

April 3, 1956

E. S. IRELAN
CONCEALED HINGE

2,740,550

Filed Oct. 9, 1951

2 Sheets-Sheet 1

Fig. 1.

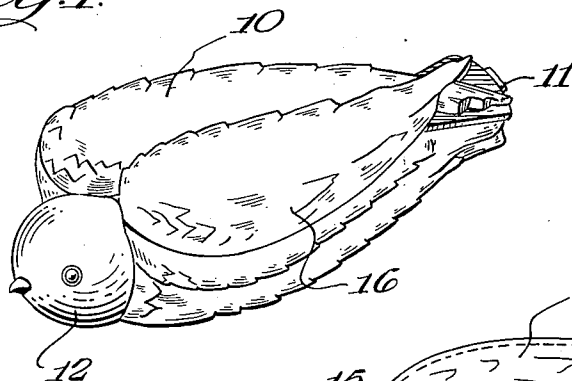


Fig. 2.

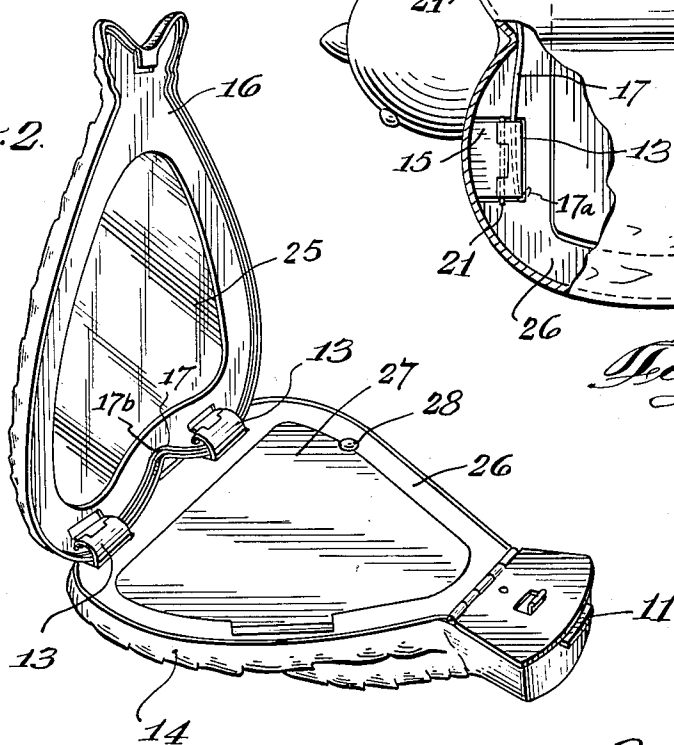
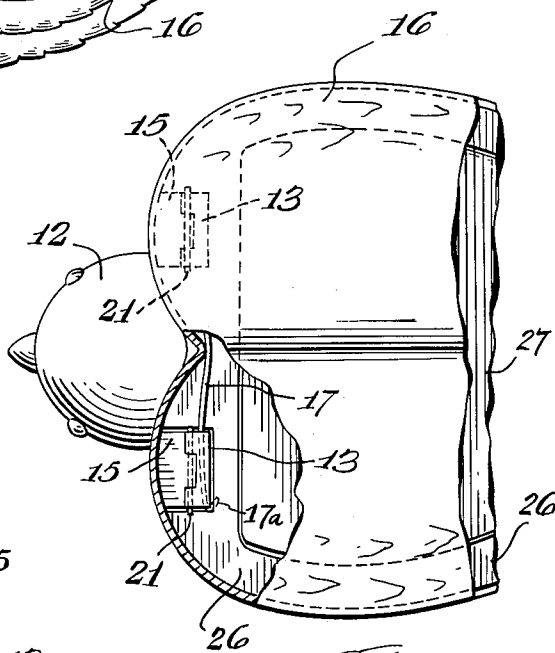


Fig. 3.



