

Nov. 1, 1938.

M. KAPLAN ET AL

2,134,828

SPRING LOCK

Filed June 5, 1937

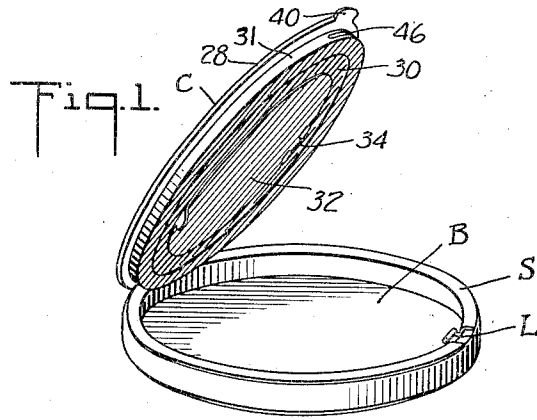
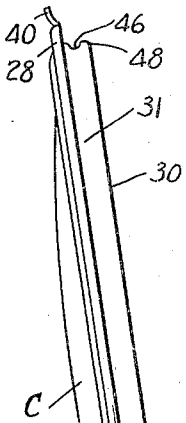


Fig. 2.

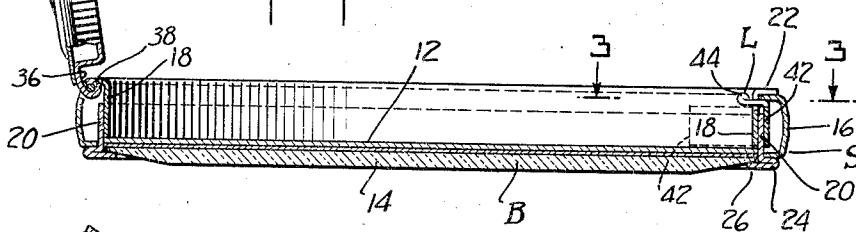


Fig. 3.

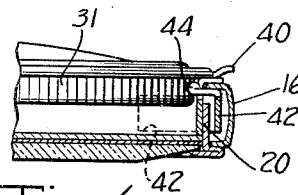
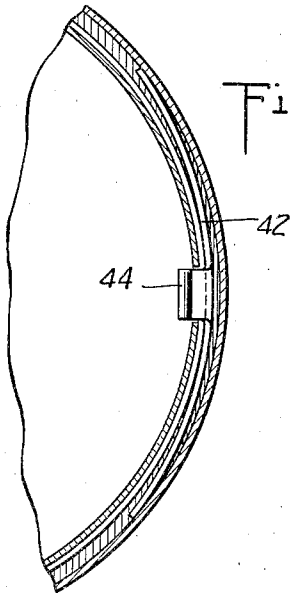


Fig. 4.

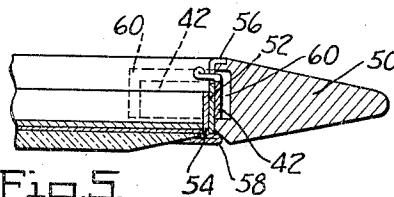


Fig. 5.

INVENTORS
MAX KAPLAN
and GEORGE ROSENBERG
BY

James H. Franklin
ATTORNEYS

UNITED STATES PATENT OFFICE

2,134,828

SPRING LOCK

Max Kaplan, New York, and George Rosenberg,
New Rochelle, N. Y.

Application June 5, 1937, Serial No. 146,622

8 Claims. (Cl. 220—55)

This invention relates to spring locks, and more particularly to such a lock intended for use in vanity cases, cigarette cases, or other boxes or containers of this general class.

The provision of a satisfactory lock for holding the cover of a pocket case closed has long been a difficult problem. One of the simplest arrangements for this purpose may be termed a solid wall detent lock, it comprising simply a dot or teat on the solid inner wall of the body mating with a hole or recess on the cover, or vice versa. Theoretically, these mating parts are supposed to come into snap engagement with one another, but in practice numerous faults and disadvantages arise. The lock quickly wears out and loosens, for the mating parts abrade one another and also tend to bend or move out of the way of one another. The position of the hinge is apt to change slightly, and in such case the lock may not lock at all, or the cover may not close at all, depending on the direction in which the hinge has moved. Each case must be adjusted manually by hand after completion, either by moving the hinge or by moving one of the two solid walls carrying the mating detent parts in order to get the lock to function properly. The lock is easily spoiled in the course of use because the wall of the case or the hinge thereof, etc., may be bent if the case is accidentally dropped or if the cover is manipulated frequently or carelessly. The locking action is critical, for the mating parts inter-engage by only a few thousandths of an inch, and there is accordingly no reasonable manufacturing tolerance.

