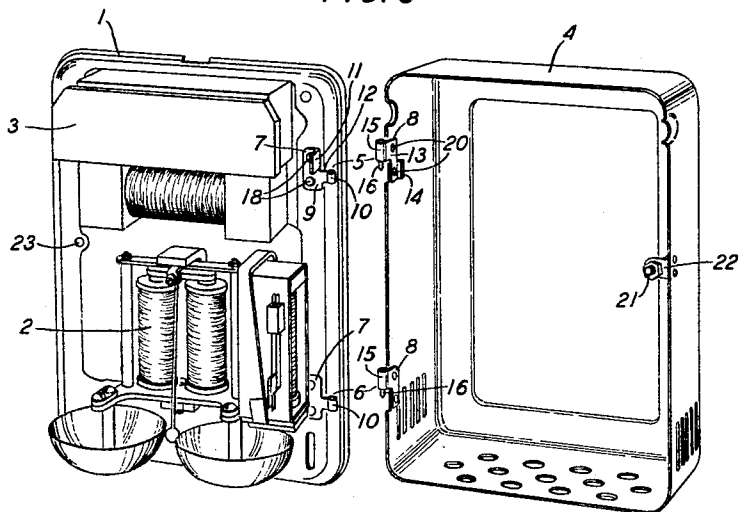


FIG. 3



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HINGE

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This invention relates to an improvement in quick detachable cover or door constructions and more particularly to a hinge construction therefor.

5 It is an object of this invention to permit ready removal of a door or cover from its supporting member after the door has been properly opened and to prevent removal of the door or cover from its supporting member when the door or cover is in closed position.

To accomplish this object, suitable extension or tab portions have been provided in a hinge construction which, when a door or cover is swung on the hinge to an open or closed position, are respectively moved out of or into cooperating relationship.

Mechanical and electrical apparatus in which are included rather delicately adjusted instruments are very often enclosed in a container or casing which will protect the instruments from dust particles and tampering by unauthorized persons. Such containers usually comprise a base or box-like member in which the instruments are supported and a cover member which may be hingedly attached to the base or box like member.

It is very often desirable to locate the container in out of the way places where in some instances there is not sufficient room available for swinging the cover to fully opened position. In such cases when adjustment or replacement of the instruments is necessary difficulty is experienced in getting at the instruments due to the lack of space available for fully swinging open the cover of the container.

A casing or base having cover members attached thereto by separable hinge parts has been provided in some instances to facilitate adjustment or replacement of the instruments contained therein. These cover members may by reason of the separable hinge parts be removed entirely from the base or box like members. It has been found however that in such structures the cover member quite frequently becomes accidentally dis-

50 lodged from the rest of the casing and the

instruments contained within the casing are left exposed.

It has been found desirable therefore to provide some means of attachment for a cover member which will prevent accidental dislodgement of the cover from the remaining portion of the casing when the cover is in closed position but which will allow entire removal of the cover when the cover is in open or even partially open position.

In the present invention separable hinge parts are provided for attachment of a cover to other portions of the casing and means are provided in the hinge structure to prevent separation of these parts when the cover is closed but which will allow separation of the hinge parts when the cover is moved to open or even partially open position.

In the drawing:

Fig. 1 is a front elevation of the hinge structure in its closed position;

Fig. 2 is a front elevation of the hinge structure in partially open position showing the hinge parts in position to be separated;

Fig. 3 is a view in perspective of a casing comprising a base and a cover member and having a hinged member of the structure of this invention.

The hinge structure disclosed has been found particularly well adapted for the metal casings commonly used in housing, the ringer and associated apparatus used in connection with telephone substation sets. The ringer and the associated pieces of apparatus are usually mounted on a base member and a hinged cover is employed to cover the apparatus mounted on the base member. The casing enclosing such apparatus is usually put in some out of the way place where tampering with the apparatus by unauthorized persons is not likely to occur. At such times as adjustments or replacements of the apparatus contained in the casing are necessary it is desirable to have the cover entirely removable from the base member so that the party making adjustments or replacements of the apparatus may have free access to the contents of the casing. To fully protect the apparatus, it is necessary that means be pro-

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vided to prevent accidental dislodgement of the cover from the base member.

Referring to the drawing 1 is a base member supporting a ringer 2 and associated apparatus 3. 4 is a metal cover provided to cover the apparatus mounted on the base member 1, and to removably attach the cover 4 to the base member 1, hinges 5 and 6 are provided. The hinge member 5 comprises two leaf members 7 and 8 which when in closed position, as shown in Fig. 1, stand in a 90° relationship one with the other. The leaf member 7 has a flat portion 9 an apertured knuckle portion 10 and a comparatively large fin-like portion 11 extending from the upper inner edge of the leaf member in a plane substantially normal to the plane of the flat portion 9. The knuckle portion 10 extends from the inner edge of the leaf member and is in substantially the same plane as the flat portion 9. The knuckle portion 10 is integral with the flat portion 9 and is joined thereto by a substantially flat arm portion 12 which extends outward from the inner edge of the flat portion 9. This knuckle portion 10 extends from a point slightly above the bottom of the flat portion 9 to a point just below the center of the flat portion 9. The aperture in the knuckle portion 10 extends in a line parallel to the longitudinal line of the flat portion 9. The substantially large fin-like portion 11 extends from the top of the flat portion 9 downward to the top of arm portion 12 which supports the knuckle portion 10.

