

[54] **MEDICINAL SAFETY CABINET**

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[51] Int. Cl. **E05c 19/10**

[58] **Field of Search** 292/25, 26, 30, 122, 123, 292/127, DIG. 13, DIG. 37, DIG. 63, DIG. 65, DIG. 72, 108, 107, 106; 70/289, DIG. 81; 206/1.5; 273/153 R

[56] **References Cited**

UNITED STATES PATENTS

612,572	10/1898	Robertson.....	70/289
1,941,150	12/1933	Meyer.....	70/160
2,496,707	2/1950	Frye.....	292/53 X
2,936,189	5/1960	Pearson.....	292/42
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3,666,338	5/1972	Russell.....	292/1 X

FOREIGN PATENTS OR APPLICATIONS

256,489	2/1913	Germany.....	70/289
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[57] **ABSTRACT**

A storage enclosure is disclosed which is useful for housing substances considered hazardous to the health and safety of infant children. The enclosure is readily opened by an adult, but denies the average infant access to the contents thereof, even when the infant has an understanding of the opening procedure. In this respect, the enclosure may be considered to be "child-proof".

The enclosure comprises a container having a closure. The closure is secured in a locked, closed position by a latch, which is releasable only by a sequential procedure resulting in the simultaneous depression of four push-buttons located on the exterior surface of the container. The spatial arrangement of the push-buttons obviates their simultaneous depression by an infant child.