Inventor
Ellison S. Ireman
By
Schroeder, Merriam, Hoffman & Brady
Attorneys

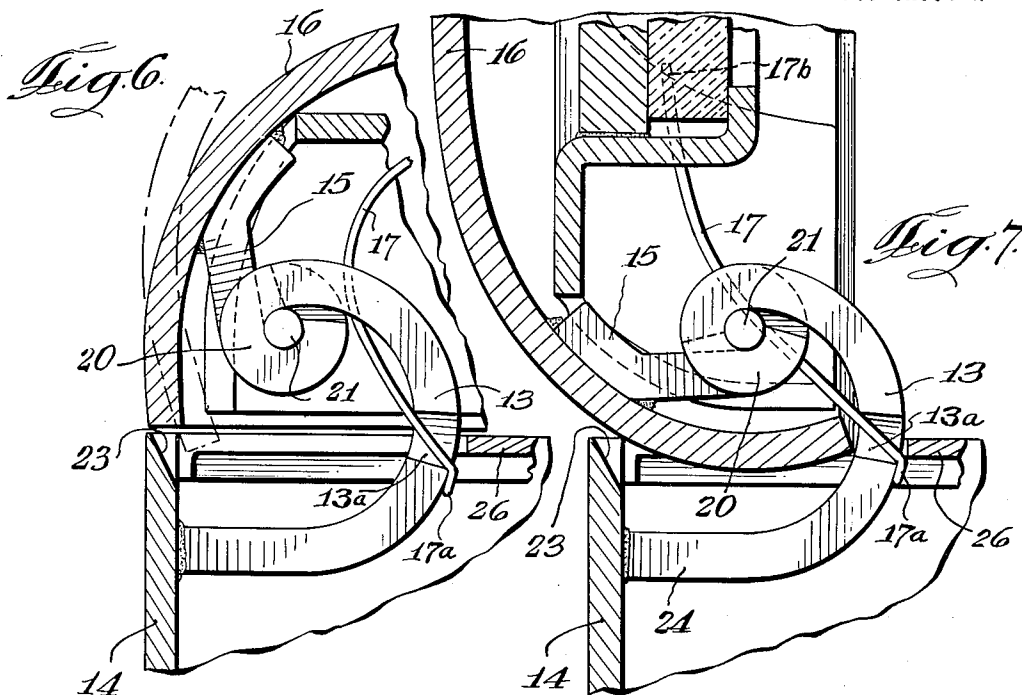
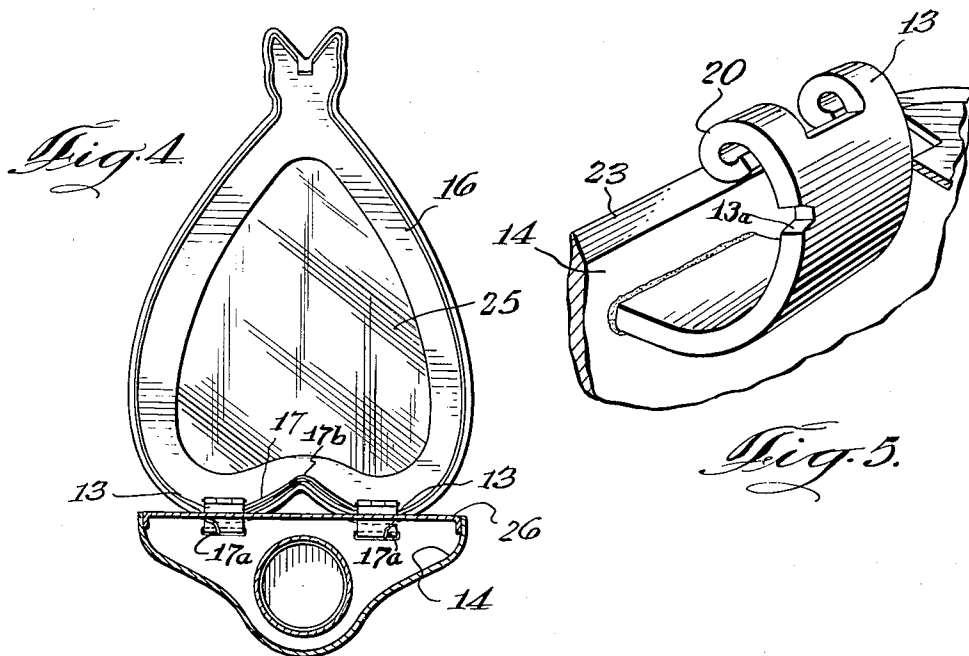
April 3, 1956

E. S. IRELAN
CONCEALED HINGE

2,740,550

Filed Oct. 9, 1951

2 Sheets-Sheet 2



Inventor
Ellison S. Ireland
By
Schrader, Merriam, Hoffgren & Brady
Attorneys

1

2,740,550

CONCEALED HINGE

Ellison S. Irelan, Elgin, Ill., assignor to Illinois Watch Case Co., a corporation of Illinois

Application October 9, 1951, Serial No. 250,427

2 Claims. (Cl. 220—35)

This invention relates to a case which is held together by hinges which are not visible from the outside of the container. More particularly, this invention relates to a small metallic case, such as a woman's compact, or a cigarette case, in which the hinges are invisible from the outside of the case.