There has also been developed a very much more complicated lock which may for convenience be termed a "push lock". In the push lock there is a leaf spring carrying a hook which extends inwardly within the case and a push member or finger piece which projects outwardly through the side or edge wall of the case. The hook on the inside normally moves toward the outside and into a small slot or recess depending from the cover. This push-lock arrangement also has a number of important disadvantages. It cannot be used with a case having a thick or tapered non-metallic ring on the outside made of a molded or composition material such as Catalin. Vanity cases using such a composition ring which is broad in a radial direction, have proved popular on the market because of their attractive appearance, but it is not commercially feasible or desirable to cut a long, narrow slot through the edge of the ring for the finger piece of the push lock. Moreover, such a slot and finger piece would mar the beauty of the case.

Even when dealing with a case having a metal ring, there is the disadvantage of having to pierce holes through the outside ring as well as the inside or lining ring, and these holes must be properly matched up or relatively located if the lock is to function properly. The push lock is also deficient in manufacturing tolerance, for the catch is on the inner end of the hook and the cover must be provided with a flange which comes down between the hook and the outside of the case. The tolerance is close, and each case must be adjusted after completion in order to obtain a satisfactory locking operation. We refer so far to the horizontal or radial movement of the hook, but in addition, difficulty arises with the transverse or up-and-down movement, for here again there is a lack of tolerance. If the relation of the parts is even slightly wrong, the lock will not function at all, because the lip of the hook will not enter the recess intended to receive the same. If the cover is pulled open mistakenly without first pushing in the finger piece, the hook will be bent or its position changed, and in either case the lock is spoiled and will not function properly. In general, the necessity for using a hook weakens the structure compared to one using a simple rounded detent. If it is sought to use an inwardly movable detent instead of an outwardly movable hook, it then is necessary to employ a rather complex reversing mechanism between the finger piece and the push member and the detent, for the push member is moved inwardly. In some constructions the spring of the push lock may be weakened or spoiled by being pushed inwardly excessively.

Another type of lock employs a hinge member on the outside of the case, this member being hinged to the cover and being movable over a pin projecting from the side wall of the case. Such an arrangement is unsightly and in operation is usually too tight or too loose. If the pin is bent, the lock is spoiled, and in some cases the pin may fall out altogether. Any difference in the thickness of the cover changes the tension of the lock so that in the course of manufacture one lock may not close at all and another may be too loose, all because of differences in the cover rather than in the lock.

The object of the present invention is to overcome the foregoing difficulties and to provide an improved and simplified form of spring lock or snap lock which will afford a very generous manufacturing tolerance, and which will ensure secure locking of the cover despite long-continued frequent use and despite minor accidents such as accidental dropping of the case.

To the accomplishment of the foregoing and other more detailed objects which will hereinafter appear, our invention consists in the spring lock elements and their relation one to the other and to the case using the same, as are hereinafter more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by a drawing in which:

Fig. 1 is a perspective view of a vanity case embodying features of our invention;

Fig. 2 is a section taken in elevation through the same;

Fig. 3 is a horizontal section taken in the plane of the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary section similar to Fig. 2, but showing the cover in closed position; and

Fig. 5 is a section through a modification in which the outer or peripheral decorative member is made of non-metallic plastic or composition.

Referring to the drawing, the spring lock is shown applied to a circular vanity case, but it will be understood that the lock may also be applied to other boxes or cases which may be rectangular rather than circular and which may be used for other purposes, for example to carry cigarettes. The vanity case comprises a bottom B having a side wall S and a cover C hinged thereon. The spring lock is indicated at L, and comprises a detent normally moved inwardly by resilient means, said detent cooperating with a mating recess or undercut on cover C. The resilient or spring action of the lock ensures secure closing of the cover and at the same time permits the detent to yield when the cover is opened. Because of the yieldable mounting of the detent, it is not worn or loosened even after long continuous use of the case.

Considering the arrangement in greater detail, the bottom B may be of any desired construction, and in the present case comprises a metal disc 12 and a glass mirror 14. The side wall S comprises an outer or peripheral member 16 which is preferably ornamental or decorative in nature, and an inner or lining member 18. In the particular structure shown, the inside of the case is made of telescopically related parts 18 and 20, the part 18 being outwardly flanged at 22 and the part 20 being outwardly flanged at 24 and then reversely bent to form an inwardly directed flange 26. The flange 26 functions to hold the parts of the bottom in assembled relation when the annular members 18 and 20 are telescoped together. At the same time the outwardly directed flanges 22 and 24 receive the peripheral decorative member 16 therebetween.

