The present invention relates generally to the field of household accessories, and more particularly to a safety container for toxic materials to safely maintain them out of reach of children.

Due to their innate curiosity, each year an untold number of children obtain access to toxic materials, and in tasting or consuming the same, are either killed, or at the least made seriously ill. While the danger of such materials is well known, in the average home no safe storage space for toxic medicines is normally provided. Key lock cabinets for toxic materials provide only slight protection, for by observation a child will invariably learn where the key to the cabinet is kept, and may thereafter obtain access to the cabinet and its contents.

A major object of the invention is to provide a safety container for toxic materials, which while portable, may by a simple manual operation be removably locked in a fixed position in a medicine cabinet or between two spaced vertical surfaces, and only moved therefrom by an adult who must first manipulate the combination lock to open the container and then perform a second manual operation to free the contents from its supported position that is normally beyond the capabilities of a small child.

Another object of the invention is to provide a safety container of a relatively simple mechanical structure which can be fabricated from standard commercially available materials, is attractive in appearance, and particularly adapted for being mounted at a desired position in a medicine cabinet.

Yet another object of the invention is to supply a safety container for toxic materials that may be used for this purpose during the time the children in a family are growing up, and thereafter may be converted by a slight mechanical adjustment into a strong box to protect valuable papers, and the like.

These and other objects and advantages of the invention will become apparent from the following description of a preferred form thereof, and from the accompanying drawing illustrating that form in which:

FIGURE 1 is a perspective view of the safety container installed in a conventional medicine cabinet;

FIGURE 2 is a perspective view of the safety container with the door in an open position;

FIGURE 3 is an enlarged perspective view of the container;

FIGURE 4 is a fragmentary perspective view of the door;

FIGURE 5 is a fragmentary perspective view of one of the actuating members;

FIGURE 6 is a fragmentary perspective view of a portion of the door showing the manner in which the lock is mounted thereon; and

FIGURE 7 is a top plan view of the container with the guide portion removed therefrom.

With continued reference to the drawing for the general arrangement of the invention, it will be seen in FIGURES 2 and 4 that the safety container A includes a rectangular housing B, the forward portion of which is opened and closed by a door C that is pivotally supported from the sides of the housing B by hinges D.

The door C supports a combination lock E to hold the door in a closed position relative to the housing B to prevent children from gaining access to the interior of the housing in which toxic materials (not shown) are stored.

The safety container A, as may best be seen in FIGURE 2, includes two oppositely movable supporting members F. When the members F are moved from first non-supporting positions to second supporting positions, they maintain the container B at a fixed position inside a conventional medicine cabinet G, or other structure (not shown) that defines two horizontally spaced, vertical members.

The housing B is preferably formed from a metal sheet such as steel, which by a bending operation, is shaped to define a rectangular back 10, a rectangular bottom 12, and a top 14, together with end walls 16 and 18. The vertical end portions of back 10 are bent forwardly to define two flanges 10a that are disposed in a direction normal thereto. The end portions of bottom 12 also are bent upwardly to provide two flanges 12a which are in vertical alignment with flanges 10a. In addition the end portions of top 14 are bent upwardly to provide two flanges 14a that are vertically aligned with flanges 10a and 12a, as best seen in FIGURE 2. The forward edge portion of the top 14 is bent upward to form a longitudinally extending rib 14b that is disposed in a direction normal to the top 14. A slot 20 is formed in the center of rib 14b, the purpose of which will later be explained.

The top, bottom and rear exterior edge portions of the end wall 16 are in abutting contact with the interior surfaces of the flanges 10a, 12a and 14a, and rigidly affixed to the flanges by tack welding or the like. The forward edge portion of the end wall 16, as may best be seen in FIGURE 2, is recessed slightly, and this recessed portion is duplicated over itself to provide a vertically extending jamb 22. Like end piece 16, the exterior top, bottom and rear edge surfaces of end piece 18 are in abutting contact with the interior surfaces of a second set of flanges 10a, 12a and 14a, and rigidly affixed thereto by tack welding or the like.

