My invention relates to a concealed box lock, and more specifically to a concealed combination lock and latch. For this purpose I provide a lock which affords excellent locking characteristics and at the same time permits complete concealment of the locking mechanism.

Still another object is the provision of such a lock which, while enjoying all the advantages above, may be incorporated in a box structure at very reasonable cost.

Although I have illustrated my invention in conjunction with a jewelry box (and I anticipate that it will be in such usage that my lock will find its most frequent use), there are many other possible fields of application, such as drawers, china cabinets, desks and concealed receptacles in cabinetry and woodwork around the house or office.

Other objects and advantages of my invention will be apparent from the following description and drawings, of which:

Fig. 1 is a top view of a box embodying my invention;
Fig. 2 is a front view thereof;
Fig. 3 is an enlarged section through the box which may be considered as being taken substantially along the line 3—3 of Fig. 2, looking in the direction of the arrows;
Fig. 4 is an enlarged section through the lock which may be considered as being taken along the line 4—4 of Fig. 2 looking in the direction of the arrows;
Fig. 5 is a view similar to Fig. 4 showing, however, the parts in unlocked position; and
Fig. 6 is a view similar to Fig. 2 showing the box in unlocked position.

The box 10 with which my invention is associated consists of the usual bottom 12 having a floor 14, back 16, sides 18 and 20 and front panel 22. A skirted lid 24 is hingedly secured by hinges 26 to the back 16 of the bottom 12 and includes a back skirt 28, a top 30, side skirts 32 and 34 and a front skirt 36. The skirt of the top meets squarely the sides of the bottom.

In the front surface 38 of the front panel 22 of the bottom of the box, a transverse dovetail groove 40 is cut which extends from one edge of the front panel to a point well past the center of the front panel, but stopping short of the other end thereof as at 42. A second panel 44 has a dovetail 46 glued thereto to ride slidably in the dovetail groove 40. The panel 44, hereinafter referred to as the face, is proportioned to cover entirely the front panel 22 of the box bottom and extends thereabove to the top 30 of the box lid. Laterally it extends from the left-hand side panel 20 to overlap the right-hand side panel 18. The left-hand side panel 20 extends outwardly beyond the front panel 22 a distance equal to the thickness of the face 44 in order to provide a continuous surface for the left front corner and a stop for the face 44. Similarly, the left side skirt 34 extends outward beyond the front skirt 36 an equal distance to be continuous with the left side panel 20. The right side panel and skirt 18 and 32 terminate at the front panel 22 and skirt 36.

The dovetail 46 terminates at its right-hand end 48 (Fig. 2) a distance short of the end of the dovetail groove 42 when the face abuts against the outstanding end of the left side panel 20 and skirt 34 and is flush with the right side panel 18 and skirt 32. It will be appreciated that the virtue of this structure, the face 44 is capable of being slid to the right from its center locking position illustrated in Fig. 2 a distance equal to the space between the end 48 of the dovetail 46 and the end 42 of groove 40 to the position illustrated in Fig. 6 or under the locked position. The panel, however, is prohibited from being moved to the left by virtue of the forward ends of the left side panel and skirt 20 and 34 overlapping the left end of the face 44.

The front skirt 36 has a forwardly extending peg 50 secured approximately centrally therein and downward of the top 30.

In the central portion of that part of the face which overlaps the front skirt 36 of the lid, a pair of cross slots are cut which accomplishes, with the peg 50, the locking of the box. A horizontal slot 52 is formed on the back side of face 44 on the center line thereof. A vertical slot 54 is also formed to intersect slot 52 at a point displaced from the center of slot 52. The vertical slot opens onto the top edge 56 of panel 44 as at 58 (Fig. 5). The displacement of the vertical slot 54 is such that it is in alignment with peg 50 when the face 44 is moved to the right as illustrated in Fig. 6.

The operation of my lock will be readily apparent from the foregoing description. Assuming the box to be locked as shown in Fig. 2, all that is necessary to unlock it is to slide the face 44 to the right to the position illustrated in Fig. 6. At this point the vertical slot 54, open on the top edge of face 44, is in alignment with the peg 50, and the peg may be withdrawn from the cross slots through the vertical slot to open the box. In closing, the peg drops to the intersection of the cross slots 52 and 54 and the face 44 is returned to its locking position of Fig. 2 where the peg is no longer in alignment with the vertical slot 54, and the shoulder 60 resulting from the formation of the horizontal slot 52 prevents the opening of the lid.

It is in the manufacture and assembly of the box where one of the principal advantages of my lock may be best appreciated. The fabrication of the commonplace box members is too well known to be described here. Regarding the modifications, it will be appreciated that the dovetail groove 40 represents an exceedingly easy manufacturing problem and may be formed all the way across the front panel 22 and subsequently blocked off at the right-hand end. The insertion of the peg 50 in the front skirt 36 is likewise very simple. The cross grooves 52 and 54 may both be formed with the same small diameter dado cutter by placing the front panel in an appropriate stops and simply dropping the panel onto the cutter, first in one direction and then in the other. The same cutter may be used for making both of the cross cuts. The attachment of the dovetail 46 to the front face likewise represents no manufacturing problem. The assembly of the box, as was stated before, is entirely conventional with the exception that the face 44 must be secured to the
front panel 22 before the left panel 20 is attached to the bottom of the box.

It will be appreciated that the locked box as illustrated in Fig. 2 presents an entirely conventional picture, with a totally blank exterior. No keyholes are evident, no open joints appear, all corners may be smoothly rounded, and it is not necessary that any gaps be evident between the face 44 either at the left or right and the parts relative to which it moves.

It is desirable that the dovetail 46 be long, as illustrated, to minimize any tendency of the front face 44 to warp and pull away from the panel ends which it touches.

It will be appreciated from the foregoing description that the use of this latch need not be limited to jewelry boxes, although I contemplate a major use in such application. In the case of a jewelry box, this latch will probably do little to prevent theft since jewelry boxes themselves are easily taken, but it should serve the purpose of keeping young children out of the box and prevent possible pilfering by domestic help. The application of the latch to other, larger scale use will be evident. In such use, a knob possibly could be fixed to the face 44 to facilitate sliding it. More than one of the locking elements comprising the peg 50 and cross slots 52 and 54 may be employed where the edge to be locked is long. The lock is adapted to be turned through any angle to accommodate a door or lid opening in any direction.

It is thus apparent that the lock embodying my invention is susceptible of variations in structure and use, and I, therefore, wish that my invention be regarded as being limited only as set forth in the following claim.

1 claim:

A box having four sides including a front and a rear side, a skirted cover for said box hinged to the rear side, the skirt of said cover meeting the sides of said box in aligning abutting relation, a front panel secured to the front side of said box for lateral movement, said panel extending above said front side to overlap the front portion of said cover skirt, the panel portion above the front side of said box having a vertical slot in its rear surface open to the top edge thereof and a horizontal slot intersecting said vertical slot, a pin secured in said front skirt portion above the lower edge thereof to extend forwardly from said skirt, said pin being positioned to be contained in said horizontal slot when said box is closed, said front panel being movable to place said vertical slot into and out of alignment with said pin.

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