The cover C may be conventional in construction and requires no detailed description. It comprises an outwardly flanged cover portion 28 the edge of which is folded inwardly, and an inner member 30 having a cylindrical wall 31 the upper edge of which is turned outwardly and received within the inwardly folded edge of cover 28. The cover is substantial in thickness because it includes a rouge compartment disposed between the upper and lower members 28 and 30. Access to the rouge compartment is obtained by opening a suitable closure 32 hinged to the lower member 30 at 34.

A projection 36 on the part 30 of the cover is suitably shaped and dimensioned to form a hinge member 38 best shown in Fig. 2, while a projection 40 also formed integrally with the part 30 of the cover is bent to act as a finger piece or tab to facilitate opening of the cover. The other

half of the hinge is formed by appropriately bending some lugs or ears formed integrally with the lining member 18. A suitable hinge pin is driven in place, thus mounting the cover on the body of the case.

The lock L comprises a rather long and normally straight piece of spring metal 42. This spring is disposed in the space between the outer and lining walls 16 and 18 of the side wall of the case. The spring is flexed as shown in Fig. 3, and its center portion is bent against the inner wall of the case. Projecting inwardly from and preferably formed integrally with spring 42, is a detent 44, the working portion of which is preferably well rounded and of substantial area. It may be formed by curling the inner edge of the detent lug. The cover is undercut or provided with a recess 46, said recess being dimensioned to mate with the detent 44. The recess is preferably formed by indenting the wall 31 of the cover at the location of the detent, which, of course, is preferably diametrically opposite the hinge and beneath the tab 40. When the cover is closed, the preferably rounded edge 48 thereof simply bears against the rounded surface of detent 44 and forces the same outwardly, there being ample room for yielding of the spring 42. When the cover has been completely closed, the detent springs inwardly into locking engagement with the undercut or recess 46, and the cover is held securely closed. To open the cover, the tab 40 is urged upwardly until the detent spring yields and the lock opens.

A modified form of vanity case is shown in Fig. 5. The construction of this case is almost exactly like that previously described, except that the metallic decorative ring 16 is replaced by a solid non-metallic ring 50 made of a suitable composition or plastic, for example catalin. The ring 50 is made very broad in a radial direction, thus imparting a striking and attractive appearance to the vanity case. The telescopically related lining members 52 and 54 receive the inner edge of ring 50 directly between the upper and lower flanges 56 and 58. It is not necessary to provide a space extending entirely around the case between the inner and outer walls, and in the present construction a recess 60 is cut into the inner edge of ring 50 at the forward part of the case, that is, for a distance adequate to receive the leaf spring 42 of the lock. The relation of the parts and the clearance provided for outward movement of spring 42 will be evident from inspection of Fig. 5 of the drawing.

It is believed that the construction and operation as well as the many advantages of our improved spring lock will be apparent from the foregoing detailed description thereof. The lock may be used with any kind of box, whether round or square, and whether provided with a broad plastic outside edge or merely a thin metal ring. There is a generous manufacturing tolerance because of the large range of spring movement of the detent in a horizontal direction, that is, radially, and no adjustment of the lock is needed after the case has been constructed. There is also a large manufacturing tolerance with respect to vertical or closing movement of the case because of the substantial area and well-rounded configuration of the surfaces that snap together. Consequently, the cover is kept closed despite minor variations in manufacture. It is practically impossible to spoil the lock, for the spring is a loose spring which is not harnessed at the ends, and which is confined between two walls which prevent the spring

from being bent excessively. The construction is inexpensive, for there is no need to pierce the walls for a push member, and the only departure from the simplicity of a case having no lock at all is the notching of the lining member to receive the detent. The operation of the lock is simple, for there is no need to locate and press a tiny projecting finger piece. The lock functions satisfactorily despite accident or abuse, for the spring action is adequate to hold the cover closed even after such deformation as may be caused by accidentally dropping the case.

It will be apparent that while we have shown and described our invention in preferred forms, many changes and modifications may be made in the structures disclosed, without departing from the spirit of the invention defined in the following claims.

We claim:

1. A small pocket case such as a vanity case, cigarette case or the like, comprising a body member having bottom and side walls, the side wall including an outer finishing member and an inner or lining member, a cover hingedly connected to the side wall, and lock means for holding the cover in closed position, said lock means including a leaf spring disposed in the casing wall in a space formed between the outer finishing member and the inner lining member of said wall, and a detent member connected with said leaf spring member and projecting inwardly through the inner or lining member into mating cooperation with a recess or undercut on the cover, said detent and undercut being so relatively shaped that the cover may be pulled open or snapped closed, the necessary movement of the detent being accommodated by the leaf spring.

