

March 25, 1924.

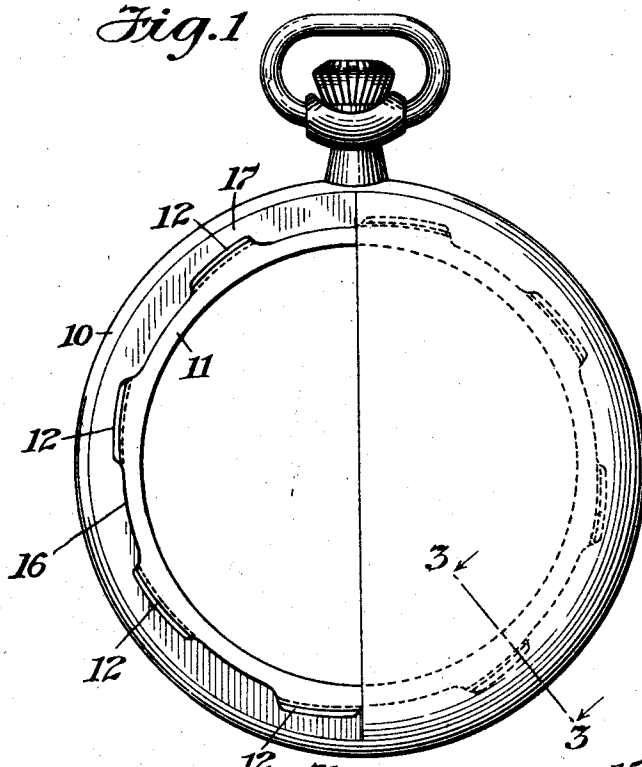
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F. ECAUBERT

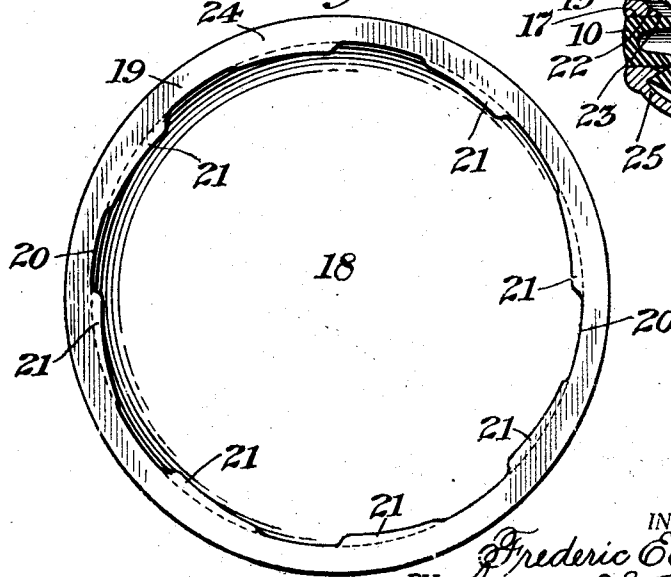
CLOSURE

Filed June 5, 1922

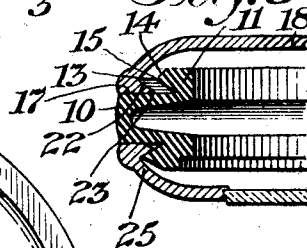
*Fig. 1*



*Fig. 2*



*Fig. 3*



INVENTOR

*Frederic Ecubert*  
BY *Frederic Ecubert* HIS ATTORNEYS

## UNITED STATES PATENT OFFICE.

FREDERIC ECAUBERT, OF NEW YORK, N. Y.

## CLOSURE.

Application filed June 5, 1922. Serial No. 566,137.

To all whom it may concern:

Be it known that I, FREDERIC ECAUBERT, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented an Improvement in Closures, of which the following is a specification.

This invention relates to closures. In the drawing I have illustrated the invention as applied to a watch case, although it will be understood that the use of the invention is not so limited as it may be employed in substantially any type of closure for a container comprising a body member and a removable cover or cap therefor. In this type of container, as heretofore constructed, and particularly in regard to watch cases, the center or body member has been provided with a screw threaded flange to receive the tapped flange of the cover or bezel. In this type of structure, however, at least one and a half full screw threads are required to connect the cover or bezel centrally with the center or body member and to make the faces of the center or body of the watch case and the cover or bezel properly abut against each other all round. Due to this screw thread construction there is a movement of one part toward or away from the other and when either screw thread is not in its proper relationship with the face it is impossible to bring the faces aforesaid into uniform contact. Furthermore, due to the necessity of using a thread having a very fine pitch, for such a relatively large diameter, for example a threading having a pitch of a thirty-second of an inch, and the consequent tendency to jam or wedge, it is oftentimes difficult to remove one part from the other.

