Aug. 4, 1953 W. W. SEDGWICK 2,647,624

HINGED BOX WITH MOVING ARTICLE SUPPORT

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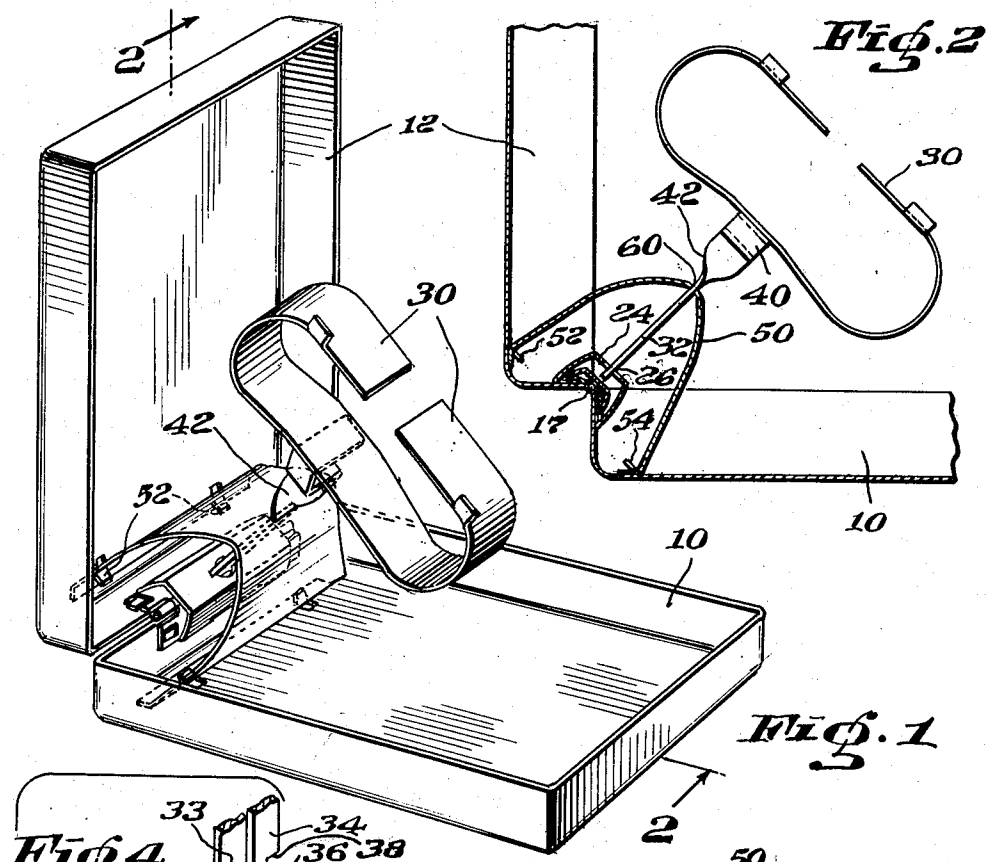


Fig. 2

Fig. 1

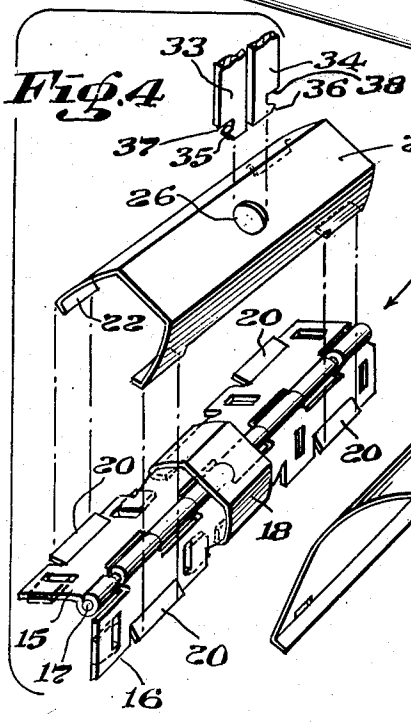


Fig. 4

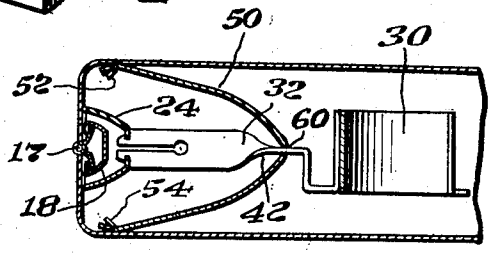


Fig. 3

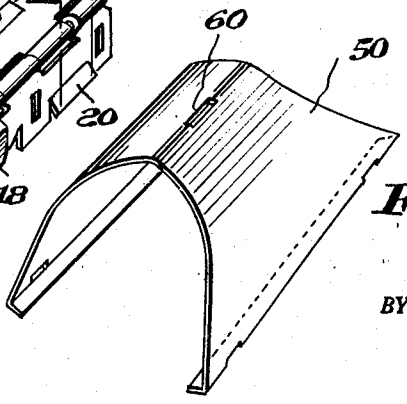


Fig. 5

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HINGED BOX WITH MOVING ARTICLE SUPPORT