2. A small pocket case such as a vanity case, cigarette case or the like, comprising a body member having bottom and side walls, the side wall including an outer finishing member and an inner or lining member, a cover hingedly connected to the side wall, a finger tab or means to facilitate opening the cover, and lock means for holding the cover in closed position, said lock means including a leaf spring disposed in the casing wall in a space formed between the outer finishing member and the inner lining member of said wall at a point opposite the hinge of the cover, and a detent member formed integrally with said leaf spring member and projecting inwardly through the inner or lining member into mating cooperation with a recess or undercut on the cover, said detent and undercut being so relatively shaped that the cover may be pulled open or snapped closed, the necessary movement of the detent being accommodated by the leaf spring.

3. A small pocket case comprising a body member having bottom and side walls, the side wall including an outer finishing member made of molded or composition material, and a metallic inner or lining member, a cover hingedly connected to the side wall, a finger tab or means to facilitate opening the cover, and lock means for holding the cover in closed position, said lock means including a leaf spring disposed in the casing wall in a space formed between the outer finishing member and the inner lining member of said wall, and a detent member connected with said leaf spring member and projecting inwardly through the inner or lining member into mating cooperation with a recess or undercut on the cover, said detent and undercut being so relatively shaped that the cover may be pulled open or snapped closed, the necessary movement of

the detent being accommodated by the leaf spring.

4. A small pocket case such as a vanity case, comprising a body member having a circular bottom and side wall, the side wall including an outer finishing ring and an inner or lining member, a cover hingedly connected to the side wall, and lock means for holding the cover in closed position, said lock means including a leaf spring disposed in the casing wall in a space formed between the outer finishing ring and the inner lining member of said wall, and a detent member connected with the leaf spring and projecting inwardly through the inner or lining member into mating cooperation with a recess or undercut on the cover, said detent and undercut being so relatively shaped that the cover may be pulled open or snapped closed, the necessary movement of the detent being accommodated by the leaf spring.

5. A small pocket case such as a vanity case, comprising a body member having a circular bottom and side wall, the side wall including an outer finishing ring made of molded or composition material and having a substantial dimension in a radial direction, and a metallic inner or lining member, a cover hingedly connected to the side wall, a finger tab or means to facilitate opening the cover, and lock means for holding the cover in closed position, said lock means including a normally straight leaf spring disposed in the casing wall in a space formed between the outer finishing member and the inner lining member of said wall at a point opposite the hinge of the cover, and a detent member formed integrally with the leaf spring and projecting inwardly through the inner or lining member into mating cooperation with a recess or undercut on the cover, said detent and undercut being so relatively shaped that the cover may be pulled open or snapped closed, the necessary movement of the detent being accommodated by the leaf spring, said detent holding the cover securely in closed condition by reason of the tendency of the leaf spring to straighten within the arcuate wall of the case.

6. A small pocket case such as a vanity case, cigarette case or the like, comprising a body member having bottom and side walls, the side wall including an outer finishing member and an inner or lining member, an outside cover or top for the case hingedly connected to the side wall of the case, and lock means for holding the cover in closed position, said lock means including a recess in the peripheral edge of the cover, a leaf spring disposed in the casing wall in the space formed between the outer finishing member and the inner lining member of said wall, a detent member secured to the leaf spring member and projecting inwardly through the inner or lining member, the metal of said detent being turned reversely and extending outwardly at the inner end thereof in order to give the same a thickened rounded surface, said leaf spring member having a height approximating the vertical dimension of the space between the inner and outer side walls, movement of the detent member being accommodated by the leaf spring.

7. A small pocket case such as a vanity case, cigarette case or the like, comprising a body member having bottom and side walls, the side wall including an outer finishing member and an inner or lining member, an outside cover or top for the case hingedly connected to the side wall of the case, and lock means opposite the hinge for holding the cover in closed position, said lock

means including a recess in the peripheral edge of the cover, a leaf spring disposed in the casing wall in the space formed between the outer finishing member and the inner lining member of said wall, a detent member formed integrally with the leaf spring member and projecting inwardly substantially at right angles to the spring through a slot in the inner or lining member, the metal of said detent being turned reversely and extending outwardly at the inner end thereof in order to give the same a thickened rounded surface, said leaf spring member having a height substantially equal to the vertical dimension of the space between the inner and outer side walls, movement of the detent member being accommodated by the spring.

8. A small pocket case such as a vanity case, cigarette case or the like, comprising a body mem-

ber having bottom and side walls, the side wall including an outer finishing member and an inner or lining member, an outside cover or top hingedly connected to the side wall, and lock means for holding the cover in closed position, said lock means including a recess in the peripheral edge of the cover, a leaf spring disposed in the casing wall in a space formed between the outer finishing member and the inner lining member of said wall, and a detent member connected with said leaf spring member and projecting inwardly through a slot in the inner or lining member into mating cooperation with the recess on the cover, the movement of the detent being accommodated by the leaf spring.

MAX KAPLAN.
GEORGE ROSENBERG.