

May 10, 1960

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2,936,189

RECEPTACLE SAFETY LATCH MEANS

Filed Feb. 27, 1959

2 Sheets-Sheet 1

Fig. 1.

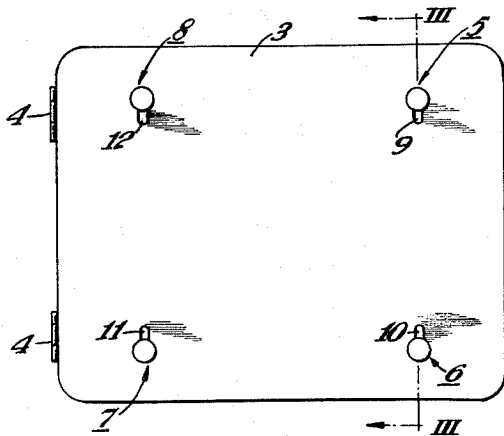
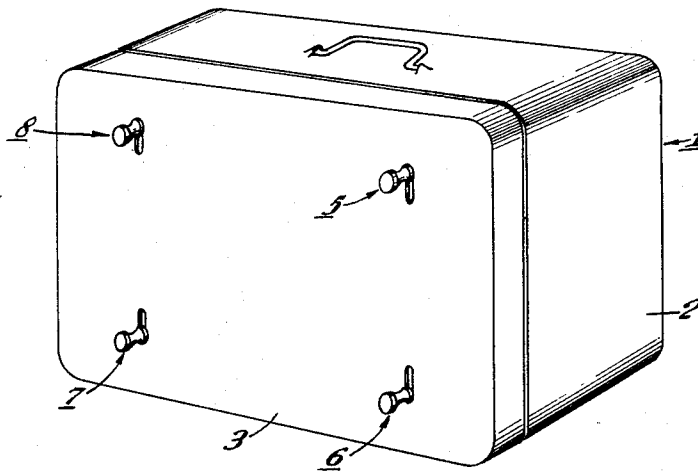


Fig. 2.

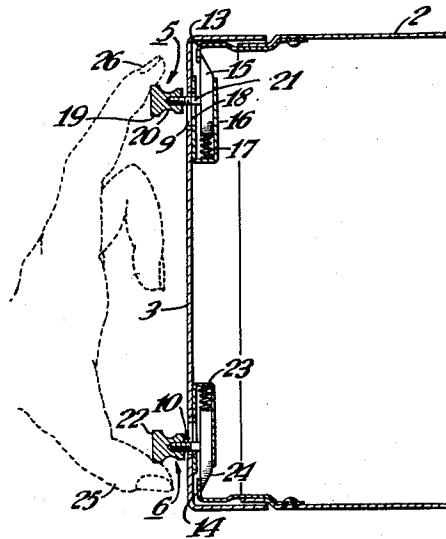


Fig. 3.

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Fig. 4.

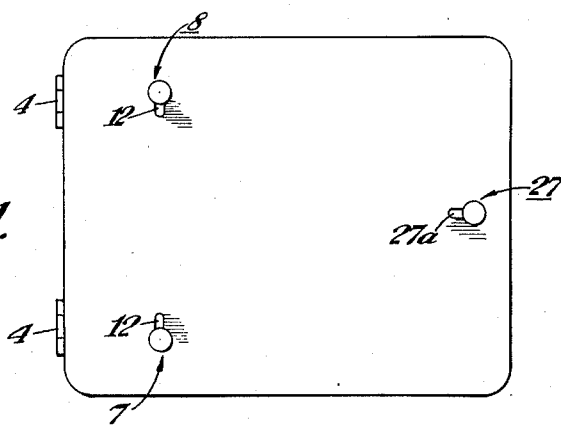


Fig. 5.

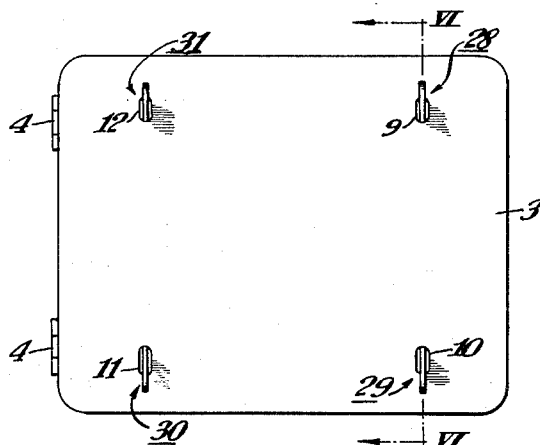
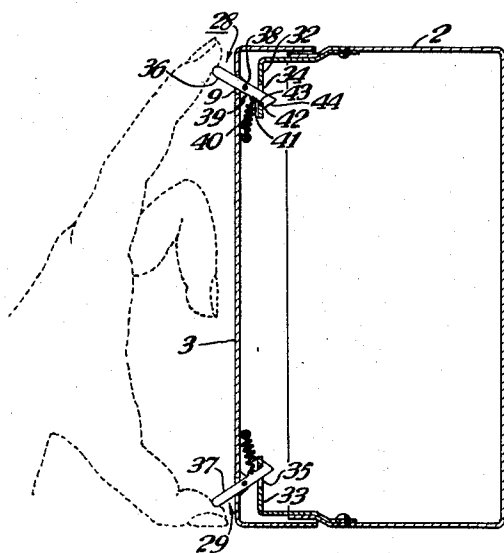


Fig. 6.



