United States Patent

[11] 3,590,614

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[54] **KEYLESS LOCK BOX**
10 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **70/298,** 70/63, 70/323, 70/443
[51] **Int. Cl.** **E05b 37/16,** E05b 65/52, E05b 15/14
[50] **Field of Search** 70/63, 293, 298, 410, 422, 297, 287, 323, 288

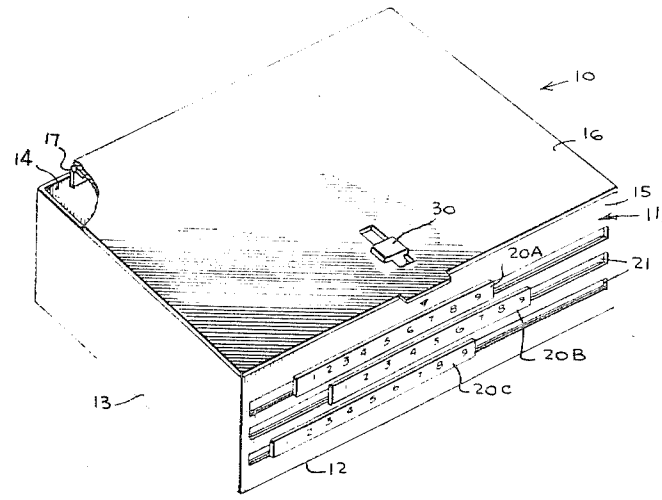
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Assistant Examiner—Edward J. McCarthy
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ABSTRACT: A combination lock box having vertically spaced slideways in the front wall thereof slidably supporting three elongated slide members having a front face bearing numbers and a horizontal row of rearwardly extending breakable right angular tumbler elements integral with the body and aligned behind the numbers, designed for the purchaser to break off one of the tumbler elements of each slide member aligned behind a chosen number of the combination. A latch member supported on the lid of the lock box has three vertically spaced keeper projections which coact with the tumbler elements to retain the lock box in locked condition except when the slides are positioned to dispose the combination numbers in selected vertical alignment.



