Feb. 5, 1957 I. FLORMAN 2,780,050

CONVERTIBLE TIMEPIECE

Filed June 24, 1954

Fig. 1

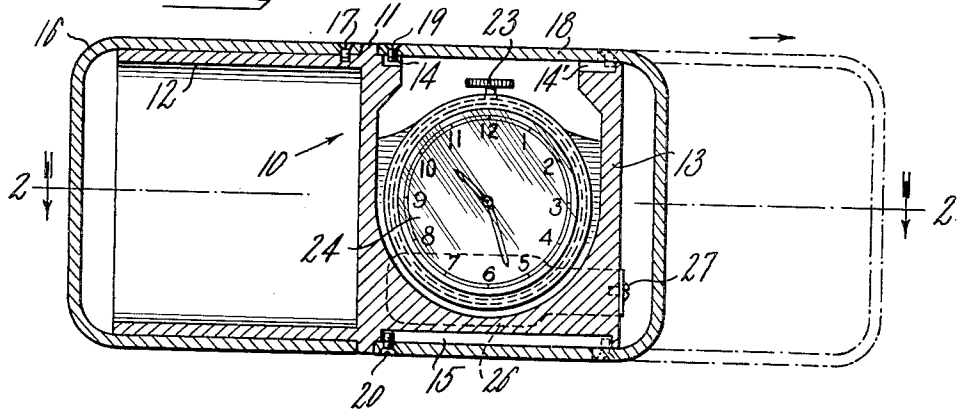
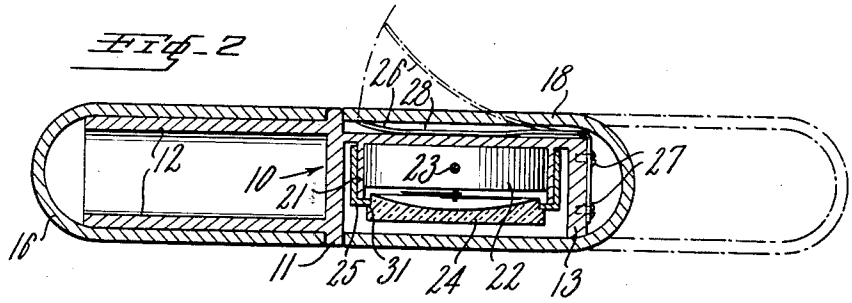


Fig. 2



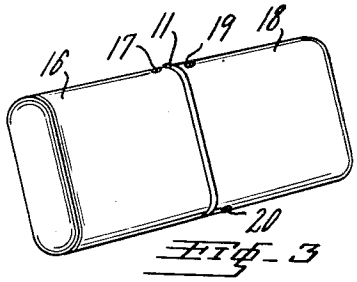
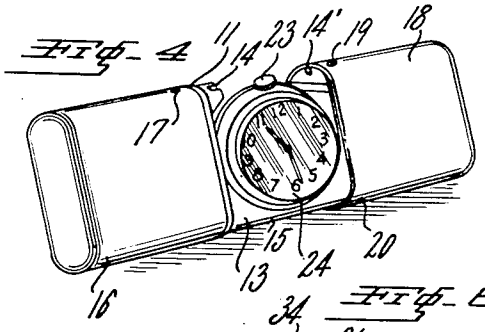


Fig. 3

Fig. 4



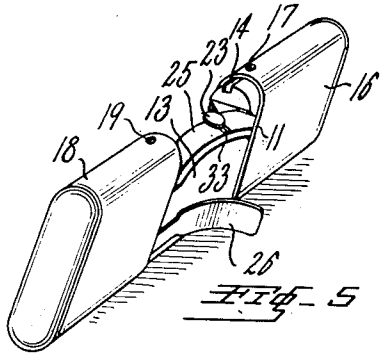
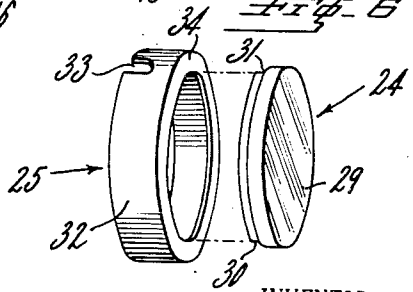


Fig. 5

Fig. 6



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CONVERTIBLE TIMEPIECE

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3 Claims. (Cl. 58—88)

The present invention relates to improvements in timepieces and more particularly relates to improvements in convertible timepieces which may be employed selectively either as a pocket watch or as a night table timepiece.