The forward portion of end piece 18 is formed into a series of vertically spaced cylindrical hinge members 21 that are adapted to have a vertically positioned pin 24 extend downwardly therethrough. The pin 24, together with members 21, form a part of the hinge D. The forward longitudinally extending edge portion of the bottom 12 is folded rearwardly upon itself to define a reinforced edge portion 12c that has a smooth forward edge to avoid the hazard of personal injury upon contact therewith.

Pairs of transversely spaced aligned slits 25 are formed in bottom 12, and portions of the bottom on opposite sides of these slits are deformed upwardly to form a bridge 24, as best seen in FIGURE 2. Slits 26 are also formed in the top 14 that are in vertical alignment with the slits 23. Portions of top 14 on opposite sides of the slits 26 are deformed downwardly to define dimples 28 therein.

A vertically extending rectangular partition 30, preferably of a polymerized resin sheet material, is removably disposed within the housing B and is removably held at a fixed position therein due to engagement of opposite sides by the dimples 24 and 28 (FIGURE 2). The end wall 18 has several pairs of horizontal, vertically spaced slits 32 formed therein, and those portions of the end wall 18 adjacent the slits 32 are deformed to define dimples 34 therein. A horizontal shelf 36 is provided, the interior edge portion of which is supported in a rearwardly extending slot 38 formed in the partition 30, with the outer transverse edge of the shelf being supported by the dimples 34.

A longitudinally extending guide H is also provided which has a forward flange 40, a rear flange 42, and a horizontally disposed web 44 extending therebetween. The forward face of the flange 40 abuts against the rear face of the rib 14b, and is tack welded or otherwise rigidly connected thereto. In addition, the lower forward
The web 44 is disposed a substantial distance above the upper surface of the top 14 for reasons to be later explained, and cooperates therewith to define a longitudinally extending space 46. An opening is formed in flange 49 and is partially positioned relative to the slot 20 and rib 146. A long screw 48 having a head 50 and threaded shank 52 is extended through the opening in flange 49 to occupy a transverse position relative to housing 8, as may best be seen in FIGURE 2. A trapezoidal actuating member J rests on the upper face of top 14. The actuating member J has two forwardly and inwardly tapering side edges 54, a rear edge 56, and a forward edge 58. In width, the member J is substantially less than that of the top 14. A tapped bore 60 extends transversely through member J which is threadedly engaged by the shank 52 of screw 48. If desired, a central rear recess 63 may be formed in the actuating member J to avoid extending the tapped bore 60 through the entire width of the actuating member.

The supporting members F are identical in shape and construction, and each is of such width as to fit snugly but slideably in the space 46. Each supporting member F includes a forward, longitudinally extending rib 64, a longitudinally extending rib 66 that is parallel to rib 64, and with the upper edges of the two ribs being connected by a web 68. The central longitudinally extending portion of the web 68 is preferably formed to define a sunken channel section 70. Each of the supporting members F has an outer edge 72 that is disposed in a direction normal to the ribs 64 and 66. Also, each of the supporting members F has an inner edge 74 which extends rearwardly and outwardly at about the same angle as one of the edges 54 of the actuating member J. The two supporting members F rest on the upper surface of the top 14, and are situated on opposite sides of the actuating member J within the confines of the longitudinally extending space 46. A tensioned helical spring 76 is connected to rearwardly disposed, adjacent portions of the supporting members F, as may best be seen in FIGURE 4, with the spring at all times tending to maintain the inner edges 74 of the supporting members in contact with the side edges 54 of the actuating member J.

When the head 50 is rotated, the threaded shank 52 rotates in the tapped bore 60, and the actuating member J is moved transversely relative to the top 14. Then by rotating the head 50, the actuating member J may be moved forwardly, and as it so moves, the supporting members F are concurrently forced outwardly in opposite directions due to sliding contact with edges 54. The length of the actuating member J and the supporting members F are such that upon rotation of the head 50 to move the actuating member J rearwardly, the outer edges 72 of the supporting members may be disposed substantially flush with the end walls 16 and 18.

Two U-shaped resilient clips 78 frictionally engage the lower end portions of the channel section 70, as may be seen in FIGURE 4. Each clip 78 has a rigid rectangular member 80 affixed thereto by rivets or other conventional fastening means, and each member 80 has a projecting portion 82, the function of which will later be explained.