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4 Claims. (Cl. 206—45.13)

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This invention relates to packaging and more particularly to the packaging of jewelry such as watches, bracelets and other articles of personal adornment in such manner that they are automatically moved into a pleasing display position when the box is opened.

The package of this invention is of the type which comprises a conventional jewelry-type hinged cover case having an internal article mounting assembly which is adapted, as the cover is opened, to lift a mounted article to be displayed and simultaneously rotate it from a normal closed-box position, for example, lying across the box to an open-box display position extending at right angles to the base of the box. In the case of a bracelet or a bracelet wrist watch, this causes the jewelry to be displayed in a vertically extended position even though its height in this position is greater than the closed inside height of the box. The automatic rotation lays the device down into the box as the box is closed so that its long dimension extends horizontally, and it is accommodated inside the closed box with respect both to its length and width.

The primary objects of this invention are the provision of an uncomplicated structure which will cause the rotation or "pirouetting" of the article mounting assembly and which will be of durable construction and will not be subject to destruction, even when mishandled.

To this end, an article mounting assembly is attached to the case in a manner which permits a tilting motion of an article support, imparted by a lifting element attached to the cover, and the lifting element and tilting support are so arranged that they have a sufficient relative movement during the tilting motion to permit incorporation of cooperating camming surfaces for imparting simultaneous rotation to the article support.

The objects of this invention hereinabove stated and other objects thereof will be more fully understood when taken in connection with the following description of a typical embodiment of the invention illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a wrist-watch display box showing the article mounting support in display position with the cover open, but omitting lining and trimming materials;

Fig. 2 is a fragmentary cross-sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary cross-sectional view similar to that of Fig. 2 but showing the position of the respective parts when the cover is in closed position;

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Fig. 4 is an enlarged exploded view of certain of the operating parts; and

Fig. 5 is a detailed view of another of the parts of the assembly.

The box-forming elements of boxes of this invention may be of any conventional kind comprising, in the form shown in the drawings, a hollow base 10 and a hollow cover 12, each having front, side and rear walls, and being hinged together along their rear wall edges as by a conventional form of hinge 14, shown in Fig. 4, and comprising two leaves 15 and 16 and an interconnecting hinge pin 17.

As known in the art, the hinge may be provided with a C-spring 18 which acts to limit the opening movement of the cover to an arc of approximately 90° and to provide a snap-shutting action. Such a hinge with its C-spring forms no part of this invention, being old and in commercial use. Each of the conventional leaves 15 and 16 of the hinge 14, however, may be provided, for the purposes of this invention, with a pair of upturned ears 20 (Fig. 4) for engaging inturned lips 22 of a generally U-shaped spacer plate 24, which, like the C-spring, extends across the hinge pin 17.

The spacing plate 24 is provided centrally with an aperture 26. The plate 24 and aperture 26 are designed to provide a pivot point for the rear inner end of an article mounting support 30 which extends forwardly into the box. As shown, the article support includes a forward section, substantially oval in form, and a rearwardly extending extension section 32.

The inner end of extension 32 is bifurcated and each bifurcation 33 and 34 is provided with a latch 35 and 36 respectively.

The dimensions of the inner end of the extension 32 are such with relation to the diameter of the aperture 26 that the end of the extension may be snapped into the aperture 26 against the yielding nature of the material, and the article support 30 is thus held for pivotal movement, but against longitudinal movement, with respect to the spacing member 24, the shoulders 37 and 38 bearing against spacer member 24 and holding the extension 32 spaced from the C-spring 18.

Between the inner end of the extension 32 and its point of connection at 40 with the oval section 30, the flat stock of the extension is twisted 90° forming a helicoidal-surfaced section at 42.

The final member of the assembly is a generally U- or arcuate-shaped piece of sheet material 50, metal or fiber board, shown in Fig. 5, the ends of which are apertured and adapted to be clipped over lugs 52 bent up from the cover

and lugs 54 bent up from the base so that the member also embraces the hinge.