Heretofore, sliding watches having a rectangular or oblique cover have been provided with an easel whereby the watch may be supported in upright position when the cover is open and the watch face is exposed to view. Watches of this type have been unsatisfactory, however, because of the complexity of the easel structure and the difficulty in manufacture and assembly of a timepiece composed of so many additional parts of small size. These difficulties have served either to increase the cost of such watches considerably because of the highly skilled technicians required to assemble the many small parts or to increase the bulk of the timepiece to the point where it became unwieldly to carry it as a pocket watch. In addition, the easel structures have not been sufficiently rugged and have been subject to ready damage and misalignment preventing closure. Moreover, because of the small size of the timepiece and the fact that it was not secured to the person of the wearer as is the case with a wrist watch, such timepieces have been free to drop or to be jarred about and because of their delicate mechanisms have been easily damaged thereby. Consequently, this type of timepiece has met with considerable consumer resistance and has enjoyed but a limited sales appeal.

Accordingly, it is an object of the present invention to provide means facilitating the manufacture of a timepiece which may be employed both as a pocket watch and as a table clock, which timepiece is protected against ready damage.

It is a further object of the invention to provide a simplified housing for the movement and accessory of such a timepiece.

Another object of the present invention is to provide means affording an improved easel structure for supporting said timepiece when employed as a table clock.

Still another object is to provide means protecting said timepiece against damage due to falling, shock or repeated impact.

Yet another object is to provide a timepiece which is easy to manufacture and to assemble because of its simplified construction.

A further object of the invention is to provide simplified mounting means for the crystal of such a timepiece.

Another object of the invention is to provide a timepiece as described which is sturdy though compact, said timepiece being especially attractive and pleasing to the eye, and of the desired heft.

These and other objects and advantages may be realized by the present invention which is described in reference to the accompanying drawing, wherein:

Fig. 1 is a longitudinal sectional view of a timepiece manufactured in accordance with the present invention, showing the position of the easel in dash lines, and an alternate position of the cover in dot-and-dash lines;

Fig. 2 is a sectional view taken along line 2—2 of Fig. 1, showing the position of the cover and of the easel in dot-and-dash lines when the face of the timepiece is exposed;

Fig. 3 is a perspective view of the timepiece of Fig. 1 in closed position;

Fig. 4 is a perspective view of the timepiece of Fig. 1 with the face exposed;

Fig. 5 is a perspective view showing the timepiece as supported by the easel when in open position as shown in Fig. 4;

Fig. 6 is an exploded perspective view showing the assembly between the crystal and the bezel of the timepiece of Fig. 1.

Referring now more particularly to the drawing, there is shown in Fig. 1 a housing **10** having front, back, top, bottom and sides and provided with a circumferentially projecting rib **11** disposed approximately halfway between the lateral sides of said housing. The left portion or half **12** of the housing is hollowed out while the right half **13** is provided with guideways **14**, **14'** and **15**. As shown, the housing is an integral unit and may be made of a single metallic die casting or molded plastic.

A cover member **16** is secured to the left half **12** adjacent rib **11** by screw **17**, while a laterally displaceable cover member **18** overlies the right half of the housing.

A screw or follower **19** extends through cover member **18** into guideway **14** and a screw or follower **20** is similarly positioned in guideway **15**, to guide the cover member **18** in lateral movement.

The housing **10** is so cast as to provide a tubular extension **21** forming a tight seat for the movement and mechanism of a timepiece **22**, wound by crown **23**, which timepiece however may be pried loose when desired or necessary (Fig. 2). The face of the timepiece is covered by a transparent shatterproof watch crystal **24** made of a plastic material and the crystal is retained in place frictionally by bezel **25** which in turn is frictionally mounted about the tubular extension **21**.