The door C, as can best be seen in FIGURE 2, is preferably formed from a single sheet of rigid material such as steel that defines a rectangular panel 84, the top, bottom and outer edges of which are bent or otherwise formed to define rearwardly extending lips 86, 88 and 90 respectively. The door C has a straight, vertically extending edge 92 that is oppositely disposed from lip 88.

The inner surface of panel 84 adjacent the edge 92 has a vertically extending strip 94 affixed thereto, which strip is provided with projecting, vertically spaced, cylindrical hinge members 96 that are of such length as to be disposable in spaces 98 between the hinge members 21. The members 96 and 21 are engaged by the pin 24 to cooperatively define the hinge D. Panel 84 (FIGURE 2) has a rectangular opening 90 formed therein that is adjacent to the lip 90.

The combination lock E includes a case 100 having a horizontally movable latch 102 therein that is spring-loaded by means not shown, and at all times tends to remain in a projecting position. The lock E also includes a numbered cylindrical handle 104, which when manipulated in a pre-determined position, permits the latch 102 to be disposed in a retracted position relative to the case 100.

By means of an assembly 106 associated therewith the handle 104 is rotatably supported on the forward face of a rigid plate 108 having walls 110 which extend forwardly from the edges thereof. The forward portions of walls 110 develop into outwardly extending flanges 112. Flanges 112 are of such length and width that the forward faces thereof may be placed in abutting contact with the rear surface portions of panel 84 surrounding the opening 90, and when these flanges are bonded to the panel 84, a panel 114 is formed thereby. For the like, the lock E is supported in a fixed position on the door C. The inner surface of side wall 116 rigidly supports an L-shaped strike 114 which the latch 102 engages when the door C is in a closed position.

If the medicine cabinet G is of modern design it will comprise a rectangular tank 116 that is set in a wall structure between studs (not shown), and the tank includes a back 118 and two forwardly extending side walls 120. The forward edge of one side walls is provided with hinges 122 that pivotally support a door 124 in the conventional manner. Pairs of horizontally aligned, vertically spaced slits 125 are formed in side walls 120, and the portions adjacent each of these slits are deformed inwardly to provide dimples 126 on which shelves 128 are supported, as best seen in FIGURE 1. When it is desired to use the safety container, the location thereof in the cabinet G is determined, and shelves 128 in this portion of the cabinet are removed therefrom. The head 50 is then rotated to permit the supporting members F to assume a retracted position, and the housing B is then disposed in the cabinet G with the members 80 being in horizontal alignment with the slits 125. The head 50 is then further rotated so as to move the actuating member J forwardly, and force the supporting members F outwardly away from one another until further movement is prevented when the edges 72 of the supporting members engage the interior surfaces of the side walls 120. When the edges 72 of the supporting members F so engage the side walls 120, the projecting portions 82 of members 80 will be disposed in slots 125 that separate the dimples 126 in side walls 120.

The door C is then swung to a closed position, with the latch 102 engaging the strike 114 and being held in locking engagement therewith. When it is desired to disengage the latch 102 from strike 114, the handle 104 is manipulated in the manner of conventional combination locks and the door C swung to an open position.

It will be particularly noted that after the housing B has been positioned in the medicine cabinet G in the manner described, it can only be removed therefrom by manipulation of the head 50 with the aid of a screwdriver or other bladed instrument. Furthermore, manipulation is possible only after the door C has been placed in the open position. For a child to gain access to the housing of the handle 104 would have to have sufficient manual dexterity to manipulate the handle 104 through the sequence of numerical stops required in opening a combination lock.

Normally a child does not have such dexterity when he is at an age when it is necessary to protect him against toxic materials.
The possible removal of the housing B from the cabinet G by a child is substantially eliminated, for first the child would have to manipulate the lock E to place the door C in an open position, and then realize and have sufficient manual dexterity to be able to rotate the head 50 to a position where the edges 70 of the supporting members F no longer are in abutting contact with the inner surfaces of the side walls 20 and the members 62 are withdrawn from the slits associated with the dimples 126.

The use of the invention has been previously explained in detail and need not be repeated.