My present invention is designed to overcome these difficulties and in carrying out the same in a watch case or other similar container the closure is effected by providing a flange on the center or body member in which there is a plurality of suitably spaced teeth, the surface of each tooth being cut preferably on a spiral curve relatively to the center of the body member or so that the face of each tooth has portions at variable distances from the center of the body member, and the cover is also provided with a flange having a plurality of teeth spaced by intervening recesses in the flange of the cover, and the surface of each tooth in this flange is also preferably cut on a

spiral curve relatively to the center of the cover or so that the face of each of these teeth has portions at variable distances from the center of the cover member. In assembling the parts the teeth in the flange of the cover pass through the spaces between the teeth on the center or body member, and the teeth on the center or body member pass through recesses in the flange in the cover so that the abutting surfaces of the center or body member and the cover are brought into contact with one another without any screw thread action, and the parts given a turning or revoluble movement to bring the surfaces of the teeth in contact with one another to frictionally maintain the parts in position, as will be hereinafter more particularly described.

In the drawing:

Fig. 1 is a plan view of a watch case center in which my present invention is incorporated.

Fig. 2 is a plan view of the inner side of a cover for the same, and

Fig. 3 is a section on an enlarged scale on line 3-3, Fig. 1.

Referring particularly to the drawing, the center of a watch case is indicated at 10. This, as is customary, is provided with a flange 11. In suitably spaced positions in the peripheral surface of the flange 11 there are spaced teeth 12. These teeth are similarly constructed and each is preferably so formed as to comprise an inner face 13, an outer face 14, both beveled and uniting in an edge 15. These faces of the teeth and the uniting edge thereof are preferably cut on a spiral curve relatively to the center of the watch case. Between each tooth 12 there is an intervening space 16 in the peripheral surface of the flange 11, and the face of the center member adapted to bear against the face of a cover or bezel is indicated at 17.

A cover or back member is indicated at 18 and, as is customary, this is provided with an internal flange 19. In this flange 19 there are spaced recesses 20 making provision for a plurality of teeth 21. Each tooth 21 is cut so as to have an inner face 22 and an edge 23 between the same and the outer face 24 of the flange, which latter face is adapted to abut against the face 17 of the center member. Furthermore, each tooth 21 is preferably cut so that the face 22 and the edge 23 thereof are made on a spiral curve relatively to the center of the cover, and in

a direction corresponding to that in which the faces of the teeth on the center member are cut.

It will be understood that while I have hereinbefore particularly described the invention as relating to the closure structure between the center member of a watch case and the cover therefor, the same construction may be employed for connecting the center member and the bezel indicated at 25. Furthermore, that while I have illustrated the invention as applicable to a watch case, it may be employed in effecting a closure in substantially any container comprising a body member and a removable cap or cover therefor, as for example in jars ordinarily used for containing preserved fruit and the like. Still furthermore, that while I have illustrated and herein described my invention as applied to a watch case and a cover therefor in which the faces of the engaging teeth are cut on a curve spirally disposed to the center of the parts that whether the invention is employed in a watch case cover or other closure the teeth may be formed in other manners, for instance, they may be constructed in the manner like ordinary corrugations, or may be made in lines tangential to the edge of the body member or cover, or may be made in obvious other manners in which in every instance, however, each tooth is so constructed that the face thereof has portions at variable distances from the center of the body on which the tooth is made.

It will now be apparent that in the use of the invention as applied to a watch case the parts may be assembled and connected by so placing the cover member that the teeth 21 thereof pass through the spaces 16 between the teeth 12 of the center member, and similarly the teeth 12 of the center member pass through the recesses 20 between the teeth 21 of the cover member so that the face 24 of the cover member abuts or lies flat against the face 17 of the center member, and that the parts may then be turned relatively to one another to bring the face 22 of each tooth 21 into contact with the face 13 of the corresponding tooth 12 to frictionally engage the parts and thus maintain the same in position. This action not only maintains the parts in position frictionally but centers the cover member relatively to the center member and also causes the faces 24 of the cover member and 17 of the center member to be maintained against each other in forceful contact.

It is to be understood that when the parts of my improved closure structure are assembled that the only contacting faces are the face 17 of the center or body member which contacts with the face 24 of the cover member, and the face 22 of each tooth 21 which contacts with the face 13 of the cor-

responding tooth on the center or body member, while the edges 15 of the teeth on the center or body member and the edges 23 of the teeth on the cover member do not come into contact with any surface whatsoever. In this manner there is unobstructedly produced a perfect contact between the surfaces 17 and 24 and the surfaces 22 and 13 of the teeth contrary to the action of an ordinary screw thread where one V-shaped thread must necessarily follow an opposite thread whether axially correct or not.