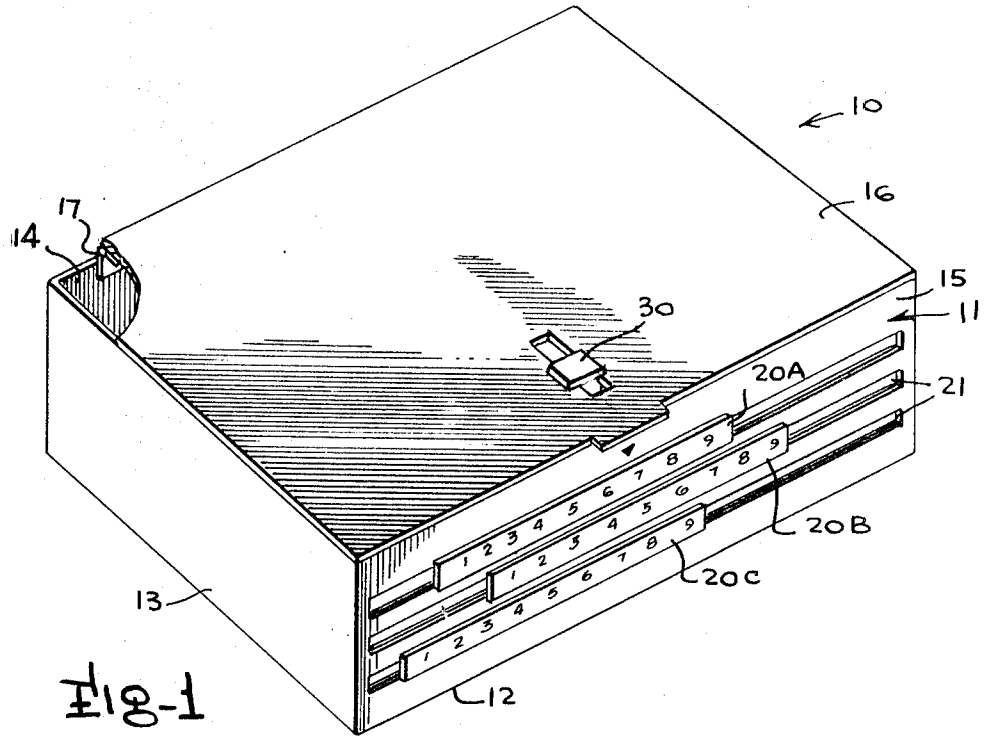


Fig-1

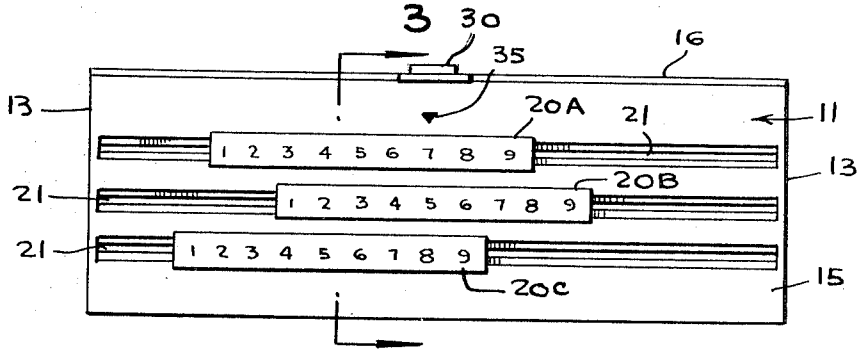


Fig-2

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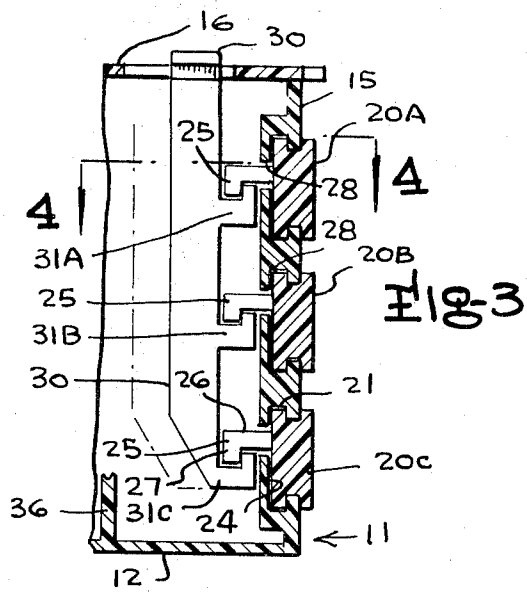