The leaf member 8 comprises a flat portion 13 of the same length as the flat portion 9 of the leaf member 7. Extending upward from the bottom of the flat portion 13 referred to of the leaf member 8 and on the outer edge thereof is a comparatively small fin-like portion 14. This fin portion 14 runs upward about half the length of the flat portion 13 and extends from the outer edge thereof in a plane substantially normal to the plane of the flat portion 13. Integral with the flat portion 13 and running from the top thereof downward along the inner edge to a point about midway of the length of the flat portion 13 is a knuckle 15 in which is secured a pintle 16. The knuckle 15 extends in a direction opposite to that of the comparatively small fin 14. The pintle 16 projects below the knuckle 15 and in a plane parallel to the longitudinal plane of the flat portion 13.

The leaf member 7 is apertured at 17 and is secured to the base member 1 by screws or rivets as shown at 18; the leaf member 8 has corresponding apertures 19 and is secured to the cover member 4 by screws or rivets as shown at 20 in Fig. 3.

The hinge 6 corresponds in every respect to the hinge 5 with the exception that the comparatively large and small fin portions 11 and 14 respectively are eliminated. The

hinge 5 is preferably located on the upper portion of the casing and the hinge 6 on the lower portion as shown in Fig. 3.

Common to casings of this kind and to the structure shown in this invention is a screw or bolt member 21 supported at one end in a bracket 22 which is attached to cover 4 and extends inward from the wall of the cover 4. The screw 21 terminates on the outer face of the cover 4 in a slotted flat head.

When the cover 4 is in closed position the screw 21 threads into a threaded aperture 23 provided in the base member 1.

To secure the cover 4 to the base member 1 the pintles 16 of the leaf members 8 of the hinges 5 and 6 are set into the knuckle portions 10 of the corresponding leaf members 7. The cover 4 is then swung on the hinges 5 and 6 to closed position which brings the flat portions 9 and 13 of the hinge leaves 7 and 8 into a 90° relationship one with the other and the flat portion 13 of the leaf member 8 of the hinge 5 resting against the comparatively large fin portion 11 of the leaf member 7 and the comparatively small fin portion 14 of the leaf members 7 and 8 of the hinge 5 into cooperative relationship to prevent separation of the hinge parts. The plane of one fin portion intersects the plane of the other and these fin portions 11 and 14 will come into engagement to prevent separation of the hinge parts when any lifting action is applied to the cover 4. The screw member 21 is turned into the threaded aperture 23 in the base member 1 and the cover is securely held in place. In this position accidental dislodgement of the cover 4 from the base member 1 is prevented by reason of the comparatively large fin portion 11 and the comparatively small fin portion 14 of the leaf members 7 and 8 of the hinge 5. The cover 4 cannot be accidentally swung open by reason of the bolt 21 being threaded into the threaded aperture 23 of the base member 1.

The cover 4, however, may be completely separated from the base member 1 by turning the bolt member 21 sufficient to bring it out of engagement with the threaded aperture 23 in the base member 1 and slightly opening the cover sufficient to bring the fin portions 11 and 14 of the leaf members 7 and 8 respectively of the hinge 5 out of cooperative relationship. As soon as the fin portions 11 and 14 are brought out of cooperative relationship the cover 4 may be lifted so that the pintles 16—16 of the hinge members 5 and 6 are lifted out of the knuckle portions 10—10 of leaf members 7—7. To remove the cover 4 from the base member 1 it is not necessary that the cover be swung to fully opened position but merely opened sufficiently far to bring out of cooperative relationship the fins 11 and 14 of the leaf members 7 and 8 of the hinge 5.

It is apparent that certain modifications may be made in the structure described, such for instance as the type of casing shown and the manner of attachment of the hinge members thereto and that one or a plurality of hinges of the particular type described may be employed, without departing from the spirit of the invention or the scope of the appended claims.

10 What is claimed is:

1. In an enclosure comprising a base member, a cover and hinges connecting the base and the cover, said hinges each comprising two leaf members having knuckle portions, means to attach the knuckle portions in movable relationship and one at least of said hinges having tabs extending perpendicular from the plane of the leaf members and adapted to be brought into cooperative relationship one with the other to prevent separation of the leaf members when the cover is closed, said tabs when brought into such cooperative relationship standing so that the plane of one intersects the plane of the other.

2. In an enclosure comprising a frame member, a cover therefor, and hinges connecting the frame member and cover, said hinges each comprising two leaf members, integral knuckle portions on the leaf members and a pintle carried by one to connect the leaves together, one at least of said hinges having a long tab portion on one leaf member and a short tab portion on the other, said tab portions standing so that the plane of one intersects the plane of the other when the cover is closed and preventing separation of the hinge parts and removal of the cover from the frame when the cover is in closed position.

40 In witness whereof, I hereunto subscribe my name this 29th day of September, 1930.

FRANK A. KUNTZ.

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