Nov. 9, 1937. J. W. SMITH 2,098,469

FOLDABLE ENCLOSURE

Filed March 10, 1936

Fig. 1

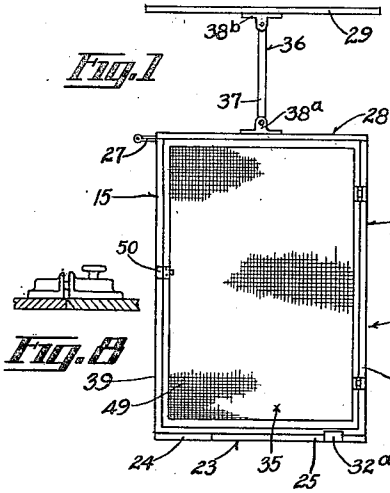


Fig. 2

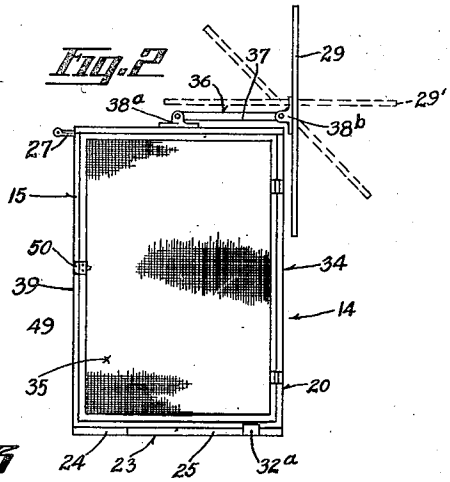


Fig. 9



Fig. 8

Fig. 3

Fig. 6

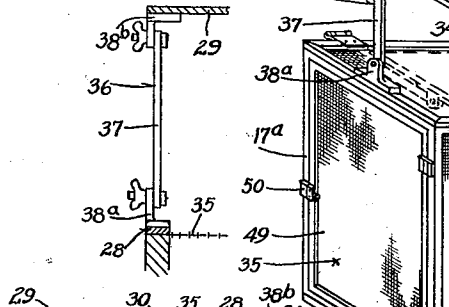


Fig. 7

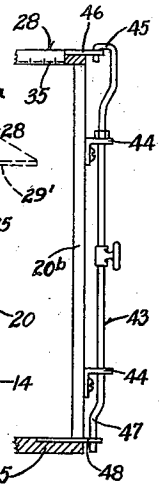


Fig. 4

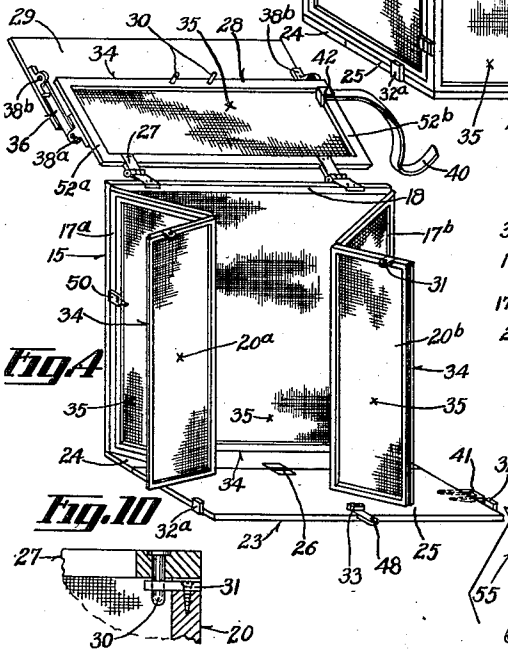


Fig. 5

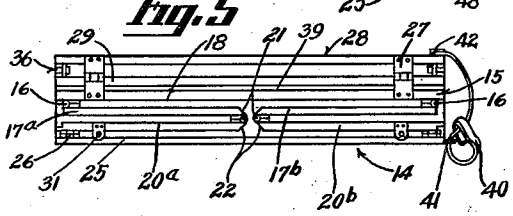
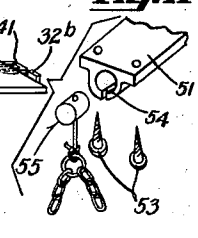


Fig. 10

Fig. 11



Inventor
JOHN W. SMITH
William F. Feyrer
Attorney

Patented Nov. 9, 1937 2,098,469

UNITED STATES PATENT OFFICE

2,098,469

FOLDABLE ENCLOSURE

John W. Smith, Norwalk, Conn.