Although the present invention is fully capable of achieving the objects and providing the advantages hereinbefore mentioned, it is to be understood that it is merely illustrative of the presently preferred embodiment thereof and I do not mean to be limited to the details of construction herein shown and described, other than as defined in the appended claims.

I claim:

1. A safety container for toxic materials which is positionable at a fixed location in a medicine cabinet that has two parallel side members, said container including:
   (a) a rectangular housing fabricated from a rigid sheet material to provide a back, top, and bottom, and two side walls, with said side walls being so spaced that the distance between the exterior surfaces thereof is slightly less than the transverse space between said members and the width of said top, bottom and side walls being less than the width of said side members to permit said housing to be completely disposed inside said cabinet;
   (b) a door of such size as to cover an opening in said housing defined by the forward edges of said top, bottom, and side walls;
   (c) hinge means movably supporting said door from said housing for closing said opening when said door is in a first position parallel to said forward edges of said top, bottom and side walls;
   (d) lock means for removably locking said door in said first position;
   (e) two transversely spaced elongate housing supporting members having parallel side edges;
   (f) first means for movably supporting said housing supporting members on said housing for longitudinal movement relative thereto, which first means is an inverted channel-shaped guide that includes a web which is parallel to said top, disposed a distance above said top slightly higher than the thickness of said housing supporting members, and two flanges that extend downwardly from the longitudinal edges of said web and affixed to the upper rear portion of said back and the forward portion of said top, which top and guide cooperatively define a longitudinally extending confined space in which said housing supporting members are slidably mounted; and
   (g) means for manually moving said supporting members away from one another to dispose the outer ends thereof in frictional contact with said side members to the extent that said housing is held at a desired fixed position in said cabinet, with said second means being so located on said housing that said second means can be manually operated only when said door has been moved to a second position to permit access to the interior of said housing.

2. A safety container as defined in claim 1 which further includes lips that extend rearwardly from the top and bottom edges of said door as well as the free side edge thereof, with said lips when said door is in said first locked position enveloping forward edge portions of said housing to prevent insertion of an instrument between said housing and door when said door is in said first locked position by a child in an effort to pry said door to a position where access may be gained to the interior of said housing.

3. A safety container as defined in claim 1 wherein an opening is formed in said door adjacent the free side edge thereof and said lock means comprises a combination lock that includes a case, a spring-loaded latch which at all times tends to remain in a projecting position relative to said case, and a handle that can be manipulated to place said latch in a retracted position in said case, which container further includes:
   (a) a plate that supports said case on the rear face thereof, with said handle projecting forwardly through an opening in said plate;
   (b) a continuous wall that extends forwardly from the edges of said plate;
   (c) a flange that extends outwardly from said wall, with said flange having a flat forward face that abuts against the rear surface of said door adjacent said opening; and
   (d) a strike so mounted in a position on the interior surface of one of said side walls as to be engageable by said latch when said door is in said first position.

4. A safety container as defined in claim 1 wherein said housing supporting members extend forwardly and inwardly towards one another, said second means including:
   (a) a trapezoidal block of less width than that of said top which is movably disposed in said confined space and rests on the upper surface of said top, which block has a tapped transverse bore formed therein and has end edges that extend forwardly and inwardly at the same angle as said adjacent inner edges of said housing supporting members, with said block being disposed between said housing supporting members;
   (b) spring means for at all times maintaining said housing supporting members in pressure contact with said block;
   (c) a screw including a head and a threaded shank that engages said tapped bore; and
   (d) means for maintaining said screw in a fixed transverse position relative to said top, with said screw when rotated in a first direction transversely moves said block in a direction to move said housing supporting members away from one another, and said screw when rotated in a second direction, moving said block transversely in a direction to permit said spring means to move said housing supporting members toward one another.

5. A safety container as defined in claim 4 wherein said spring means comprises a helical spring that is tensioned, the ends of which are connected to adjacent portions of said housing supporting members.

References Cited by the Examiner

UNITED STATES PATENTS

2,921,576 1/60 Nolan --------------- 312—242 X
3,008,785 11/61 Gehrs --------------- 312—209
3,057,343 10/62 Nelson --------------- 312—242

FOREIGN PATENTS

329,255 5/30 Great Britain.

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