May 18, 1943 M. L. RATHBUN 2,319,346

CLOSURES

Filed July 3, 1939

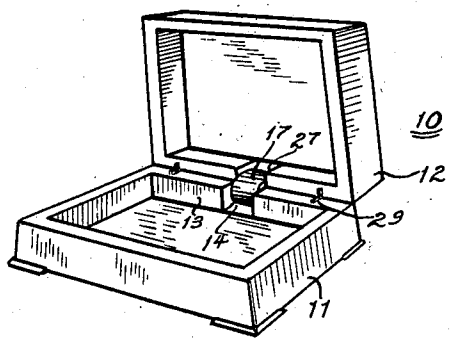


FIG-1

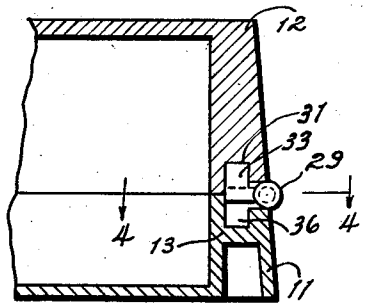


FIG-2

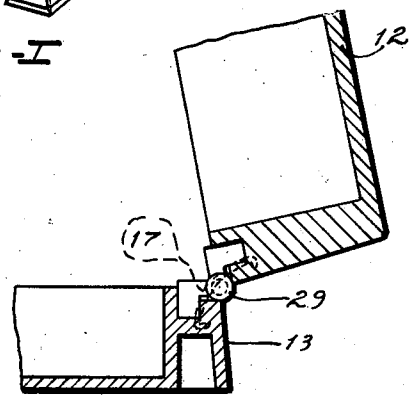


FIG-3

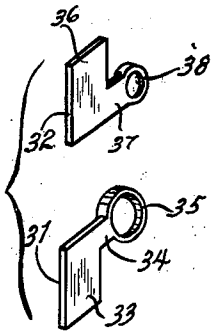


FIG-6

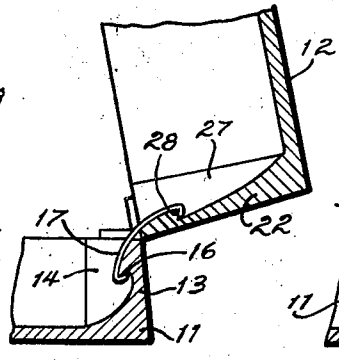


FIG-7

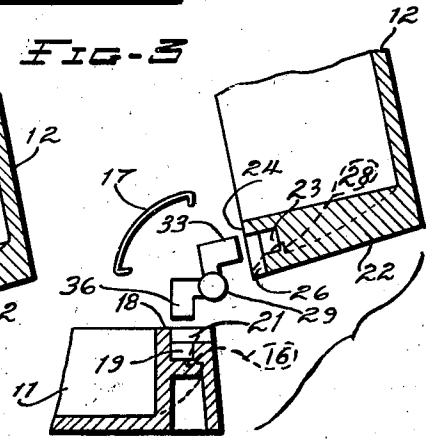


FIG-8

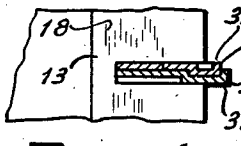


FIG-4

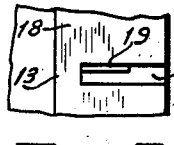


FIG-5

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UNITED STATES PATENT OFFICE

2,319,346

CLOSURE

Merrill L. Rathbun, Salamanca, N. Y.

Application July 3, 1939, Serial No. 282,658

4 Claims. (Cl. 217—57)

This invention relates to an improved pivotal structure for closures and in particular receptacles or cases.

In one form the invention is applied to a closed receptacle such as may be used to package and display jewelry. The receptacle comprises a body and cover. One or more hinges serve to pivotally join the cover to the body. Each hinge comprises a pair of elements having portions that extend into suitable openings or slots in the body and cover of the receptacle. Inter-fitting cup-like parts pivotally connect these elements. The elements are prevented disengagement due to their being positioned within the openings or slots in the body and cover of the receptacle. One or more spring clips, preferably engaged with the body and cover of the receptacle, serve to prevent withdrawal of the hingle elements from the receptacle members and the consequent disengagement of the elements themselves. The spring clip is also designed to retain the cover in closed or opened position with respect to the body of the receptacle.