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RECEPTACLE SAFETY LATCH MEANS

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Application February 27, 1959, Serial No. 796,060

2 Claims. (Cl. 292—42)

My invention relates to safety latches, and, more particularly, to safety latch means used in conjunction with receptacles into which it is desired to deny access to children.

A large number of serious illnesses and fatalities occur to children in the one to four year old range each year due to the ability of these children to find and consume products which, when taken in excessive amounts, are deleterious to their health. Among the most fertile sources of danger to these children are the medicinal preparations and poisons commonly found in each household for the treatment of minor illnesses and bruises. These products are usually either left in accessible places in a sickroom or, when not in immediate use, placed in receptacles which, too often, can be easily entered into by children.

In the past, a number of efforts have been made to devise latching arrangements for receptacles which would prevent ingress to the receptacles by children and yet, allow relatively easy access by adults. Patents Nos. 1,152,404 to Eldridge, 2,233,699 to Gorrell and 2,759,782 to Goodwin are representative of earlier efforts in devising child-proof latching arrangements for receptacles.

The prior attempts in this direction have not been completely satisfactory in view of the fact that a staggering number of accidental ingestions of toxic or potentially toxic ingredients by young children still occur each year. This has been in part due to the fact that prior latching arrangements for receptacles have not been widely accepted heretofore. One of the reasons for non-acceptance of the prior arrangements has been the relative ease with which young children are able to devise schemes for gaining access to the prohibited areas. Another reason has been the inconvenience encountered by adults in using the prior arrangements.

A further factor which bears strongly on the high number of accidental ingestions by youngsters is the lack of adequate safety devices in the actual sickroom. This leads to the careless placing of medicinal products where children may get at them when one of the members of a family is under treatment for an illness.

Accordingly, it is one object of my invention to provide an improved safety latching arrangement for receptacles.

It is another object of my invention to provide an improved receptacle into which an adult may gain entrance in a facile manner but which children can only enter with extreme difficulty.

An additional object of my invention is the provision of a portable receptacle which has improved safety latch means and may be both temporarily used in the sickroom and normally stored in a conventional medicine chest.

Further objects and advantages of my invention will become apparent as the following description proceeds.

Briefly stated, and in accordance with one embodiment of my invention, I provide, on the hinged door of a receptacle, a first pair of movable latching elements that are separated by a distance greater than the handspread

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of a child and less than the handspread of an adult. The pair of latching elements is arranged to be unlocked with a combined squeezing and pulling action thereon by the thumb and extended finger of an adult. Additionally, a second pair of similarly operated latching elements is provided on the door in spaced relation from the first pair by a distance greater than the span of a child's hand in order to require that two adult hands be used in opening the chest.

While the specification concludes with claims particularly pointing out and distinctly claiming the subject matter which I regard as my invention, it is believed that the invention will be better understood from the following description, taken in connection with the accompanying drawings in which:

Fig. 1 is a perspective view of a receptacle incorporating one embodiment of my invention;

Fig. 2 is a front elevation view of the embodiment shown in Fig. 1;

Fig. 3 is an enlarged partial sectional view of the structure shown in Fig. 2 taken along the line III—III;

Fig. 4 is a front elevation view of a second embodiment of my invention;

Fig. 5 is a front elevation view of a third embodiment of my invention; and

Fig. 6 is an enlarged partial sectional view taken along the line VI—VI of Fig. 5.

Referring to Figs. 1 and 2, a receptacle 1, described in this form of my invention as a portable medicine chest, has been illustrated. The receptacle 1 includes a receptacle wall member 2 and a door member 3 pivotally mounted on the receptacle wall member by means of the hinges 4. The door of the portable medicine chest is normally held closed by a plurality of latching elements, shown generally at 5, 6, 7 and 8, which are mounted for sliding movement in slots 9, 10, 11 and 12, respectively. The latching elements are arranged in vertical pairs—elements 5 and 6 constituting one pair and 7 and 8 another pair—and are positioned so that each latching element of a vertical pair must move towards the other element of that pair in order to unlatch that individual element.