It is an object of this invention to provide a case in which the hinges are entirely on the interior and are invisible from the outside of the case when it is closed; another object of the invention is to provide a case in which the hinges which are invisible from the outside of the case arrest the degree of opening of the case at a certain point; a further object of the invention is to provide a case in which one part pivots inward toward the other part during the opening of the case whereby an offset pintle hinge serves as a stop member.

Other objects of this invention will be apparent from the following specification and the drawing, in which:

Fig. 1 is a perspective view of a woman's cosmetics compact employing the novel hinge of this invention;

Fig. 2 is a perspective view of the compact of Fig. 1 in open position showing the hinges which are mounted entirely on the inside of the case;

Fig. 3 is a top plan view, partially in section, showing the hinges and also a spring which maintains the parts of the case in open position;

Fig. 4 is a view, partially in section, showing the hinges when the upper portion of the compact is in vertical position;

Fig. 5 is an enlarged broken perspective view showing the manner in which one portion of the hinge is fastened to the case;

Fig. 6 is an enlarged broken section showing the hinge in profile and illustrating the movement of one section of the case into the other during the opening thereof; and

Fig. 7 is an enlarged broken section showing the position of the two halves of the casing after it has been opened and the hinge is serving as a stop member for one of the parts of the case.

A normal hinge having circular plates has the pintle bearing portion extending beyond the lid, cover or door which it hinges. This type of hinge opens toward the side from which the pintle bearing surface extends. Thus, if a flat plate hinge is used in a locket, compact, cigarette case or similar container, the pintle bearing surface will always be visible from the outside. Obviously, if this surface were on the inside the thickness of the walls of the container would prevent the receptacle from being opened unless there was a sufficient gap between the two portions of the container to allow for clearance; and if such a gap were present, the container would not have a neat appearance. This invention enables the production of a small receptacle such as a locket or compact in which no hinge is visible from the outside when the article is closed while at the same time the two hinged members are in close contact with each other.

In Fig. 1 a stylized representation of a bird is illus-

2

trated. This bird serves as a woman's cosmetics compact. A wing section 10 is spring-biased to open up to reveal a cosmetics compartment when a thumb press is pressed. A head section 12 constitutes the handle of a lipstick compartment. The head 12, which may be withdrawn from the bird, has the barrel of a lipstick container attached to it. The hinges, which are invisible in Fig. 1, are shown in the sectional view of Fig. 3 and the other figures. The two hinge plates are not duplicates of each other. One of the hinge plates is a scroll 13 which may be brazed or soldered to a section 14 of the compact case. Another hinge plate 15 may be brazed or soldered to the other opening portion 16 of the compact. A spring 17 has end portions 17a which extend behind the curved portion of the scroll plate 13, between the plate and section 14 of the compact case, and which are formed with a hooked configuration to engage notches 13a cut in the outer edges of each of the scroll plates 13. The central section of the spring 17 is bowed upwardly to conform with the configuration of section 16 of the compact and portion 17b of the spring engages section 16 biasing the two sections of the compact apart to maintain them in open position.

As may best be seen in Fig. 5 the scroll plate 13 is rolled through an arc of approximately 180° and is rounded at the free end to form a pintle bearing surface 20. However, as long as the pintle is offset from the two surfaces hinged together the plate 13 need not be in scroll form. As shown in Figs. 6 and 7 the curved portion of the scroll plate 13 is displaced a short distance from the member 14 to which it is attached. The hinge plate 15 has its pintle bearing surface in mating engagement with the pintle bearing surface 20 of the scroll plate 13. The bearing surface of the plate 15 is offset a short distance from the member 16 to which it is connected as best shown in Figs. 6 and 7. A pin 21 passes through the pintle bearings thereby holding the two hinge plates in engagement with each other.