Application March 10, 1936, Serial No. 68,007

10 Claims. (Cl. 20—2)

Although there have in recent years been a few efforts to provide foldable enclosures for children most of these resulted in cumbersome and unwieldy structures. Also, most of these efforts have resulted in only side wall enclosures, primarily intended to confine a child to a very restricted area. So far as applicant is aware no one has provided a foldable enclosure which is protected on all sides so that other children cannot throw harmful balls, stones or the like into the enclosure or so that harmful flies, mosquitoes and the like cannot enter the enclosure. Also, it is believed that no one has heretofore provided a foldable enclosure with associate folding means adapted to protect the child from sun and the rain.

My invention relates to new and useful improvements in foldable enclosures, especially enclosures for young children, overcoming some of the aforementioned shortcomings.

A primary object of the invention is to provide an enclosure which although affording protection to an occupant from the top and bottom as well as from sides, is readily collapsed or folded into a compact unit.

A further object of the invention is to provide a foldable enclosure that is rigid when set up and is compact when collapsed.

A still further object of the invention is to provide a foldable enclosure that may be effectively locked when set up in its normal position.

Yet another object is to provide a foldable enclosure which may be folded very easily and which can be transported and stored very conveniently.

An important feature of the invention consists in providing a foldable enclosure in which the bottom of the enclosure has a portion which is adapted to be swung up to overlie the movable side walls after they have been moved to a folded position.

Another feature of the invention resides in providing an enclosure of the type described with a folding top member.

Still another feature of the invention involves the provision of a foldable enclosure with an adjustable and folding awning member.

Other and more specific features of the invention, residing in advantageous forms, combinations, and relation of parts will hereinafter appear.

In the drawing illustrating the preferred embodiment of my invention:

Figure 1 is an end view of the device.

Figure 2 is a view similar to Figure 1 showing the adjustable and folding awning member in another position.

Figure 3 is a perspective view of the enclosure.

Figure 4 is a perspective view of the enclosure partially folded.

Figure 5 is a top view of the device in a completely folded position.

Figure 6 is a detail view showing the means by which the awning member is connected to the top member.

Figure 7 is a detail view of the means used to lock the top with the front wall and the bottom.

Figure 8 is a detail view of the latching means used on the door.

Figure 9 is a detail view of one of the hinges.

Figure 10 is a detail view showing a bolt projecting from the underside of the top cooperating with an eyelet on one of the sections of the front wall to prevent movement of the section after the structure has been set up.

Figure 11 is a fragmentary detail of a support.

Referring now in detail to the drawing for the present preferred embodiment of the invention, there is shown a foldable structure 14 having a stationary back wall 15. Pivotally connected to the stationary back wall 15 by means of conventional hinges 16 (see Figure 5) are two oppositely disposed end walls 17*a* and 17*b* which are adapted to be swung inwardly from a normal or set-up position as shown in Figure 3 to a folded position overlying the inner face 18 of the back wall as shown in Figure 5. The front wall 20 is composed of two sections 20*a* and 20*b*, each of which is on hinges 21 pivotally connected to the adjacent end walls 17*a* and 17*b* respectively to permit its being folded thereon. Preferably, and as shown, the hinged connection is such that, when in a folded position, the outer face of each section of the front wall 20 contacts the outer face of the adjacent end walls 17*a* and 17*b*.

In order that the hinged connections between the respective walls may be more rigid, it is preferable, as shown, to provide the walls 17*a*, 20*a*, 17*b* and 20*b* with oblique abutting faces 22. In this manner, although each movable wall may be swung in a direction to enable its assuming a folded position, movement of the wall in the other direction is limited by the cooperation of the complementary oblique abutting face of the adjacent wall.