One of the objects of the invention lies in the provision of pivotal means for closures wherein a spring serves to secure the pivotal means in operable pivotal relationship.

Another object of the invention lies in the provision of a pivotal structure for a closed receptacle that is extremely sturdy and readily adaptable in different sizes for the pivotal requirements of closed receptacles of various sizes.

Another object of the invention lies in the provision of pivotal means for a closed receptacle that comprises a pair of hinge elements having inter-fitting cups, the elements being partially embedded in the body and cover of the receptacle to prevent displacement.

Another object of the invention lies in the provision of a hinge for the cover of a receptacle that is held in place in the body and cover of the receptacle by one or more spring clips.

Other objects and advantages of the invention will be more fully understood from a consideration of the following specification taken in conjunction with the accompanying drawing; and in which

Figure 1 is a perspective view of one modification of the invention embodied in a closed receptacle, shown in opened position;

Figure 2 is an enlarged fragmentary vertical sectional view of the invention, showing the position of the hinge elements when the receptacle cover is closed;

Figure 3 is a view similar to Figure 2 showing the receptacle cover in opened position;

Figure 4 is a fragmentary horizontal sectional view of the hinge structure, being taken substantially on the line 4—4 of Figure 2;

Figure 5 is a fragmentary plan view of the wall of the receptacle with which the hinge is engaged, being similar to Figure 4 with the hinge removed;

Figure 6 is a perspective view of the hinge elements prior to assembly;

Figure 7 is a fragmentary vertical sectional view showing the means employed to prevent displacement of the hinge elements; and

Figure 8 is an exploded view of the receptacle, hinge elements and spring and discloses one method of assembly.

Reference is now had to the drawing wherein the numeral 10 is employed to generally designate a closed receptacle with which the subject matter of the present invention may be employed. The receptacle comprises a body 11 and cover 12. These members may be of any configuration and material. In the present instance, the receptacle is of the type provided to display and package small articles of jewelry and is molded from synthetic resin or similar material. It will be understood, however, that the size of the receptacle and the material from which it is produced has no bearing on the applicability of the invention thereto.

The rear or hinge wall 13 of the body is formed with a vertical slot 14 which commences at the upper edge of the wall and terminates at or near the inside of the base. Formed in the slot 14 is a transverse projection 16 that provides securement for one end of a spring clip 17. The upper face 18 of the wall 13, in the present disclosure, is formed with two comparatively narrow vertical slots 19. The upper portion 21 of each slot extends laterally toward the rear edge of wall 13 and is substantially three times the width of the other portion thereof.

The cover 12, insofar as the pivotal structure is concerned, may be of any configuration, such, for example, as is shown in the drawing, or may be a duplicate of the body 11. The rear wall 22 of the cover has a slot 23 that commences at the lower face 24 thereof. A portion 26 of the slot 23 extends toward the rear edge of the cover wall 22 and is substantially three times the width of the slot proper. Slots 19 and 23 of the base and cover 11 and 12 are of equal number and adapted to be aligned. The wall 22, substantially midway between slots 23, is formed with a recess 27 that commences at the bottom edge of the wall and includes a transverse projection 28 adapted to provide securement for the other end of the spring 17.

A hinge 29 serves to pivotally connect the cover with the body of the receptacle. This hinge comprises elements 31 and 32. Element 31 includes a base 33 that is adapted to enter and fit either slot 19 or 23. In the drawing the sectional views show the base 33 engaged with the walls of slot 23. The base extends downwardly beyond the lower edge 24 of the wall 22 and is formed with

an angularly disposed arm **34** on the end of which is a cup **35**. The other element **32** of the hinge is formed with a base **36** that may be identical in all respects with the base **33**. This base, as shown in the drawing, projects into and engages the walls of slot **19**. An angularly disposed arm **37** is formed on the base and terminates in a small cup **38**. The cup **38** is laterally offset from the arm **37** and is adapted to enter and fit the interior contour of the cup **35**. It will be noted that the hinge elements **31** and **32** overlap each other when the cover **12** is in closed position (see Figure 2). Thus the laterally disposed slots **21** and **26** must be of sufficient width to receive arms **34** and **37**, as well as the thickness of the offset cup **35**. This is clearly illustrated in Figures 4 and 5 of the drawing.