7 Claims, 5 Drawing Figures

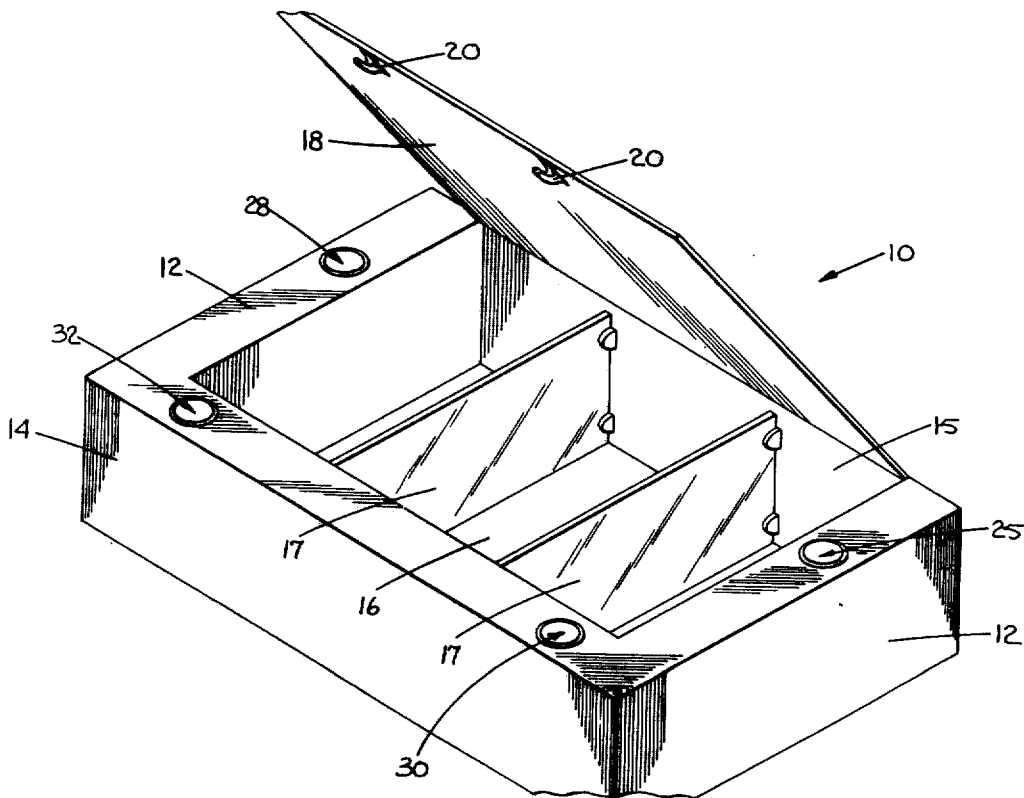


Fig. 1

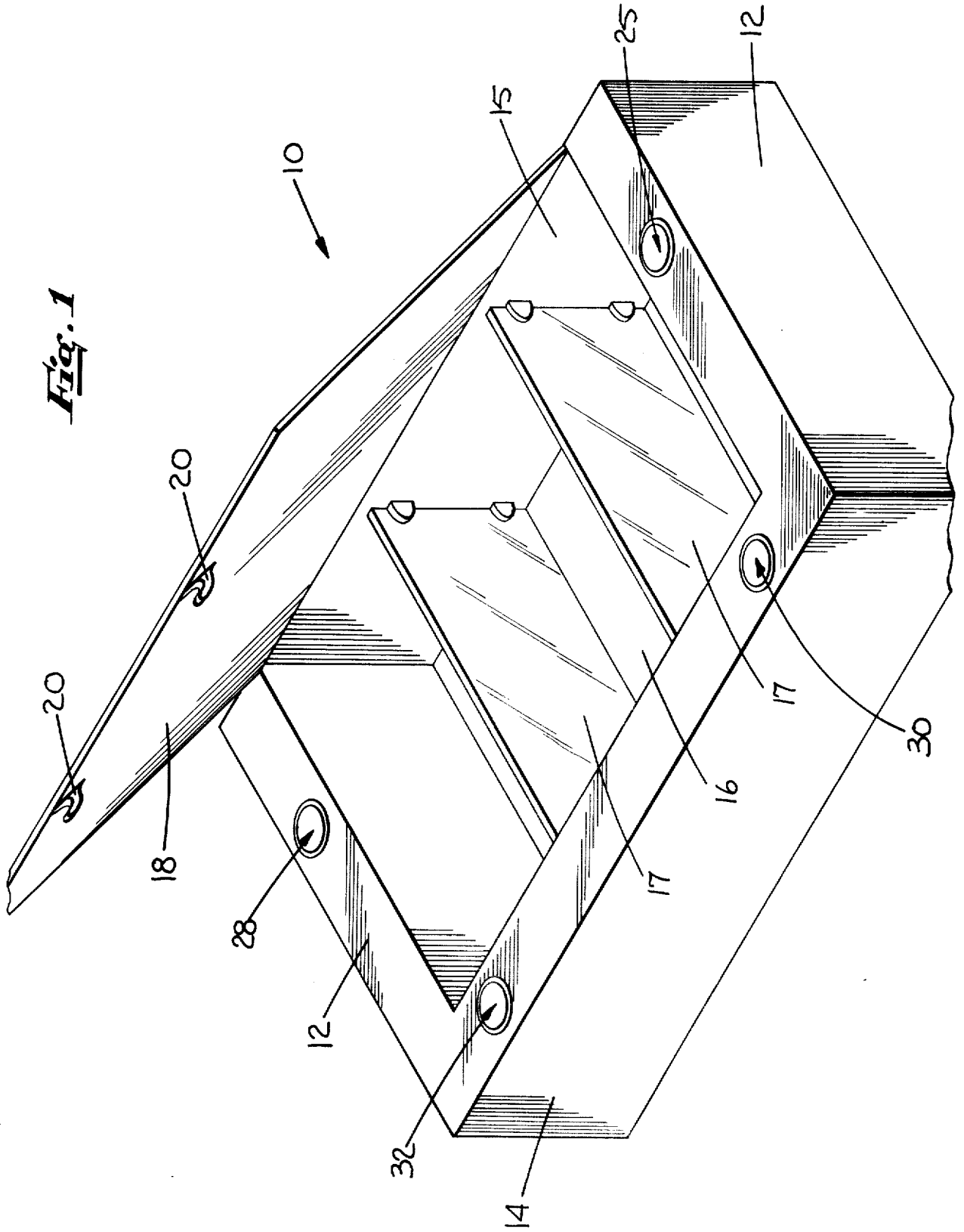


Fig. 2

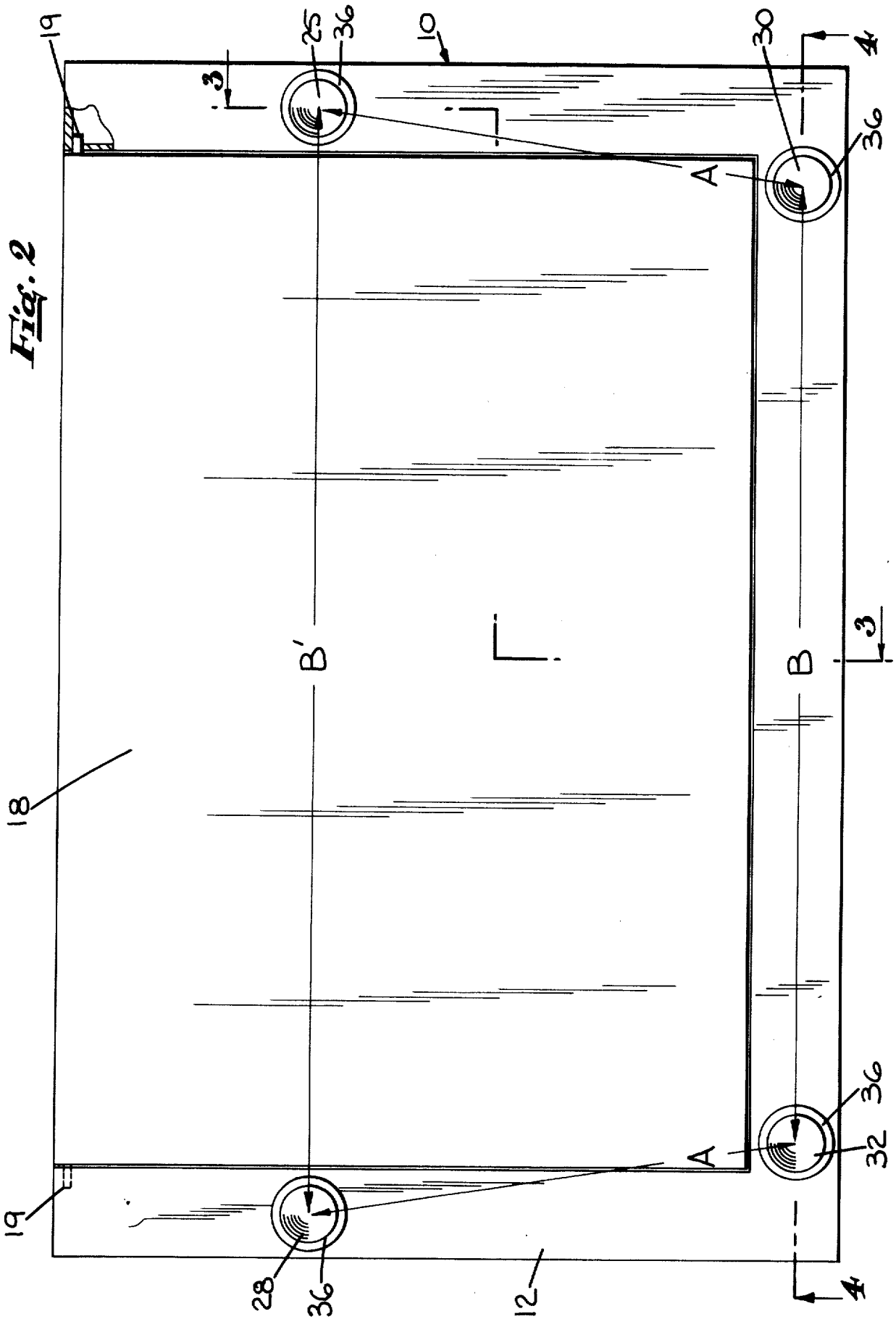


Fig. 3

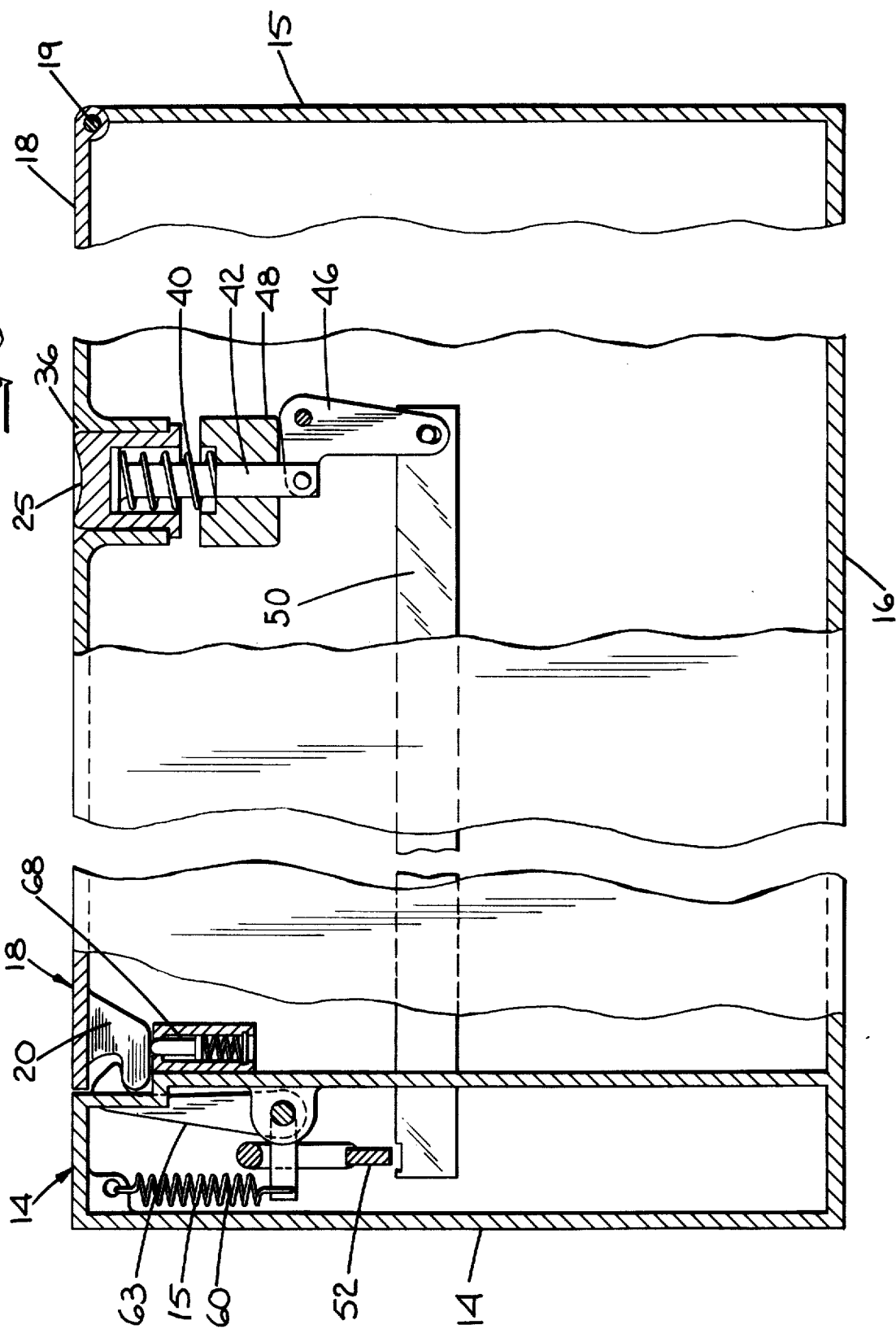


Fig. 4

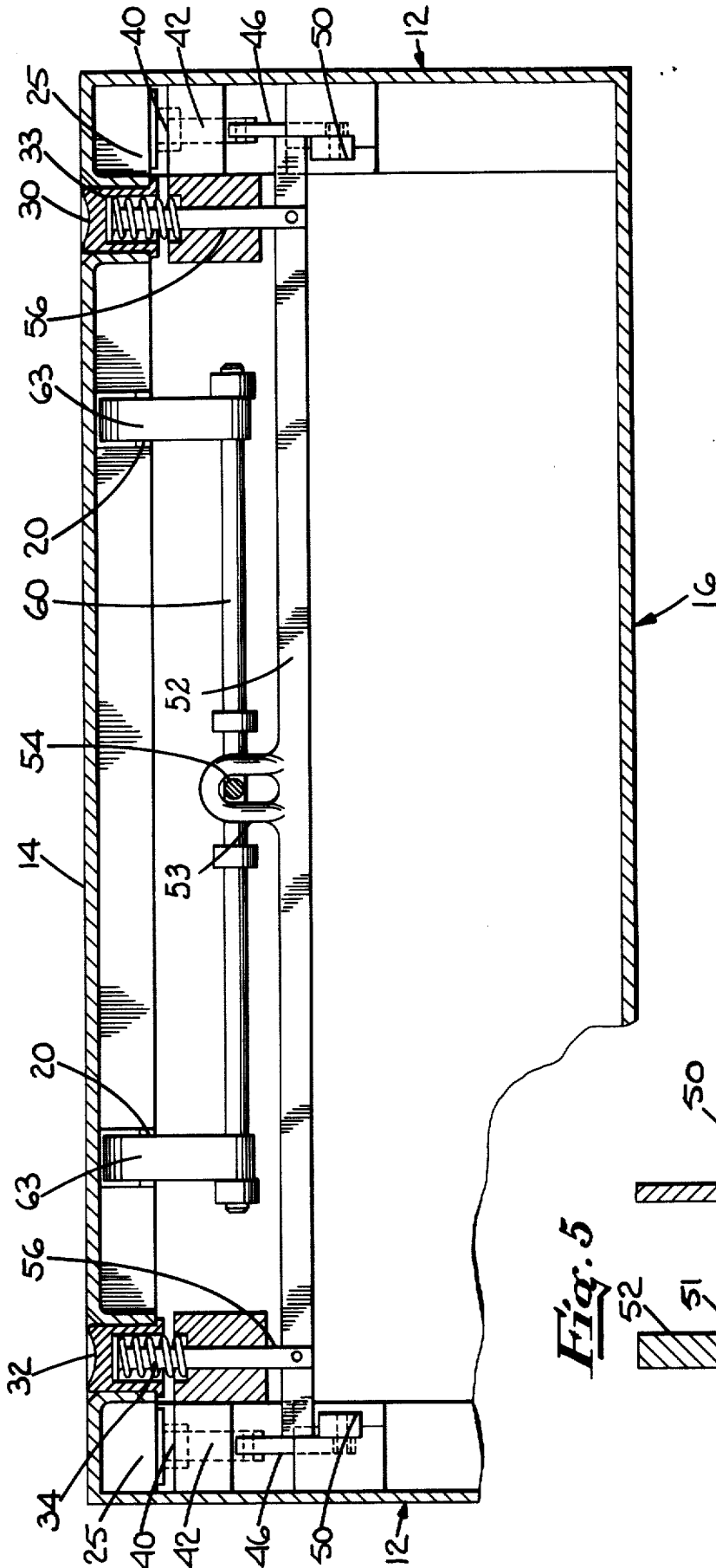
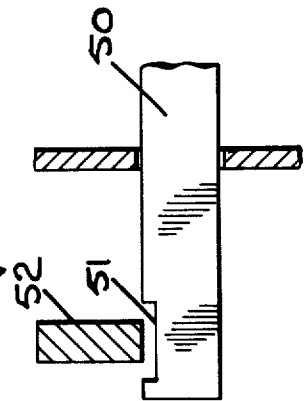


Fig. 5



MEDICINAL SAFETY CABINET

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention concerns storage containers, and, more particularly, concerns storage containers which are not readily opened by infant children.

2. Description of the Prior Art