Also foldably associated with the back wall 15 is the bottom or floor member 23, comprising a fixed portion 24 and a movable portion 25. The fixed portion is rigidly secured to the back wall 15 in any suitable manner and extends into the en-

closure a distance sufficient to permit the positioning thereabove of the end walls 17a and 17b and front wall 20 of the enclosure after they have been moved to the folded position shown in Figure 5. The movable portion is pivotally connected to the fixed portion by means of one or more hinges 26 and is adapted to be swung upwardly to overlie the folded side walls. This construction is particularly advantageous in that the bottom together with the stationary back wall serves to form an envelope to restrain movement of the end walls and the front wall after they have been moved to a folded position.

To complete the enclosure or foldable structure 14, there is pivotally connected to the back wall 15 by means of hinges 27 a top member 28 to which there is preferably attached, in a manner to be described hereinafter, an adjustable and folding awning member 29.

Preferably, when the enclosure 14 is in normal or set up position as shown in Figure 3, two pins 30 projecting downwardly from the under face of the top cooperate with eyelets 31 projecting inwardly from adjacent the upper edges of the two sections of the front wall to prevent movement of the two sections 20a and 20b of the front wall relative to the top and an inadvertent collapsing or folding up of the structure (see Figures 4, 5 and 10). As a further means of rigidifying the enclosure, the bottom member 23 is provided with stops 32a and 32b which limit outward movement of the end walls 17a and 17b respectively, and with a stop 33 which limits inward movement of the two sections 20a and 20b of the front wall 20.

Preferably, and as shown, the back wall 15, the end walls 17a and 17b, and the two sections 20a and 20b of the front wall 20, which together constitute the side walls of the enclosure, and also the top member 28 are each comprised of a supporting frame 34 on which is secured a fine mesh wire screen 35. By this expedient there is made possible a structure which while affording substantial protection to a child placed therein, does not shut out the much desired air and light.

While a screened enclosure is preferred, it is appreciated, however, that side walls and top may be constructed of glass, cloth, bars or any other desired material. Also, if preferred it may be constructed partially of screen and of cloth.

The awning member 29, to which brief reference has hereinbefore been made, is of particular importance when the top member 28 is screened, but even if glass be substituted for the screen, there are certain meritorious results following from its use. If a screen is used in the top member, the awning will serve to protect the occupant of the enclosure from the rain as well as from the direct rays of the sun, and if a glass top is used, the awning will function as a sun shade.

A preferred form of connection 36 between the awning member 29 and the top 28 may be advantageously achieved by means of pivotally connecting arms 37 to brackets 38b and 38a secured to the awning member and the top respectively. With this construction, the awning member may be adjusted to the position shown in Figure 3 or to various other positions for example as shown in Figure 2.

When it is desired to fold up the enclosure 14, the awning member 29 is swung down to the position shown in dot-and-dash lines 29' in Figure 3 and the top member 28 is swung back to overlie the outer face 39 of the stationary back wall 15. In this manner the awning member is effectively enclosed between the top 28 and the back wall 15. And, if desired, in order that the top and awning member may lie more nearly parallel to the back wall when in folded position, the hinges 27 which serve to pivotally connect the top to the back wall may be, and are shown as, set out slightly from the back. The folding of the remaining parts of the enclosure is achieved by first swinging each section 20a and 20b of the front wall 20 to overlie the outer face of the adjacent end walls 17a and 17b and then, or simultaneously with the first named operation, folding the end walls 17a and 17b to overlie the inner face 18 of the back wall, after which the movable portion 25 of the bottom member 23 is swung upwardly to lie contiguous the collapsed front wall.

To facilitate carrying of the folded enclosure 14 and to maintain the various parts in folded position, a strap 40 may be provided preferably secured at one end to the movable portion of the bottom and at the other end to the face of the top 28 as by plates 41 and 42 respectively.

In order that the enclosure 14 may be securely locked when set up for use, there is provided a bolt or rod 43 slidably associated with one of the sections 20b of the front wall 20 by means of the brackets 44 (see Figures 3 and 7). This bolt has a hooked portion 45 at its upper end which cooperates with a latching lug 46 secured to the top, and has a portion 47 at its lower end which cooperates with a latching lug 48 secured to the bottom. To prevent movement of the rod after it has been moved into cooperating position with the latching lugs, there may be used a padlock or any other convenient lock. By this means the top, front, and bottom are effectively locked together and due to the connection between these parts and the other parts of the enclosure, it is rendered a rigid and securely locked structure.

