

UNITED STATES PATENT OFFICE.

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COMBINATION PUZZLE-LOCKET.

SPECIFICATION forming part of Letters Patent No. 692,650, dated February 4, 1902.

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To all whom it may concern:

Be it known that I, ALEXANDER DOUGLAS FISHER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Combination Puzzle-Locks, of which the following is a specification.

My invention relates to improvements in combination puzzle-locks; and the object of the invention is to devise a receptacle of this class suitable for containing a photograph, picture, or other ornamental device which may be locked securely with the lid flush with the edge of the receptacle in such a manner that it cannot be opened without the combination being known and which may be readily adaptable to medals, coins, and other uses, such as a souvenir.

Figure 1 is a perspective view showing the general arrangement of my invention with the lid partially broken away to exhibit the interior construction. Fig. 2 is a cross-section through the rings and recesses on the line of the recesses when the lid is in a position to be removed. Figs. 3, 4, and 5 are details showing three different positions which the parts assume when open and in the act of locking. Figs. 6 and 7 are details of the outer and inner retaining-rings. Figs. 8 and 9 are details of the outer and inner operating-rings. Fig. 10 is a perspective detail of the lid reversed.

In the drawings like characters of reference indicate corresponding parts in each figure.

A is the casing or receptacle, provided with a suitable bottom and bounding side a .

a^1 is an angle-ring located within the sides a and fitting closely thereto.

a^2 is an angle-ring reversely set to the angle-ring a^1 and suitably held in position so as to form an annular space a^3 between the two rings. The flanges of the rings a^1 and a^2 are at the bottom.

a^4 is a bezel which fits within the ring a^2 and is designed to hold a photograph or other device in position.

It will be noticed in Figs. 1 and 2 that the scale is very much larger than the remaining figures, and this is specially designed to show the form of the parts, which are very small. Of course the size is immaterial; but the size shown in Figs. 1 and 2 would be

greatly exaggerated to the ordinary size of coin or medal.

a^5 is a supplemental ring which fits outside the upwardly-projecting portion of the angle-ring a^2 , and a^6 is a ring which fits within the upwardly-projecting portion of the ring a^1 .

B and B' are the outer and inner operating-rings. The ring B fits peripherally inside of the ring a^6 and the ring B' peripherally outside the ring a^5 . The ring B is provided with two inside projections b at any desired distance apart and two inside recesses b' , diametrically opposite each other, one being preferably wider than the other for a purpose which will hereinafter appear. The ring B' is provided at the exterior with two recesses b^2 , diametrically opposite each other, one recess, b^2 , being provided wider than the other for a purpose which will hereinafter appear.

The ring B' is provided with an exterior projection b^3 . The rings a^5 and a^6 are slightly larger or thicker than the rings B B', so as to receive the outside and inside retaining-rings C and C' and avoid too great frictional contact of the rings B and B' with the retaining-rings. The ring C is provided with the diametrically-arranged interior recesses c , one of which is wider than the other, and which correspond in width to the recesses b' of the retaining-rings B. The ring C' is provided with the diametrically-arranged exterior recesses c' of a corresponding width and size to the recesses b^2 .

D is a lid which is provided with a pointer or arrow d , which is made so as not to be noticed, being preferably part of the ornamentation. The lid D is provided with downwardly-extending reverse T-shaped projections d' , which are suitably fixed to the same and are located diametrically opposite, the one being wider than the other.

1, 2, and 3 are the points on the edge, which form the guide for the operation of the combination which I shall now describe. In order to fit the lid into place within the bounding edge, it is necessary to have the diametrically opposite recesses b' of the operating-ring B directly over the corresponding recesses c of the retaining-ring C, which is fixed. It is also necessary to have the diametrically opposite recesses b^2 of the operating-ring B'

directly over the recesses c' of the retaining-ring C' , which is fixed. When in this position, the lid may be closed by inserting the T-shaped projections into these diametrical projections, which are of course diametrically opposite each other, and in order to insure the lid being placed properly for the working of the combination I have made the recesses at one side wider than the recesses diametrically opposite and have also made the projections to correspond. It will now be seen that by turning the lid slightly the projections d' may be brought around the annular groove a^3 , formed between the retaining-rings and operating-rings and below them, so as to strike one projection b , (see Fig. 4,) when the operating-ring B will be brought around so as to close the recesses c in the retaining-ring. By bringing the ring around still farther into the position shown in Fig. 5, so as to throw the projection d' and the projection b against the projection b^3 , the inside recess in the retaining-ring will be closed, thus absolutely locking the lid in position. Of course I may state that immediately the lid is turned so as to bring the projections underneath the retaining-rings and away from the diametrical recesses the said lid will be locked; but by turning it so that the pointer passes from the point 1 past the point 3 the locking is absolutely insured.