In spite of the availability of numerous devices for safeguarding infants from hazardous materials, the home remains one of the most deadly environments for a curious and mobile child. In most instances the danger involves a ready accessibility of hazardous substances such as solvents, cleaning materials, medicines and the like. The failure of the child's guardians to employ a safe storage container for denying a child access to such substances is frequently due to limitations of convenience, practicality, cost or special requirements associated with their use.

For example, a number of child-proof storage cabinets have been described prior hereto, but each carries some limitation which prevents their universal acceptance under all circumstances. Illustratively, U.S. Pat. No. 2,233,699 discloses a medicine cabinet having an inner compartment which is accessible by simultaneously depressing two buttons with one hand while pulling on a handle with the free hand. U.S. Pat. No. 2,936,189 shows a safety latch requiring the simultaneous squeezing together of four knobs in combination with a pulling force to open a storage compartment. U.S. Pat. No. 3,160,431 discloses a medicine cabinet latch which requires the simultaneous depression of three buttons with a single hand while pulling the door open with the free hand. Other enclosures employ pull-knobs which are difficult for an infant to grasp (see, for example U.S. Pat. No. 3,519,299).

All of such prior art safety enclosures depend to some extent upon a degree of digital dexterity for their operation. Therefore, they are difficult for the handicapped adult such as, for example, the elderly or arthritic adult, to operate. Quite often the challenge offered such a handicapped adult by the prior art devices far exceeds the challenge offered an enterprising infant.