The vertical distance between the latching elements of each pair is chosen such that it may easily be spanned by the thumb and an extended finger of the average adult and yet be too far apart for the extended hand of the average child of four years or younger. It has been determined that the maximum handspan of a four year old is generally five inches or less and, therefore, a vertical distance of five and one half inches between latching elements of each pair is satisfactory for the purpose of requiring the child to use two hands to open a single pair of latching elements. Since all four of the latching elements must be unlatched simultaneously in order to gain access, entry by a child is effectively prevented. Additionally, the vertical pairs of latching elements are spaced apart from each other in a horizontal direction in order that no two latching elements on one level, for example elements 5 and 8, may be operated by one hand of a child. A horizontal distance of five and one-half inches has also been found satisfactory in this respect.

As illustrated more clearly in Fig. 3 wherein the details of latching elements 5 and 6 are shown on an enlarged scale, stops 13 and 14 are provided for rigidly retaining the latching elements 5 and 6, respectively, when the door member 3 is in its closed position. The stops, in turn, are fixedly supported from the upper and lower portions of the receptacle wall member 2. Latching element 5 includes a latching bar 15 which is mounted for reciprocal movement in a channel holder 16 that is firmly supported on the door member 3. A spring 17 is utilized to urge the latching bar 15 into en-

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gagement with the stop 13 and a slot 18 is formed in the channeled holder 16, the slot 18 of the holder being aligned with the slot 9 formed in the door member 3. In order to provide for external operation of the latching element 5, an operating knob, 19, having an indented area 20 against which a finger may pull, is rigidly connected to the latching bar 15 by means of an extension 21 formed on the latching bar, the extension 21 passing through the slots 9 and 18 in the door member 3 and channeled holder 16, respectively. Upon movement of the knob 19 against the force of the spring 17, the latching bar 15 becomes disengaged from its stop 13.

The latching element 6 also includes a knob 22 which may be moved against the force of a spring 23 to effect a disengagement of a latching bar 24 from its corresponding stop 14. The structure utilized in the pair of latching elements 5 and 6 may be duplicated in latching elements 7 and 8 (previously shown in Figs. 1 and 2) to provide the desired two pairs of vertically moving latching elements. By grasping each pair of latching elements between a thumb 25 and an extended finger 26 and squeezing and pulling with both hands in a single natural movement towards the operator, the door member 3 of the portable medicine chest may be easily opened by an adult.

It should be noted that the latching arrangement described is particularly useful when applied to a portable medicine chest since there are no excessive torques involved which would tend to cause the movable chest to twist away from the user while he is opening it, thereby frustrating his attempt to open the chest. Moreover, the squeeze-pull movement necessary to effect opening is a physiologically natural movement which is conveniently and easily executed by adults but, due to the separation of the latching elements, can only be accomplished by children with great difficulty through the use of artificial aids.

It is apparent that, with minor modifications, the pair of latching elements 5 and 6 could be mounted on one side of the receptacle wall member 2 and the stop members 13 and 14 could be mounted adjacent thereto on the door member 3 of the receptacle. By similarly mounting latching elements 7 and 8 on the opposite wall member of the receptacle, mounting their respective stops on the door member, mounting the hinges 4 at the bottom or top of the chest, and utilizing a spring to urge the door open, an alternative arrangement of my invention would be achieved which would still be within the spirit and scope of my invention.

In order to conveniently allow a portable medicine chest incorporating my invention to be both used in the sickroom when required and permanently stored in a great many previously installed fixed medicine chests when not needed, the portable chest may, for example, have dimensions including an overall length of nine inches, an overall height of seven inches, and an overall depth of four inches.

An additional modification of my invention has been illustrated in Fig. 4. In this modification, the right hand pair of latching elements 5 and 6 has been replaced by a single latching element shown generally at 27. Latching element 27 is similar to each of the other individual latching elements in details of construction except that it is arranged to be opened by a sliding movement in a horizontal plane within slot 27a rather than utilizing the vertical movement required by the previously described latching elements. With this arrangement, the handspan of an adult is still required in order to open latching elements 7 and 8 and, additionally, the horizontal distance between latching element 27 and latching elements 7 and 8 is still in excess of the span of a child's hand; however, should the user be carrying something in his right hand, all that is required to open latch 27 is a lateral pull with a single finger of the hand that is carrying the product. This embodiment, while still provid-

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ing a safeguard against unauthorized entrance by a child, provides convenient and relatively effortless entry by an adult without the necessity of placing aside the product carried in the hand.

A further embodiment of my invention has been illustrated in Figs. 5 and 6. In this embodiment each of the sliding latching elements 5, 6, 7 and 8 of Fig. 2 has been replaced by pivotally mounted latching elements shown generally at 28, 29, 30 and 31, respectively, which extend through the door member 3 via corresponding slots 9, 10, 11 and 12, respectively, formed in the door member.