I may here state that the pointer d is preferably placed on the outside of the lid immediately over one projection d' .

To open the lid, it is necessary to turn the lid so as to bring the pointer from the point 1 around in the direction in which it is passing, as shown in Figs. 4 and 5, so that the projection d' carries with it the projections b and b^3 . The lid is still moved circularly in the direction indicated by arrow past the point 1, so that the projection d' carries the projection b so as to bring the recess b' past the recess c , opening it momentarily as it passes. The lid is still moved farther until the pointer D comes opposite the point 3, when the projection d' will have pushed, by means of the projection b , the projection b^3 sufficiently far around so as to throw the recess b^2 opposite the recesses c' of the retaining-ring C' . It will therefore be understood that as soon as the point 3 is reached by turning the lid D so that the pointer d reaches such point the rings are set so that the projection d' can be removed as far as the inside recesses of the retaining-ring and operating-ring are concerned; but it is now necessary to set them so that the outside recesses of the retaining-ring and operating-ring are opposite, and this is accomplished by turning the lid in the opposite direction to that indicated by the arrow, so as to bring the pointer d , previously at the point 3, past the point 1 until it strikes the next projection b , and when it strikes such projection it will necessarily carry the ring B around with it in the opposite direction to that it has before

been moved until the pointer d reaches the point 2, at which point the outer recesses and their retaining-rings and operating-rings will then be opposite. By now turning the lid back in the direction indicated by arrow again until the point d is opposite the point 1 it will be seen that the projection d' will then be opposite the diametrical recesses c and b' and c' and b , when the lid may be raised and removed.

Although I show the outer casing A and the inner rings a^2 and a^3 separate therefrom, it will be understood that such rings might form part of the casing itself.

Again, although I show the retaining-rings C and a^6 separate from each other and the retaining-ring C' and ring a^5 separate from each other, each pair might be formed in one piece, and I do not wish to limit myself to the way they are made. The shapes of the rings also may be variously altered as circumstances may require without departing from the spirit of my invention.

What I claim as my invention is—

1. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with depending projections which are designed to have an unlimited rotary movement in either direction, of two rings suitably secured within the casing and provided with a channel between and recesses through which such projections are designed to extend when the parts are fitted together, such projections being arranged when the lid is turned to extend underneath the edges of the rings, so as to lock the lid in place as and for the purpose specified.

2. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with depending projections, of two rings suitably secured within the casing and provided with a channel between and coacting recesses through which such projections are designed to extend when the parts are fitted together, such projections being arranged when the lid is turned to extend underneath the edges of the rings, so as to lock the lid in place, index-points and a point on the lid designed to coact with the index-points on the edge of the wall as and for the purpose specified.

3. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with reverse T-shaped depending projections, of annular rings suitably secured within the casing and forming a groove within which the laterally-extending ends of the projections are located when the lid is closed, an operating-ring provided with coacting recesses and a projection with which the projection on the lid is designed to coact and a retaining-ring provided with coacting recesses lo-

cated diametrically opposite each other as shown and for the purpose specified.

4. In a combination puzzle-locket, the combination with the circular casing having a
5 suitable bounding edge or wall and the lid fitting within the same and provided with reverse T-shaped depending projections, of annular rings suitably secured within the casing and forming an annular groove within
10 which the laterally-extending ends of the projections are located when the lid is closed, the outside and inside operating-rings suitably held within the aforesaid rings and provided with inner and outer coacting recesses
15 respectively and two projections on the outside ring and one on the inside designed to coact with the projections on the lid and fixed inside and outside retaining-rings provided with the inside and outside recesses as and
20 for the purpose specified.

5. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid

fitting within the same and provided with reverse T-shaped depending projections, of 25 rings suitably secured within the casing and forming an annular groove within which the laterally-extending ends of the projections are located when the lid is closed, the outside and inside operating-rings suitably held with- 30 in the aforesaid rings and provided with inner and outer recesses respectively, and two projections on the outside ring and one on the inside designed to coact with the projections on the lid and fixed inside and outside 35 retaining-rings provided with the inside and outside recesses, the lid being provided with an index-point and the rim of the case with an index-point opposite the recess in the fixed retaining-ring and supplemental index-points 40 at each side of such latter point as and for the purpose specified.

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Witnesses:

B. BOYD,

R. SHIELDS.