In its normal or set-up position, the enclosure thus provides a place where a child may be placed in perfect safety from insects or animals, and in which, due to the fact that protection is afforded at the top as well as on the sides, there is no danger of the occupant being struck by falling objects such as tree limbs, balls or stones. Furtherfore, it is advantageous in that although it be placed in a front yard or other semi-public place, the child is protected from persons having dirty hands, from contact with persons carrying contagious diseases and also from molestation by kidnappers and the like.

Access to the interior of the set up enclosure 14 may be had by means of a door or gate 49 formed within and hinged to one of the end walls 17a and held normally closed by means of a suitable latching and locking means 50. This gate makes it possible to wheel a complete baby carriage into the enclosure, for example, while a baby is asleep, to protect it from flies, insects and the like. Most generally, however, it is used as a playground. The gate 49 with the outer lock 50 provides an advantageous means to place and maintain a child within the enclosure, and to take it therefrom.

If preferred, the top 28 may be provided with means for supporting a crib. To this end the present invention provides a channel bar 51 (Figure 11) which may be secured to strips 52a and 52b of the top 28 as by screws 53, and the bar provided with a channel 54 adapted to receive a pair of connections 55 at opposite ends of a hanging cradle of conventional form. In recent years many basket-like hanging cribs have been provided to be hung in automobiles. These cribs

usually have a pair of chains at each end. By taking these usual chains or the like and providing a ball or like connection thereon it is possible to slide the crib into and out of place relative to the inside of the enclosure.

From the foregoing it will be perceived that there has been devised an enclosure which, although when in collapsed or folded position can be easily transported and stored in a comparatively small space, is, when set up, a rigid structure and an effective safeguard to the child placed inside.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention what is claimed as new is:

1. A foldable enclosure having a stationary side wall; a plurality of movable side walls pivotally associated with said stationary side wall and movable from a normal to a folded position overlying the inner face thereof; and a bottom member secured to said stationary side wall and having a pivotally associated portion movable from a normal position extending inwardly from said stationary side wall to a position overlying the movable side walls when the latter are in a folded position.

2. A foldable enclosure having a stationary side wall; a plurality of movable side walls pivotally associated with said stationary side wall and movable from a normal to a folded position overlying the inner face thereof; a bottom member secured to said stationary side wall and having a pivotally associated portion movable from a normal position extending inwardly from said stationary side wall to a position overlying the movable side walls when the latter are in a folded position; and a top member pivotally associated with said stationary side wall and movable from a normal position to a folded position overlying the outer face thereof.

3. A foldable enclosure comprising a stationary back wall; a pair of oppositely disposed and movable end walls pivotally connected to said stationary back wall to permit the former to be swung from a normal position to a folded position overlying the inner face of said back wall; a front wall having two sections, one of said sections being hingedly connected to one of said movable end walls, and the other of said sections being hingedly connected to the other of said end walls whereby each section is adapted to be moved from a normal position to a folded position upon the adjacent end wall; a bottom member secured to and extending inwardly from said back wall and having a pivotally associated portion adapted to be swung upwardly to overlie said sections of the front wall and said end walls when the latter are in a folded position; and a movable top member pivotally associated with said back wall and foldable to overlie the outer face thereof.

4. A foldable enclosure comprising a stationary back wall; a pair of oppositely disposed and movable end walls pivotally connected to said stationary back wall to permit the former to be swung from a normal position to a folded position overlying the inner face of said back wall; a front wall having two sections, one of said sections being hingedly connected to one of said movable end walls, and the other of said sections being hingedly connected to the other of said end walls whereby each section is adapted to be moved from a normal position to a folded position upon the outer face of the adjacent end wall; and a bottom member secured to said back wall, said bottom member having a fixed portion extending inwardly from said back wall a distance sufficient to permit the positioning thereabove of the end walls and the front wall when the latter are in folded position, and having a pivotally associated portion adapted to be swung upwardly to overlie said sections of the front wall and said end walls when the latter are in a folded position.