At its forwardmost point, the member 50 is provided with a slot 60 through which extends the extension member 32. In effect, then, there are two U-shaped members, inner member 24 and outer member 50, spanning the hinge, the aperture 26 and slot 60 being aligned but at different distances from the hinge 17.

Referring to Fig. 3, it will be seen that in the closed position of the box, the slot 60 embraces the extension 32 at a point forwardly of the helicoidal surfaced section 42. As the box is opened, the upper portion of the member 50 operates as a lifting element to tilt the article support 30 about the hinge 17 as an axis, the face portion of spacing member 24 and aperture 26 also rotating about the hinge 17. During these motions, both the aperture 26 and the slot 60 move nearer to the hinge 17, but the distance between the slot 60 and the aperture 26 decreases by an amount greater than the overall length of the helicoidal surfaced section 42 and, consequently, whereas, as shown in Fig. 3, when the box is closed, the helicoidal surfaced section 42 lies between the aperture 26 and the slot 60, in the position of Fig. 2, the slot 60 lies between the helicoidal surfaced section 42 and the aperture 26.

The motion of the slot 60 back and forth towards the aperture 26 along the extension 32 over the section 42, while the cover is opening and closing in a 90° rotation, thus provides the camming motion which imparts rotation to the article support 30 in one direction as the cover is opened and in the other direction as the cover is closed.

As the cover is closed, the support 30 moves into a horizontal position supported by engagement of extension 32 with slot 60 and aperture 26.

I have thus provided a very simple three-part structure for accomplishing the automatic pirouetting movement which is the object of the invention.

I claim:

1. A box having a base and a cover and a hinge connecting the back of the base to the back of the cover, an article support extending forwardly in said box from said hinge and being mounted for tilting movement relative to said base to raise its forward end upwardly relative to said base, and for rotating movement about an axis extending in a direction normal to the direction of the axis of said hinge, a lifting element connected to said cover and engaging said support for tilting said support as said cover is opened, said lifting element having a portion movable towards said hinge as said cover is opened and away from said hinge as said cover is closed, and means on said support cooperating with said lifting element portion and responsive to the motion of said lifting element portion towards and away from said hinge for rotating said support in one direction as it is tilted by said lifting element upon opening said cover and in the opposite direction as said support is returned to untilted position upon closing said cover.

2. A box having a base and a cover and a hinge connecting the back of the base to the back of the cover, a member spanning said hinge and having its edges connected respectively to the said cover and the said base, a slot in said member spaced from said hinge, said slot moving towards and away from said hinge as said cover is rotated on said hinge, an article support extending forwardly in said box and having its inner end mounted for tilting and pivoting movement relative to said base, said support extending through said slot, and a helicoidal-surfaced section on said support, the motion of said slot towards said hinge as the cover is opened causing said slot to move inwardly along said helicoidal surfaced section and thereby impart rotation to said article support in one direction and its motion away from said hinge as the cover is closed causing said slot to move outwardly along said section and thereby impart rotation to said article support in the opposite direction.

3. A box having a base and a cover and a hinge connecting the back of the base to the back of the cover, two members spanning said hinge at different distances therefrom, the inner of said members having an aperture therein and the outer of said members having a camming slot therein aligned with said aperture, the edges of said members being attached respectively to the said cover and the said base, whereby said slot moves towards and away from said aperture as said cover is rotated on said hinge, an article support pivotally engaging said aperture, held against longitudinal movement relative to said aperture and extending through said slot, and a helicoidal-surfaced section on said support, the motion of said slot towards said aperture as the cover is opened causing said slot to move inwardly along said helicoidal-surfaced section and thereby impart rotation to said article support in one direction and its motion away from said aperture as the cover is closed causing said slot to move outwardly along said section and thereby impart rotation to said article support in the opposite direction.

4. A box having a hollow base and a hollow cover and a hinge connecting the back of the base to the back of the cover, two generally U-shaped members spanning said hinge at different distances therefrom, the inner of said U-shaped members nearer the hinge having an aperture therein and the outer of said U-shaped members having a camming slot therein aligned with said aperture, the edges of said U-shaped members being attached respectively to the said cover and the said base at different distances from said hinge, whereby said slot moves towards and away from said hinge as said cover is rotated about said hinge, an article support pivotally engaging said aperture, held against longitudinal movement relative to said aperture and extending through said slot, a helicoidal surfaced section on said article support, the motion of said slot towards said aperture as the cover is opened causing said aperture to move along said helicoidal surfaced section and thereby impart rotation to said article support, and the motion of said slot away from said aperture as said cover is closed causing said slot to move outwardly along said section and thereby impart rotation to said article support in the opposite direction.

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