Fig-3

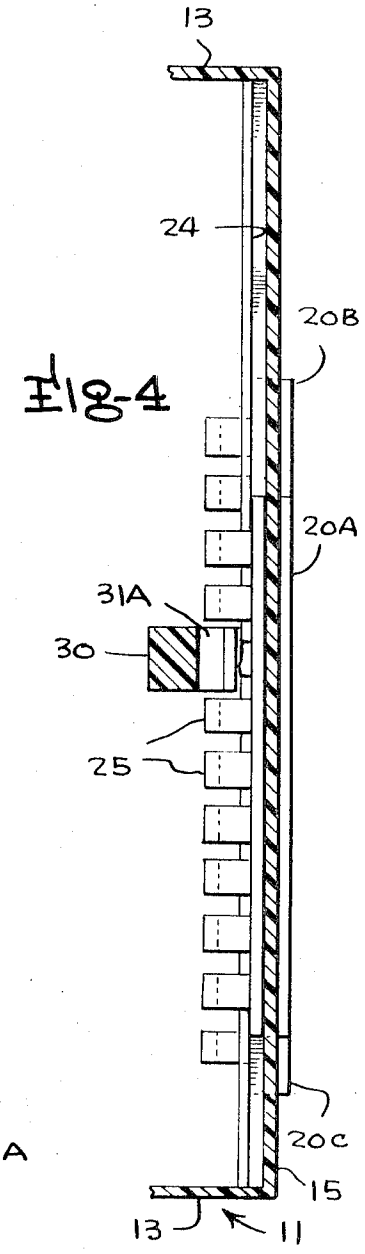


Fig-4

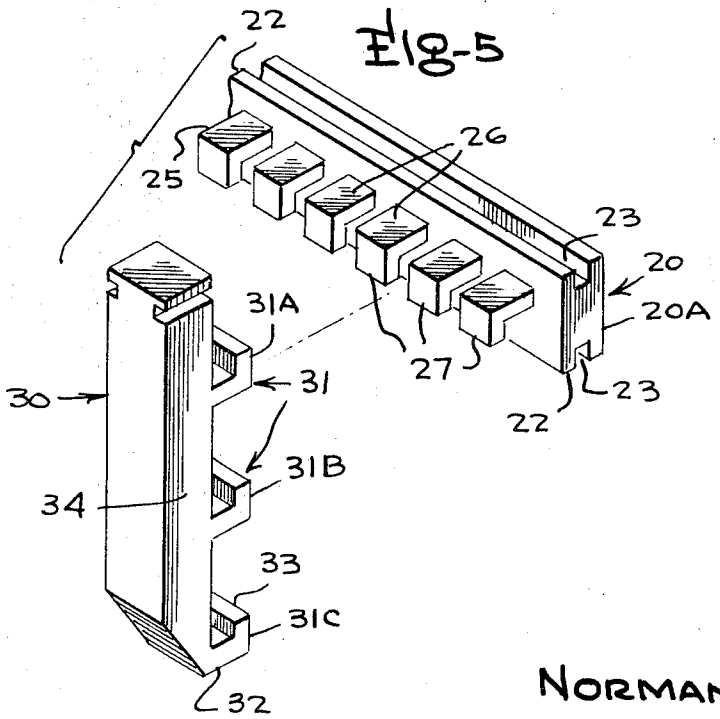


Fig-5

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Fig-6

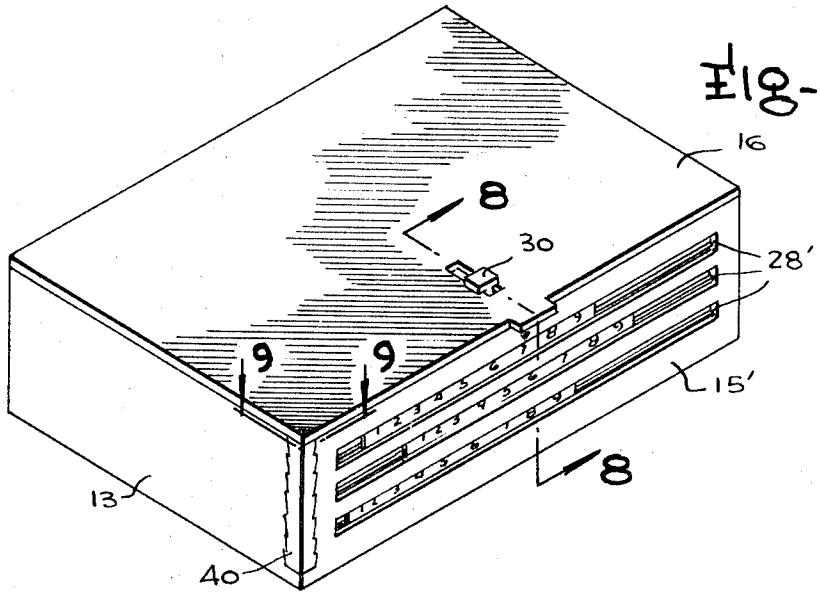


Fig-8

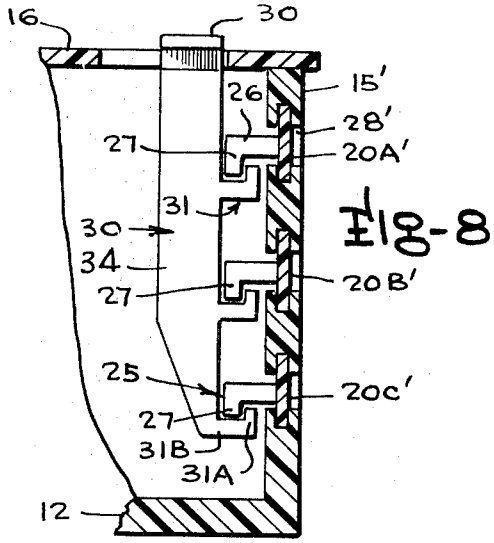


Fig-9

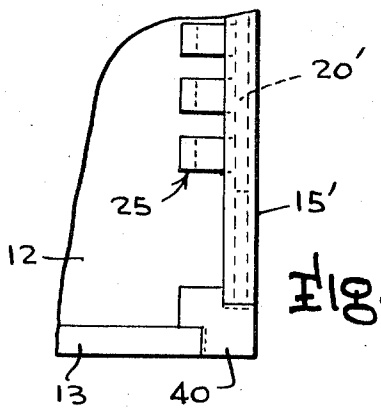
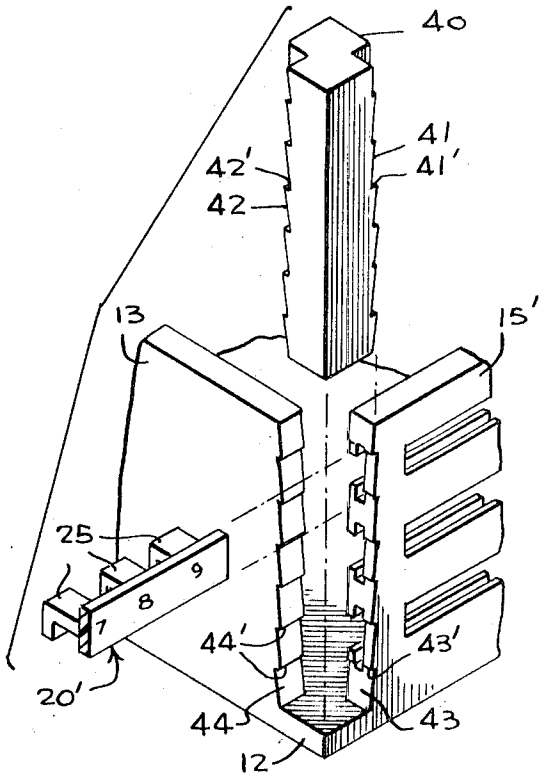


Fig-7



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KEYLESS LOCK BOX

BACKGROUND AND OBJECTS OF THE INVENTION

The present invention relates in general to lockboxes or security containers which may be locked in closed condition by a combination lock mechanism, and more particularly to boxes of relatively inexpensive construction which have incorporated therein a combination-type locking mechanism wherein the combination can be selected by the purchaser or user.

Heretofore, a number of different types of lockboxes for valuables or other items which the owner desires to protect against unauthorized use have been developed. Usually, these lockboxes have taken the form of boxes having a key lock-controlled lid, or boxes having various types of combination lock mechanisms involving rotatable dial wheels. The lock mechanisms customarily provided for such boxes, whether of the key lock or the combination lock type, have rendered the lockboxes relatively expensive because of the cost of production of the lock mechanism.

An object of the present invention is the provision of a lockbox controlled by a combination lock mechanism, which can be easily and inexpensively made, for example, of plastic, wood, metal or other similar materials, and which provides an inexpensive and reliable combination mechanism.