As illustrated more clearly in Fig. 6 wherein the details of latching elements 28 and 29 are more clearly shown on an enlarged scale, inwardly extending stops 32 and 33, which are rigidly connected to the receptacle wall member 2, are provided for engagement with the latching elements. The stops 32 and 33 each include a corresponding opening 34 and 35 formed therein, respectively, through which corresponding latching levers 36 and 37 pass when the door is closed.

The structures of latching elements 28 and 29 are essentially similar and, therefore, only the details of construction of latching element 28 will be described. This element includes the previously mentioned latching lever 36 which is pivotally mounted at pivot point 38 to a bracket 39, the bracket, in turn, being rigidly fastened to the door member 3. In order to resiliently urge the latching lever 36 to its engaged position and keep the outer end of the lever up against the top end of the slot 9, a spring 40 is provided which extends between the door member 3 and the latching lever 36 at a point 41 located below the pivot point 38. The latching lever 36 includes a lip portion 42 which engages an edge 43 of the opening 34 as previously mentioned. Additionally, the latching lever 36 includes a camming edge 44 which rides against the edge 43 of hole 34 in order to guide the end of the latching lever through the hole 34 when closing the door member.

It should be noted that the slot 9, pivot point 38, and stop 32 are so aligned that, when the latching lever is engaged with the stop, the lever is at the upper end of slot 9 and, when the latching lever is depressed against the lower end of slot 9, the latching lever will clear the stop 32 and freely move through the hole 34. Additionally, when the latching lever is in its depressed position and against the lower end of slot 9, the external end of the lever remains above a horizontal plane. A similar arrangement is utilized in the lower latching element 29 with the result that the external end of latching lever 37 remains below the horizontal plane. These provisions for the external ends of latching levers 28 and 29 conveniently assist the user in applying both the squeezing and pulling forces at the same time in order to open the door of the medicine chest with a minimum of effort and physiological frustration.

The foregoing description relating to the structure of latching elements 28 and 29 is also applicable to the left hand vertical pair of latching elements 31 and 30 since their construction essentially duplicates the construction utilized in latching elements 28 and 29.

It is apparent that this embodiment may, with minor modifications, be changed by mounting a pair of the latching elements on each side of the receptacle wall member 2 instead of on the door member 3 and supporting the stops from the door member 3 instead of from the wall member, in a manner similar to that pointed out for the embodiment of Figs. 1, 2 and 3 previously, without departing from the spirit and scope of my invention. Additionally, the embodiment of Figs. 5 and 6 may be utilized with three latching elements, similarly arranged as in the Fig. 4 embodiment, without departing from my invention in its broader aspects. Furthermore, although my invention has been described in an environment of a medicine chest, it is apparent that it may be utilized

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with any receptacle into which it is desired to deny entrance to children.

While I have shown and discussed particular embodiments of my invention, it will be obvious to those skilled in the art that various other changes and modifications may be made without departing from the broader inventive concepts disclosed herein and I, therefore, aim in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination with a portable medicine chest comprising a receptacle forming wall member and a door member hingedly connected to said wall member, first and second latching means movably mounted on said door member and engageable with first and second stops positioned on said wall member for normally retaining said members in closed relation, said latching means being spaced apart by a range of between five and eight inches and being spring biased into engagement with said stops such that they require a latch disengaging force to be applied thereto in order to effect unlatching; third latching means mounted on said door member and being spring biased into engagement with a third stop positioned on said wall member for normally retaining said members in closed relation, said third latching means being spaced apart from both of said first and second latching means by at least five inches; and latch actuating means operatively connected to each of said latching means and extending outwardly therefrom a sufficient distance to be grasped such that latch disengaging and door opening

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forces may both be concurrently exerted on each of said latching means, at least two of said latch actuating means requiring movement in a direction to decrease the distance therebetween in order to effect unlatching of their respective latching means whereby simultaneous operation of said first, second and third latching means is necessary in order to open said portable medicine chest.

2. The combination of claim 1 wherein said portable medicine chest is constructed and arranged so as to be able to be removably supported within a conventional fixed medicine chest and wherein said first and second latching means are mounted for movement toward each other in a first vertical plane and said third latching means is mounted for movement in a second vertical plane, and further including fourth latching means mounted on said door member for movement in said second vertical plane, said fourth latching means being spring biased into engagement with a fourth stop positioned on said wall member and being spaced apart from said third latching means by a range of between 5 and 8 inches, whereby simultaneous operation of all four latching means is necessary in order to open said portable medicine chest.

References Cited in the file of this patent

UNITED STATES PATENTS

907,085	McNutt	Dec. 15, 1908
2,062,973	Gluckstein	Dec. 1, 1936
2,153,916	Dunbar	Apr. 11, 1939
2,206,848	McAvoy	July 2, 1940
2,233,699	Gorrell	Mar. 4, 1941