A flat leaf spring **26** is secured to the right hand side of the housing half **13** adjacent the bottom thereof by screws **27** and the spring is bent around to the back of the housing half **13** to lie in recess **28** formed therein and defined by said housing half and cover member **18**. When free of compressive force, however, the spring **26** is biased to assume the position shown in dot-and-dash lines in Fig. 2.

The construction and assembly of the crystal **24** and the bezel **25** can readily be appreciated by comparison of Fig. 2 with the exploded view of these members as shown in Fig. 6. The crystal **24** is provided with a flat head **29** and with a reduced shank **30** meeting said head along a shoulder **31**, said head **29** and said shank **30** being concentrically disposed. The bezel **25** is provided with a tubular portion **32** adapted to engage tubular extension **21** of housing half **13**. Tubular portion **32** is slotted at **33** to permit entry of the crown **23** of the timepiece. In addition, the bezel **25** is provided with inturned rim **34** to form a seat for shoulder **31** of the crystal **24**. The rim **34** corresponds internally with the contour of shank **30** so that the crystal can be forced into contact with the bezel as shown and will be retained in place through frictional contact therebetween.

When carried in the pocket the timepiece will appear as seen in Fig. 3. When it is desired to view the face of the timepiece, the cover member **16** is held in one hand and the cover member **18** is pulled with the other hand to be displaced laterally. The displacement of the cover member **18** will be guided by cooperation of screws or followers **19** and **20** with guideways **14** and **15**, respectively. This displacement need only be partial to expose a sufficient portion of the timepiece to ascertain the time.

After use, the operation may be reversed and the timepiece returned to the position shown in Fig. 3.

When it is desired to employ the timepiece as a table clock, the cover member 18 is displaced in the manner previously described until the entire face is exposed and until screw or follower 19 enters guideway 14' wherein it is stopped. In this position the spring 26 is freed from recess 28 and, through its normal bias, extends rearwardly as shown in Fig. 5 whereupon it may be employed as an easel to maintain the timepiece in the desired upright position.

When in closed position as shown in Fig. 2, the spring lies in recess 28 and is compressed between the housing half 13 and cover member 18, the latter abutting against circumferential rib 11. Consequently, should the timepiece be dropped or subjected to vibration, the spring will take up the shock and will cushion and protect the mechanism. This cushioning action will be exhibited regardless of the angle or position of impact because of the metallic cover members and housing whereby the impact can be transmitted readily to the resilient spring.

In conventional watch structures such an impact would produce a bending or breaking of the balance wheel pivot which is rotatably seated in one of the jeweled bearings. To avoid damage to this most delicate portion of the watch, watches have heretofore been provided with mechanisms within the case to minimize vibration and to render them shockproof, which because of the small space involved made assembly difficult and expensive. The present construction hereinabove described eliminates the necessity for these expensive measures and permits relatively inexpensive watch mechanisms to be made shockproof without precision work.

In addition, the fact that the shockproofing action is effected exteriorly of the watch mechanism permits other economies and simplifications. Whereas ordinarily the bezel of a watch must be undercut and the crystal can be inserted only by expert hand-fitting or with special tools, frictional mountings are now permissible.

Specifically, in conventional structures the vibration of the watch elements would not permit such frictional mountings since the crystal, for example, would shake loose from the bezel and the latter in turn would shake loose from its mounting. By the present invention all the shock and vibration is taken up by the cover and spring so that the housing and watch works are not vibrated. Accordingly, there will not be any relative vibration between the crystal and bezel and a frictional mounting will be sufficient. The bezel can now be manufactured in a single operation on a punch press and the assembly can be effected by unskilled help and without the costly equipment presently required for assembly where the bezel is undercut. As a result, this simplification alone represents a considerable economy flowing directly from the novel construction.