Another object of the present invention is the provision of a lockbox of relatively inexpensive construction, having incorporated therein manually setable slide members having visible numbers on the front thereof, and having breakable tumbler or interlock members which may be broken off by the user behind selected numbers to establish the combination of the lock.

Another object of the present invention is the provision of a novel lockbox construction as described in the immediately preceding paragraph, wherein the slide members and breakable tumbler or interlock members are formed of integral plastic construction so that the tumbler member associated with the combination number desired for that particular slide member can be manually snapped off by the user providing a gating space which in association with the gating spaces for the other slide members establish an open path relative to a latch member on the box lid to permit the latter to be opened.

Other objects, advantages and capabilities of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawings illustrating a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a perspective view of a lockbox embodying the present invention;

FIG. 2 is a front elevation view of the lockbox with the combination slide members set for the proper combination;

FIG. 3 is a vertical section view taken along the line 3–3 of FIG. 2;

FIG. 4 is a horizontal section view taken along the line 4–4 of FIG. 3;

FIG. 5 is a fragmentary perspective view of the combination slide member and the latch member for the lid, viewed from the rear side thereof;

FIG. 6 is a perspective view of another embodiment of a lockbox construction in accordance with the present invention;

FIG. 7 is a fragmentary exploded perspective view showing the manner in which the slide members may be inserted and the corner block assembled by the purchaser;

FIG. 8 is a fragmentary vertical section view taken along the line 8–8 of FIG. 6; and

FIG. 9 is a fragmentary top view of the lockbox with the hinged lid removed or raised to fully open position.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to the drawings, wherein like reference characters designate corresponding parts throughout the several figures, there is illustrated a lockbox 10 having a lower or tray section 11 formed of a bottom wall 12, sidewalls 13, a rear wall 14, and a front wall 15, and a lid section 16 which is hinged to the upper edge of the rear wall, in the illustrated embodiment, by hinge mechanism 17.

The combination locking mechanism for the lockbox, comprises horizontally elongated manually moveable, combination slide members 20, three such slide members 20A, 20B and 20C being provided in the illustrated embodiment, which are independably adjustable longitudinally in horizontal slideways, grooves, or channels 21 in the front wall 15 of the lower or tray section 11. These combination slide members 20 are conveniently molded from plastic material each having a flat front face with numbers thereon, such as the digits 1 to 9, and have oppositely projecting portions, such as flange or rib formations 22, rearwardly bounding relatively constricted or narrower groove portions 23, to slidably interfit in similarly cross section channel portions 24 of slideways 21 to retain the slide members 20 in the slideways 21. Right angle or L-shaped breakable tumbler elements 25 formed integrally on the slide members 20 extend rearwardly in alignment with each respective number on the front of the slide member, and include a horizontal leg portion 26 and a vertically depending foot portion 27. Slots 28 of appropriate width and length are provided in the base wall portion of the channels or portions 24 of slideways 21 to accommodate the leg portions 26 of the tumbler elements 25 over the full sliding range desired for the slide members in the slideways 21, the rearmost portions of the leg portions 26 and the foot portions 27 depending therefrom being located rearwardly of the base wall portions of the slideways, as shown in FIG. 3.

Coactive with these rearwardly projecting leg and foot portions of the tumbler elements 25 to normally restrain the box in locked condition is a latch member 30 in the form of a depending block supported on the lid section 16 rearwardly adjacent the tumbler elements 25. The latch member 30 has a number of right angle or L-shaped keeper elements 31 corresponding to the number horizontal sets of tumbler elements, three keeper elements 31A, 31B and 31C being provided in the illustrated embodiment. The keeper elements 31 each include a forwardly extending shank 32 and a vertically upwardly projecting shoulder formation 33 spaced forwardly from the body 34 of the latch member a distance slightly greater than the thickness of the foot portions 27 of tumbler elements 25 to forwardly lap the latter.