5. A foldable enclosure comprising a stationary back wall; a pair of oppositely disposed and movable end walls pivotally connected to said stationary back wall to permit the former to be swung from a normal position to a folded position overlying the inner face of said back wall; a front wall having two sections, one of said sections being hingedly connected to one of said movable end walls, and the other of said sections being hingedly connected to the other of said end walls whereby each section is adapted to be moved from a normal position to a folded position upon the adjacent end wall; a bottom member secured to and extending inwardly from said back wall and having a pivotally associated portion adapted to be swung upwardly to overlie said sections of the front wall and said end walls when the latter are in a folded position; means on said bottom member to limit outward movement of said end walls and inward movement of said sections of the front wall, when the latter are in normal position; and a movable top member pivotally associated with said back wall and foldable to overlie the outer face thereof.

6. A foldable enclosure comprising a stationary back wall; a pair of oppositely disposed and movable end walls pivotally connected to said stationary back wall to permit the former to be swung from a normal position to a folded position overlying the inner face of said back wall; a front wall having two sections, one of said sections being hingedly connected to one of said movable end walls, and the other of said sections being hingedly connected to the other of said end walls whereby each section is adapted to be moved from a normal position to a folded position upon the adjacent end wall; pin receiving means on each of said sections of the front wall; a bottom member secured to and extending inwardly from said back wall and having a pivotally associated portion adapted to be swung upwardly to overlie the sections of said front wall and said end walls when the latter are in a folded position; a pivotally associated movable top member associated with said back wall and foldable to overlie the outer face thereof; and pin means on said top member cooperable with each of said pin receiving means for restraining movement of said sections of the front wall relative to said top.

7. A foldable enclosure having a stationary side wall; a plurality of movable side walls foldably associated with and movable to a folded position upon the inner face of said stationary side wall; a bottom member secured to and extending inwardly from said stationary side wall and having a pivotally associated portion movable upwardly to overlie said movable side walls when the latter are in folded position; a top member pivotally associated with said stationary side wall and movable to overlie the outer face thereof; an adjustable awning member; and pivotally mounted arms connecting said awning member to said top member whereby the former may be moved relative to said top member and folded thereon.

8. A foldable enclosure comprising a station-

ary back wall; a pair of oppositely disposed and movable end walls pivotally connected to said stationary back wall to permit the former to be swung from a normal position to a folded position overlying the inner face of said back wall; a front wall having two sections, one of said sections being hingedly connected to one of said movable end walls, and the other of said sections being hingedly connected to the other of said end walls whereby each section is adapted to be moved from a normal position to a folded position upon the outer face of the adjacent end wall; a bottom member secured to said back wall, said bottom member having a fixed portion extending inwardly from said back wall a distance sufficient to permit the positioning thereabove of the end walls and the front wall when the latter are in folded position, and having a pivotally associated portion adapted to be swung upwardly to overlie said sections of the front wall and said end walls when the latter are in a folded position; and a top member pivotally connected to said back wall and movable from a normal position to a folded position overlying the outer face thereof.

9. A foldable enclosure having a stationary side wall; a plurality of movable side walls pivotally associated with said stationary side wall and movable from a normal to a folded position overlying the inner face thereof; a bottom member secured to said stationary side wall and having a pivotally associated portion movable from a normal position extending inwardly from said stationary side wall to a position overlying the movable side walls when the latter are in a folded position; a top member pivotally associated with said stationary side wall and movable from a normal position to a folded position overlying the outer face thereof; and only one movable rod for locking the movable side walls, bottom member and top member together in a normal and extended position.

10. A foldable enclosure having a stationary side wall; a plurality of movable side walls pivotally associated with said stationary side wall and movable from a normal to a folded position overlying the inner face thereof; a bottom member secured to said stationary side wall and having a pivotally associated portion movable from a normal position extending inwardly from said stationary side wall to a position overlying the movable side walls when the latter are in a folded position; a top member pivotally associated with said stationary side wall and movable from a normal position to a folded position overlying the outer face thereof; and a securing means for holding said top and bottom members in a folded position and for concurrently locking the stationary side wall and said movable side walls therebetween.

JOHN W. SMITH.

CERTIFICATE OF CORRECTION.

Patent No. 2,098,469. November 9, 1937.

JOHN W. SMITH.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 46-47, for "Furtherfore" read Furthermore; page 3, second column, line 53, claim 6, strike out the words "pivotally associated"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of March, A. D. 1938.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)