Another type of safety storage cabinet found in the prior art depends upon a code for operating the opening mechanism. Illustrative of such cabinets is that disclosed in U.S. Pat. No. 3,608,341. Although such cabinets do indeed deny access to children lacking the mental capability required for their opening, the inconvenience of forgotten codes must be contended with. In addition, in the absence of an adult knowing the code, access may be denied to other adults under emergency conditions. For example, when a medicine is urgently needed. A third type of prior art safety enclosure is represented by that described in U.S. Pat. No. 3,637,245. This type of device depends upon placing the opening mechanism in an area physically inaccessible to the average child. In most instances such storage compartments are limited to a minimum size, eliminating their use under all circumstances.

The safety storage enclosure of my invention is not dependent upon digital dexterity, strength, or memorized codes. My invention is also not restricted to a minimal size which may be impractical. Instead, the safety storage enclosure of my invention is readily opened by pressure, conveniently applied to a multi-

licity of push-buttons by the average adult hands. Thus, my invention provides practicality, convenience of operation, and is unlimited in size, shape or design. This versatility makes the storage cabinets of my invention highly suitable for the in the home, or other places where children are likely to be present and unattended.

SUMMARY OF THE INVENTION

The invention comprises an enclosure fitted with a closure secured in the closed position by a latch means; means for releasing said latch; and actuating means for operating said latch release means; said actuating means comprising first and second sets of push-buttons, each set consisting of two push-buttons and each push-button within a set being spaced from the other push-button a distance greater than the average span between the thumb and any one of the remaining fingers of the hand of a child, but less than the average span between thumb and any one of the remaining fingers of an adult; each of the push-buttons of said first set being located a distance from each of the push-buttons of said second set which is greater than the average span between thumb and any one of the remaining fingers of a child, but less than the average span between the hands of an adult when held in a position of maximum separation; said actuating means requiring the simultaneous depression of each of said push-buttons by the thumbs and fingers of an adult to actuate the means for releasing said latch.

The enclosures to which this invention relate include storage cabinets, medicine cabinets, utility closets, portable containers, and like storage containers which may be of any convenient size or shape, such as round, square or rectangular. They may be manually portable containers or containers permanently affixed to a wall, floor or like structure. The enclosures of this invention may be fabricated of any conventional materials or combination thereof, such as plastics, fiberglass, metal, fiberboard, wood, and the like.

The enclosures of the invention are safety storage compartments useful for denying infant children access to the interiors thereof, and which may hold materials and substances hazardous to the health and safety of such infant children. The enclosures of the invention are particularly suitable and preferred for use as medicine storage cabinets.

The term "infant child", "child", or "infant", as used herein means a child of less than about 5 or 6 years of age.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is an overall view of a safety storage container within the scope of the invention, having the closure in a partially open position.

FIG. 2 is a top view of the container shown in FIG. 1, wherein the closure is in a closed position.

FIG. 3 is a partially-in-section side view taken along line 3—3 of FIG. 2.

FIG. 4 is a cutaway side view taken along line 4—4 of FIG. 2.

FIG. 5 is a fragmentary view of FIG. 4, but shows a preferred embodiment.

DETAILED DESCRIPTION OF THE INVENTION

The enclosures of the invention may employ any conventional latching means for securing the hinged closure in a closed and locked position. Illustrative of the

conventional latching means which may be employed are those disclosed in U.S. Pat. Nos. 2,233,699; 2,936,189; 3,160,431; 3,519,299, and 3,608,341.

Mechanical means for releasing the latch are also those means conventionally employed in the art and are so well known that they need not be described in detail herein. A means for moving the closure to a partially open position upon release of the latch may also be used in conjunction with the invention such as, for example, spring loaded hinges, spring loaded push rods, and the like.

The means employed in the invention to actuate the latch release means has been developed to provide for a certain sequential operation to successfully actuate the release means. First, to gain entry to the interior of the container, it is necessary that four individual push-buttons be fully depressed simultaneously and held therein. In order to have all four push-buttons in a depressed position simultaneously, it is necessary that two of the push-buttons, hereinafter referred to as "primary" push-buttons, be depressed and held in a depressed position prior to depressing the remaining two push-buttons, hereinafter referred to as "secondary" push-buttons. Operation of a secondary push-button before its respective primary push-button blocks operation of the primary push-button. Furthermore, following the depression of the primary push-buttons, the secondary push-buttons must both be held in a depressed position to actuate the release means.