The combination of the lockbox is established by the user or purchaser by breaking off one tumbler element 25 of each slide member 20A, 20B and 20C immediately behind or selectively aligned with that number on the face of the associated slide member chosen as the combination number for that slide member. For example, in the embodiment illustrated in FIG. 2, the tumbler element 25 behind the number 7 on slide member 20A is broken off, and the tumbler elements behind the numbers 5 and 8 of slide members 20B and 20C respectively, are broken off, to establish the combination. It will be apparent that when the three slide members 20A, 20B and 20C are manually adjusted along their slideways 21 to align the members 7, 5 and 8 respectively with the fixed index mark 35 on the front wall 15, the spaces vacated by the broken off tumbler elements will be aligned with the keeper elements 31 of latch member 30 and provide a vertical open gating space or way for the latch member permitting the lid to be opened. At any other position of the slide members 20, the leg and foot portions of at least one of the tumbler elements 25 will be interfitted in intercepting relation with one of the keeper elements 31 and prevent opening of the lockbox.

The latch member 30 is preferably slidably supported in a slot in the lid 16 for manual movement by the finger of the user between a forward latched position wherein the shoulder formations 33 are disposed in alignment with the spaces between feet 27 and the base walls of the slideways 21 as shown in solid lines in FIG. 3, and a rearward release position indicated at broken lines in FIG. 3 where the keeper elements 31 are spaced rearwardly of the slides 20 far enough for the lower element 31 to clear the front wall as it traverses the upward arcuate path through which it swings upon opening of the lid 16. In this arrangement, the latch member 30 and intercoupled finger piece cannot be moved to the release position until the slide members 20 are adjusted in accordance with the proper combination, and in this position the lid can only be lifted after rearward movement of the latch to release position so that it will clear the front wall.

A shielding partition 36 may be provided in rearwardly spaced relation to the front wall 15 and latch member 30 to provide a closure wall behind the slots 28 for the leg portions of the tumbler elements 25.

The right angular shape of the tumbler elements 25 and keeper elements 31 permits the lock construction to be readily used on either the front wall or the lid of boxes wherein the lid is swung upwardly to open the box, and renders the lock also readily adaptable to use on slidable tops for lockboxes, or to use on slidable trays in a rectangular tubular housing such as safety deposit boxes.

A slightly different embodiment is shown in FIGS. 6, 7, 8 and 9, wherein parts which correspond to the parts described in the first embodiment are indicated by the same reference characters as the first embodiment. As shown more clearly in FIGS. 7 and 8, the front wall, here indicated by reference character 15', has slots 28' over their major portion are slightly narrower vertically than the slide members 20A', 20B' and 20C' and are provided with grooves located approximately midway between the front and rear surface planes of the front wall to form guide grooves for the edges of the combination slide members 20'. Except for this difference in the configuration of the slide members, the slide members are otherwise the same as those described in the preceding embodiment, and have right-angle or L-shaped tumbler elements 25 formed integrally on the slide members and extending rearwardly in alignment with each respective number on the front of the slide member, each of these tumbler elements including a horizontal leg portion 26 and a vertical depending foot portion 27. The slide members 20' are also formed of breakable material, such as molded plastic so that the breakable tumbler elements 25 can be broken off by the purchaser to establish the combination of the lockbox.

It is contemplated that the embodiment of FIGS. 6 to 9 would be shipped with the slide members 20' removed from the slots 28' and located inside the box. To facilitate insertion of the slide members 20' after the purchaser has broken off the appropriate tumbler elements 25, one corner of the front wall is left open, in the manner illustrated in FIG. 7, to expose the ends of the slots 28' for insertion of the slides 20', after which a corner post, which is also shipped loose inside the box, is fitted into position at the corner region of the box as indicated in FIG. 7. Preferably, this corner post is a one-way post construction, wherein the surfaces 41 and 42 confronting the adjacent edges of the front wall 15' and left-hand sidewall 13 are provided with saw tooth-shaped notches defining upwardly facing horizontal transition shoulders 41', 42' which interfit with downwardly facing horizontal transition shoulders 43' on the confronting end 43 of the front wall 15' and downwardly facing horizontal transition shoulders 44' on the confronting edge 44 of left-hand sidewall 13. Thus when the purchaser has broken off the appropriate tumbler elements 25 on the slide members 20' to establish the combination and inserted them in the grooves 28', and has driven the post 40 into position, the box will be completely assembled with the combination established.