I claim as my invention:

1. In a closure structure, a body having spaced engaging members each with a contact surface which from one end thereof to the other increases continuously in distance from the center of the said body, and a cover also having engaging members thereon, with each engaging member of the cover having a contact surface with portions thereof at correspondingly variable distances from the center of the cover.

2. In a closure structure, a body having a flange with a plurality of spaced engaging members, each engaging member having a face which from one end to the other thereof increases continuously in the same direction only from the center of the body member, and a cover also having a flange with a corresponding number of engaging members thereon, each of the last aforesaid engaging members having a face adapted to engage the face of one of the engaging members of the body.

3. In a closure structure, a body having a flange, a plurality of teeth in spaced positions on the said flange, each of the said teeth having a face portion which from one end to the other thereof increases continuously in the same direction only from the center of the body, a cover having a flange, and a corresponding number of teeth in the flange of the cover, with each of the teeth in the flange of the cover also having a portion which from one end thereof to the other increases continuously in one direction only from the center of the cover.

4. In a closure structure, a body having a flange, a plurality of spaced teeth on the flange, each tooth having a face which from one end thereof to the other increases continuously in one direction only from the center of the body, and a cover having a corresponding number of teeth each adapted to engage one of the teeth in the flange of the body.

5. In a closure structure, a body having a flange, a plurality of teeth on the said flange, a cover also having a flange, and a corresponding number of teeth in the flange of the cover, with each tooth therein having a face which from one end to the other thereof increases continuously in the same direction only from the center of the cover,

which teeth are adapted to engage the teeth on the flange of the body.

6. In a closure member, a body having spaced engaging members with a face of each engaging member cut on a spirally disposed curve relatively to the center of the body, and a cover also having engaging members with faces cut correspondingly to the said faces of the engaging members of the body.

7. In a closure structure, a body having a flange with spaced engaging members each having a face spirally disposed to the center of the body, and a cover having a flange with a corresponding number of engaging members each having a face adapted to engage the face of one of the aforesaid engaging members.

8. In a closure structure, a body having a flange, a plurality of spaced teeth on the said flange, each tooth having a face cut on a spiral curve relatively to the center of the body, a cover having a flange, and a corresponding number of teeth in the said flange of the cover, with each tooth having a face cut on a spiral curve relatively to the center of the cover.

9. In a closure structure, a body member having a circularly disposed flange, a plurality of teeth on the peripheral surface of the said flange, each tooth cut to provide an inner face cut on a spiral curve relatively to the center of the body member, a cover having an internal flange, and a corresponding number of teeth in the said internal flange, each tooth in the internal flange being cut on a spiral curve relatively to the center of the cover member.

10. In a closure structure, a body member having an abutting surface and a plurality of spaced engaging members each with a face cut on the curve of a spiral relatively to the center of the body member, and a cover member having an abutting face adapted to contact with the abutting face of the body member and having a plurality of engaging members each with a face cut on the curve of a spiral relatively to the

center of the cover member so as to engage respectively with the spirally cut faces of the engaging members on the body member when the abutting faces are in contact and the body and cover members turned relatively to one another.

11. In a closure structure, a body member having a circularly disposed abutting face and a plurality of spaced engaging members, each having a face cut on a spiral curve relatively to the center of the body member, a cover member having a circularly disposed abutting face, and a plurality of engaging members each having a face cut on a spiral curve relatively to the center of the cover member so that when the circularly disposed abutting faces are in contact with one another the body member and cover member may be turned relatively with these abutting faces in contact to cause the spirally cut faces of the said engaging members to come into contact with each other.

12. In a closure structure, a body member having a circularly disposed abutting face, a circular flange, a plurality of spaced teeth on the said circular flange, each tooth having a face cut on a spiral curve relatively to the center of the body member, a cover member having a circularly disposed abutting face adapted to contact with the circularly disposed abutting face of the body member, an internal flange on the said cover member, and a plurality of teeth in the said internal flange, each tooth in the internal flange having a face cut on a spiral curve relatively to the center of the said cover member so that when the abutting face of the cover member is made to contact with the abutting face of the body member and the cover member turned relatively to the body member the spirally cut faces of the teeth of the internal flange of the cover member are brought into contact with the spirally cut faces of the teeth on the flange of the body member.

Signed by me this 16th day of May, 1922.

FREDERIC ECAUBERT.