Second, in addition to the above sequence of operation which must be followed, the push buttons have been spatially arranged to that they require for operation the use of a thumb and forefinger on each of two hands. The distance between buttons is such that the average child cannot hold each primary button down with a finger or thumb and still reach the second push-buttons with a remaining thumb or finger.

The safety storage enclosure of the invention will now be further described and exemplified by reference to the various specific embodiments set forth in the drawings.

FIG. 1 is an overall view of safety container 10 having fixed side walls 12, bottom wall 14, top wall 15, back wall 16, spacers 17 and a hinged closure 18, shown in a partially open position. Attached to the closure 18 are lock catches 20 located for engagement with latches mounted on the inside surface of wall 14 (not visible in FIG. 1).

Referring now to FIG. 2, a top view of the container 10, placement of the four push-buttons 25, 28, 30 and 32 are observed. As shown in the drawings, the four push-buttons are set within recess 36 so that they are flush with the exterior container surface. The setting of push-buttons 25, 28, 30 and 32 within recess 36 is a preferred embodiment providing a measure of safety in that recessed push-buttons are not readily depressed by a part of the body other than a finger or thumb. It is also preferred that the push-buttons 25, 28, 30 and 32 be closely fitted within the recess 36 to prevent their being wedged in a down position by insertion of a wedge device. It is also seen from FIG. 2 that push-button 25 is located a distance A from push-button 30 and push-button 28 is set a distance A from push-button 32. Push-button 25 is also located a distance B₁ from push-button 28 and push-button 30 is located a distance B from push-button 32. A is defined herein as a distance greater than the average span between the

thumb and any one of the remaining fingers of the hand of a child, but less than the average span between thumb and any one of the remaining fingers of an adult. In general, this distance has been found to be within the range of from about 6½ inches to about 8 inches. B and B₁ are each defined herein as a distance at least equal to A and preferably within the range of the distance A and the span between the hands of an adult when held in a position of maximum separation. In general, the distance B and B₁ will be within the range of from about 6½ inches to about 62 inches, preferably within the range of from about 8 inches to about 36 inches.

FIG. 3 is a side elevation partially cut away along lines 3—3 as shown in FIG. 2, and shows partial details of the means for actuating and releasing the closure 18 so that it will open. As shown, push-button 25, which is a primary push-button as previously defined, is maintained in a normal position flush with the upper surface of the container 10 by return spring 40. When push-button 25 is depressed, push rod 42 moves through guide 48 and causes pivot connector 46 to move bar 50 towards wall 15. Bar 50, when moved forward, unblocks tie rod 52 so that it is not prevented from moving into a lower position when activated to so move. Upon release of the push-button 25, return spring 40 moves the push-button 25 back into its normal position and the sequence is reversed, bar 50 moving into its normal position blocking any downward movement of tie rod 52. Although not shown here, the arrangement of primary push-button 28 and its appurtenant elements on the opposite side of container 10 is identical to, but a mirror image of, the arrangement shown in FIG. 3. Shown also in FIG. 3 is lock catch 20 engaged by latch 63. Latch 63 is held in engagement with lock catch 20 by return spring 75. Shown also is a spring loaded push rod 68 which serves to force closure 18 into a partially open position when latch 63 is disengaged from lock catch 20. As shown in FIG. 3, the closure edge adjacent to side 14 is flush with the surface of side 14. In a preferred embodiment however, the edge of closure 18 overlaps 14 so that one cannot force an object between the closure 18 and wall 14 thereby forcing latch 63 out of engagement with lock catch 20. Closure 18 hinges on hinge pin 19.

Referring now to FIG. 4, a cross-sectional side view along lines 4—4 of FIG. 2, there are seen push-buttons 30 and 32 respectively, both of which are secondary push-buttons as defined above. Push-buttons 30 and 32 are maintained in a normal position flush with the surface area of container 10 by return springs 33 and 34 respectively. When push-buttons 30 and 32 are depressed by a finger or thumb, push rods 56 move downward carrying tie rod 52 into a downward position (provided bar 50 has been first moved from beneath it as previously discussed). As tie rod 52 moves down, eye 53 pulls on knob 54 rotating tie rod 60 and thereby retracting latch 63 from engagement with locking catch 20. The dimensions of eye 53 are such that movement of the tie rod 52 by depression of only one of push-buttons 30 and 32 will not rotate tie rod 60 sufficiently to disengage latch 63. To disengage the latches 63, both push-button 30 and push-button 32 must be in a depressed position simultaneously. A proper dimension for eye 53 will depend upon the length of tie rod 52 and can be determined readily by trial and error.