What I claim is:

1. A combination lockbox box comprising first and second relatively moveable walls, latch means on said first wall having three vertically spaced and aligned keeper projections inwardly adjacent said second wall defining restraining shoulder portions, said second wall having an index mark and three horizontally elongated, vertically spaced slideways therein, three elongated slide members respectively associated with said keeper projections each including a body having a front face bearing numbers and a horizontal row of rearwardly extending breakable right-angle tumbler elements integral with the body and aligned behind the respective numbers, the tumbler elements having a terminal enlargement spaced rearwardly of the body to accommodate the shoulder portion of the associated keeper projection therebetween, one tumbler element of each slide member associated with a selected number thereof being adapted to be broken off by the user at its juncture with said body to define a gating space for relative vertical movement of said keeper projections, and said slide members being movably supported in said slideways for horizontal movement to align said selected numbers corresponding to the selected lockbox combination with the index mark to dispose said gating spaces to release the keeper projections of the latch means for movement to open position, the tumbler elements being interfitted in locking relation with the keeper projections at the other positions of the slide members in the slideways.

2. A combination lockbox as defined in claim 1, wherein said keeper projections are right-angle keeper members having a horizontal keeper arm and a vertically rising end flange.

3. A combination lockbox as defined in claim 2, wherein said tumbler elements are each a right-angle tumbler member having a horizontal tumbler arm and a vertically depending foot forming said terminal enlargement.

4. A combination lockbox as defined in claim 1, wherein said tumbler elements are each a right-angle tumbler member having a horizontal tumbler arm and a vertically depending foot forming said terminal enlargement, said keeper projections being right-angle members, and the right-angle tumbler members interfitting with the right-angle keeper projections when the slide members are out of registry with the lock combination.

5. A combination lockbox as defined in claim 1, wherein each of said slide members and their tumbler elements are integrally formed of breakable plastic, and the gating space formed when a tumbler element is broken off corresponding substantially to the width of the keeper projections.

6. A combination lockbox as defined in claim 3, wherein each of said slide members and their tumbler elements are integrally formed of breakable plastic, and the gating space formed when a tumbler element is broken off corresponding substantially to the width of the keeper projections.

7. A combination lockbox as defined in claim 4, wherein each of said slide members and their tumbler elements are integrally formed of breakable plastic, and the gating space formed when a tumbler element is broken off corresponding substantially to the width of the keeper projections.

8. A combination lockbox as defined in claim 1, wherein said second wall is the vertical front wall of the lockbox having inwardly enlarged grooves defining said slideways, said body of each of said slide members having oppositely projecting flanges interfitting in the enlarged portions of the grooves, and said slideways having elongated slots accommodating passage of said tumbler elements therethrough.

9. A combination lockbox as defined in claim 3, wherein said second wall is the vertical front wall of the lockbox having inwardly enlarged grooves defining said slideways, said body of each of said slide members having oppositely projecting flanges interfitting in the enlarged portions of the grooves, and said slideways having elongated slots accommodating passage of the horizontal tumbler arms of said tumbler elements therethrough.

10. A combination lockbox as defined in claim 7, wherein said second wall is the vertical front wall of the lockbox having

inwardly enlarged grooves defining said slideways, said body of each of said slide members having oppositely projecting flanges interfitting in the enlarged portions of the grooves, and said slideways having elongated slots accommodating passage of the horizontal tumbler arms of said tumbler elements therethrough.