Instead of attachment on the side of the housing, the spring which also functions as the easel may be secured to the housing at the back thereof, so long as the spring is biased to extend rearwardly of the watch face in uncompressed condition. While the free end of the leaf spring is shown as positioned remote from the displaceable cover member in opened position this might be reversed so that the spring would further act to prevent the displaceable cover member from accidental movements. Alternatively, the spring might extend along the rear of the watch face substantially parallel to the rib 11. In either of these latter alternatives it would be necessary to depress the free end of the spring in closing the cover member. In all of the arrangements, however, the spring in closed position extends substantially parallel to the watch face taking up the slack between the housing and the displaceable cover member whereas the bias of the spring causes the latter to extend rearwardly of the housing in opened position to serve as an easel.

Although the left half of the housing has been described as hollow it might be cast equally easily as a solid

member. For such purposes a zinc or aluminum alloy will be quite satisfactory.

The numerals and hands of the timepiece may be coated with a luminous material such as radium, phosphorescent zinc sulphide, barium sulphide, or the like, and it will be extremely useful as a travelling table clock because of its compactness and ruggedness whereby it can withstand the shocks normally encountered in transit. In open position the watch face is symmetrically positioned between the two halves to present an extremely attractive appearance.

Various changes and modifications may be made without departing from the spirit and scope of the present invention and it is intended that such obvious changes and modifications be embraced by the annexed claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A timepiece comprising a housing provided with a recess, a timepiece mechanism seated in said housing in front of said recess, displaceable cover means for said housing and normally enclosing said mechanism and said recess, and spring means normally compressed in said recess and operatively engaging said housing and said cover means, said spring means being biased to extend rearwardly of said recess in uncompressed state, whereby displacement of said cover means serves to expose said mechanism and to release said spring means so the latter may serve as an easel for said timepiece.

2. A timepiece according to claim 1, said spring means comprising a leaf spring secured to said housing.

3. A timepiece according to claim 1, said housing being provided with circumferential rib means forming an abutment for said cover means in closed position of said cover means.

4. A timepiece according to claim 1, said housing being provided with guideway means, and said cover means being provided with follower means cooperating with said guideway means, said cover means being guided in displacement by cooperation of said follower means with said guideway means.

5. A timepiece according to claim 1, including a tubular extension forwardly of said recess for seating said mechanism, and means frictionally engaging said extension serving to protect said mechanism.

6. A convertible casing for a timepiece comprising a housing including rear wall and side walls, rib means on said housing intermediate said side walls and dividing said housing into two housing portions, one of said housing portions being provided with a seat for a timepiece mechanism and with a recess in the back of said one portion, a pair of complementary cover members overlying said housing portions, respectively, and normally abutting against said rib means, said cover member overlying said one housing portion being mounted for displacement laterally toward and away from the corresponding side wall, and substantially flat leaf spring means secured to said one portion and normally being compressed in said recess into engagement with said one portion and the respective cover member, said spring means being baised to assume when uncompressed a position rearwardly of said rear wall of said housing, whereby upon displacement of said cover member overlying said one portion said housing seat is exposed, while said spring means simultaneously assumes said uncompressed position.

7. A casing according to claim 6, including means for fastening said spring means to the side of said one housing portion.

8. A convertible timepiece comprising a housing including front and side walls, a rib encircling said housing intermediate said side wall and dividing said housing into two portions, one of said portions being provided with tubular means extending toward the front of said housing and with a recess in the back thereof, said one portion being further provided with guideway means extending between said rib and the corresponding side wall

of said one portion, a timepiece mechanism seated in said tubular means, bezel means frictionally retained on said tubular means, crystal means frictionally retained by said bezel means and overlying said timepiece mechanism, a pair of complementary cover members overlying said portions, respectively, and abutting against said rib in closed position of said cover members, the one of said cover members overlying said one portion being mounted for displacement laterally toward and away from the corresponding side wall, follower means carried by said one cover member and engaging with said guideway means for guiding said one cover member during displacement, and spring means secured to the respective side wall of said one portion and in closed position extending along the

back of said one portion in said recess between said one portion and said one cover member, said spring means being biased to extend rearwardly beyond said housing in uncompressed condition, whereby upon displacement of said one cover member said timepiece mechanism is exposed, said spring means simultaneously assuming said uncompressed position to thereby serve as an easel for said timepiece.

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