The operation of the safety storage enclosure of the invention is as follows: first, a thumb or forefinger is

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employed to depress primary push-buttons 25 and 28 into a down position, where they are held. Remaining thumbs or forefingers are then used to depress secondary push-buttons 30 and 32. When all four push-buttons are simultaneously held in a depressed position, the closure 18 is released from its lock position and opened by push rod 68. When any one of push-buttons 25, 28, 30 and 32 are not in a depressed position, the closure 18 will not be released. Thus, if any one of primary push-buttons 25 and 28 is not depressed, a rod 50 blocks complete downward movement of tie rod 52, frustrating the disengagement of latches 63; and when one of secondary push-buttons 30 and 32 has not been depressed, although push-buttons 25 and 28 are both in depressed positions, there is a similar frustration of disengaging latch 63 from lock catch 28.

It will also be observed from the above-described operation that if secondary push-buttons 30 or 32 are depressed prior to depression of primary push-button 25 or 28, the force upon bar 50 inhibits movement of bar 50 from beneath tie rod 52, thus making the depression of the push-button 25 or 28 difficult for a person of slight strength, that is, by an infant. In a preferred embodiment as shown in FIG. 5, bar 50 may be notched 51 at a location directly beneath tie rod 52 so that when one of the secondary push-buttons 30 or 32 is depressed before withdrawal of the bar 50, movement of bar 50 is securely prevented. This makes the release of closure 18 impossible until all push-buttons are released to their normal position, and then the proper opening sequence procedure initiated.

What is claimed is:

1. An enclosure fitted with a closure secured in the closed position by a latch means; means for releasing said latch; and actuating means for operating said latch release means; said actuating means comprising:
 1. first and second sets of push-buttons, each set consisting of two push-buttons and each push-button within a set being spaced from the other push-button a distance greater than the average span between the thumb and any one of the remaining fingers of the hand of a child, but less than the average span between thumb and any one of the remaining fingers of an adult; each of the push-buttons of said first set being located a distance from each of the push-buttons of said second set greater than the average span between thumb and any one of the remaining fingers of a child but less than the average span between the hands of an adult when held in a position of maximum separation;
 2. means for blocking operation of one of each of said first and second sets of push-buttons, said means being connected to the remaining push-button of each of said first and second sets of

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push-buttons and being removable by simultaneous depression of said remaining push-buttons.

2. An enclosure according to claim 1 wherein said push-buttons are mounted in recesses so that their upper surface is substantially flush with the exterior surface of said container.

3. An enclosure according to claim 1 wherein said closure is hinged.

4. An enclosure according to claim 1 wherein there is a means for moving said closure to a partially open position upon release of the latch.

5. A container comprising:

an enclosure having a top side, a bottom side, a left side, a right side and a back side in fixed relationships, and a closure forming a front side, when secured in a closed position by engagement of a latch with a locking catch attached to said closure; means for releasing said catch;

at least one of said top, bottom, left and right sides forming a housing for said latch, said latch release means and the means for opening said closure;

said latch release means comprising (1) first and second push-buttons spaced apart from each other by a distance greater than the average span between the thumb and any one of the remaining fingers of the hand of a child but less than the average span between the hands of an adult when held in a position of maximum separation; said first and second push-buttons communicating between the exterior and the interior of said housing and being connected to means for disengaging said latch from said locking catch when simultaneously in a depressed position; (2) third and fourth push-buttons spaced apart from each other by a distance greater than the average span between the thumb and any one of the remaining fingers of the hand of a child but less than the distance of the average span between the hands of an adult when held in a position of maximum separation and spaced apart from each of said first and second push-buttons respectively by a distance greater than the average span between the thumb and any one of the remaining fingers of the hand of a child, but less than the average span between thumb and any one of the remaining fingers of an adult; said third and fourth push-buttons communicating between the exterior and the interior of said housing and each being independently connected within said housing to independent means for actuating said first and second push-buttons respectively.

6. A container according to claim 5 wherein said closure is hinged.

7. A container according to claim 5 wherein there is a means for moving said closure to a partially open position upon release of said latch from said locking catch.

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