The member 16 may be displaced slightly from the member 14 which is bevelled as shown at 23. The action of the two members 14 and 16 during the time the compact is being opened is best illustrated in Figs. 6 and 7. In Fig. 6 the compact is closed and to an observer on the outside the hinges are invisible. When the catch 11 is tripped the spring 17 forces the compact to open. The motion of the part 16 with reference to the part 14 is shown in dotted lines in Fig. 6 immediately after the catch has been tripped. The bevelled portion 23 has enabled the section 16 to slip inside of the member 14 and the compact has started to open. In Fig. 7 the compact has opened fully and reference to the hinge plate 15 in Figs. 6 and 7 shows that it has rotated about 90° in opening. In Fig. 7 the edge of the section 16 has engaged the scroll plate 13 thereby preventing the compact from opening any farther. The reason for offsetting the hinge plates 15 and 13 is now apparent since the degree of opening of the compact is dependent upon the degree of offset of these members. If it were desired to have the compact open to less than 90° the length of the straight portion 24 of the scroll plate 13 could be decreased thereby enabling the edge of the section 16 to come into contact with the scroll plate 13 before the plate 15 had rotated through an angle as great as 90°. Obviously, the scroll plate 13 could be offset still more thereby enabling the compact to open to an angle of more than 90°. However, the hinges would soon occupy too much space if the opening angle were increased. Since 90° is as great an opening angle as would normally be desired, the relative sizes shown in Figs. 6 and 7 are believed to be optimum.

As shown in Fig. 6 the pintle bearing 20 is above the

plane of the surface of the platform 26 and at an angle with the platform surface of about 50°-60° with respect to the top of the beveled surface 23. This position of the pintle bearing 20 is satisfactory from the standpoint of clearance of the parts during opening of the case. If the angle is decreased too much the section 16 will impinge upon the section 14 before the case has opened sufficiently. If the angle is increased too much the section 16 engages the hinge plate 13 too soon after the case has been opened. The construction of the compact shown is otherwise readily understandable. The opening of the member 16 reveals a mirror 25, a platform 26 and a compartment cover 27 which is opened by release of a catch 28.

For further details of the construction and operation of the compact disclosed herein, reference may be made to my copending applications Serial Nos. 250,428 and 250,429, copending Vogelmann application 250,403 and copending Fritz application 250,415, all filed October 9, 1951, application Serial No. 250,428 having become Patent No. 2,688,814 dated September 14, 1954.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as disclosed in the appended claims.

I claim:

1. In a cosmetics case having a pair of dished mating closure members, a concealed hinge of the character described, comprising: a scroll plate secured to the interior of the wall of one of said members adjacent the edge thereof, said scroll plate having a flat portion extending inwardly from said wall, a curved portion extending upwardly through a substantial angle and beyond the edge of said member, and a pintle bearing surface formed at the free end of said curved portion, there being a notch in the edge of said scroll plate; a hinge plate secured to the interior of the wall of the other member, having a free end spaced inwardly from said wall and a pintle bearing surface formed at said free end; a pin passing through said pintle bearing surfaces whereby said scroll plate and hinge plate form a hinge for the opening and closing of said members; and a spring having one end engaged in said notch and a portion bearing against

said second mentioned member, biasing said members to open position.

2. In a cosmetics case having a pair of dished mating members adapted to close on each other to form a closed case, a concealed hinge and stop member of the character described, comprising: a pair of scroll plates secured to the interior of the wall of one of said members adjacent the edge thereof, each of said scroll plates having a flat portion extending inwardly from said wall in a direction normal thereto, a continuously curved portion extending upwardly through an angle of about 180° and beyond the edge of said member, and a pintle bearing surface formed at the free end of said curved portion, there being a notch cut in the outer edge of each of said scroll plates; and a pair of hinge plates secured to the interior of the wall of the other member, each having a free end spaced inwardly from said wall and a pintle bearing surface formed at said free end and adapted to cooperate with the pintle bearing surface formed at the end of each of said scroll plates; a pair of pins, one passing through each cooperating pair of pintle bearing surfaces whereby said scroll plates and hinge plates form a pair of hinges for the opening and closing of said members, the edge of said second mentioned member engaging said scroll plates when said members are opened substantially 90°; and an elongated spring having two end portions, the end portions extending behind the curved portions of said scroll plates, each end portion being formed to engage said notches and said spring having a central portion engaging said second mentioned member, biasing said members to open position.

References Cited in the file of this patent

UNITED STATES PATENTS

228,598	Buckley	June 8, 1880
293,416	Carter	Feb. 12, 1884
480,790	Tangney	Aug. 16, 1892
847,717	Althin	Mar. 19, 1907
880,892	Lebkuecher	Mar. 3, 1908
1,126,217	Hough	Jan. 26, 1915
1,505,029	Kellerman	Aug. 12, 1924
1,742,718	Moran	Jan. 7, 1930
2,114,644	Bennett	Apr. 19, 1938
2,129,862	Naert	Sept. 13, 1938
2,576,996	Castedello	Dec. 4, 1951