To pivotally join the cover **12** to the body **11** it is first necessary to interfit the elements of the hinge **29** by engaging cup **38** with cup **35**, substantially as shown in Figure 8. The base **36** of element **32** is then press-fitted into the slot **19** and, when so positioned, the portion **21** of the slot receives the lower half of the cups **35** and **38**, thus preventing their disengagement. The cover **12** is positioned to cause the base **33** of element **31** to enter slot **23**. The cover is then moved into closed position and pressed firmly against the body **11** in order that the hinge elements may be fully engaged with their respective slots. The cover may now be opened and spring clip **17** snapped into engagement with the spring seats formed by projections **16** and **28** of the body and cover. With the spring **16** in place, it is impossible for the hinge elements to become disengaged from the body and cover of the receptacle. Furthermore, since the hinge elements cannot be disengaged from the body and cover, the cups **35** and **38** cannot become disengaged. The spring is so positioned that it has a dead-center substantially midway between closed and opened position of the cover. Consequently, the spring serves to hold the cover in fully opened or closed position in addition to preventing displacement of the hinge elements.

It will be noted that either element of the hinge may be engaged with either the body or cover and thus it is unnecessary to provide right and left hinges for a closed receptacle wherein two or more hinges may be required. The portion of each hinge element projecting into the slot of the adjacent member of the receptacle serves, when the cover is in closed position, to resist lateral twisting of the cover with respect to the body. It is, of course, evident that the cups **35** and **38** need not project beyond the rear walls of the receptacle, provided such walls are of increased thickness, and also that these walls may be of lesser thickness and the cups extend fully therebeyond. Furthermore, it will be appreciated that the relative size of the cups to the balance of the elements of the hinge, as well as the shape and size of bases **33** and **36**, may be varied to meet the pivotal requirements for closures of different size, shape or material. Therefore, although applicant has shown and described only one modification of a pivotal construction for a closed receptacle, it will be understood that modifications thereof may be made and are contemplated insofar as they are within the spirit and scope of the invention as set forth in the hereunto annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. A receptacle comprising body and cover members, corresponding faces of the rear walls of said members having slots, said slots in part opening into the outer faces of said walls, a pair of hinge elements, cups formed on said elements, said cups being interfitted to provide pivotal connection between said elements, a part of said elements being projected into said slots, each of said elements being engaged with the slots of both of said members when said cover member is in closed position, a spring engaged with said members, said spring serving to secure said members against displacement and said elements in operable pivotal relationship.

2. A receptacle comprising hinged body and cover members, corresponding faces of the hinged walls of the members being non-cooperative and having slots, a pair of hinge elements, interengageable portions providing pivotal connection between said elements, plate-like portions on said elements, said portions projecting into said slots and lying in a plane at substantially right angles to the pivotal axis of the members, spring seats in said hinged walls, a spring engaged with said seats, said spring serving to yieldingly retain the cover member in either of two positions, prevent lateral displacement of said members and secure said plate-like portions against displacement from said slots and said pivotal portions in interengaged pivotal relationship whereby to provide for relative pivotal movement of said members.

3. A receptacle comprising hinged body and cover members, corresponding faces of the hinged walls of the members being non-cooperative and having slots, a pair of hinge elements, interengageable portions providing pivotal connection between said elements, plate-like base portions on said elements, said plate-like base portions projecting into said slots and being in a plane at substantially right angles to the pivotal axis of the members, spring means being interengaged with the hinged walls of said members, said means serving to prevent relative lateral displacement of said members and secure said plate-like base portions against displacement from said slots, and said pivotal portions in interengaged pivotal relationship whereby to provide for relative pivotal movement of said members.

4. A receptacle comprising hinged body and cover members, corresponding faces of the hinged walls of the members being non-cooperative and having slots, a pair of hinged elements, interengageable portions providing pivotal connection between said elements, plate-like base portions on said elements, said plate-like base portions projecting into said slots and being in a plane at substantially right angles to the pivotal axis of the members, said plate-like portions being of such proportion as to be engaged with the slots of both of said members when said cover member is in closed position, spring means being interengaged with the hinged walls of said members, said means serving to prevent relative lateral displacement of said members and secure said plate-like base portions against displacement from said slots, and said pivotal portions in interengaged pivotal relationship whereby to provide for relative pivotal movement of said members.

MERRILL L. RATHBUN.