Nov. 6, 1951 N. W. WHITE 2,574,079

PLAY PEN

Filed June 9, 1948 2 SHEETS—SHEET 1

Fig. 1.

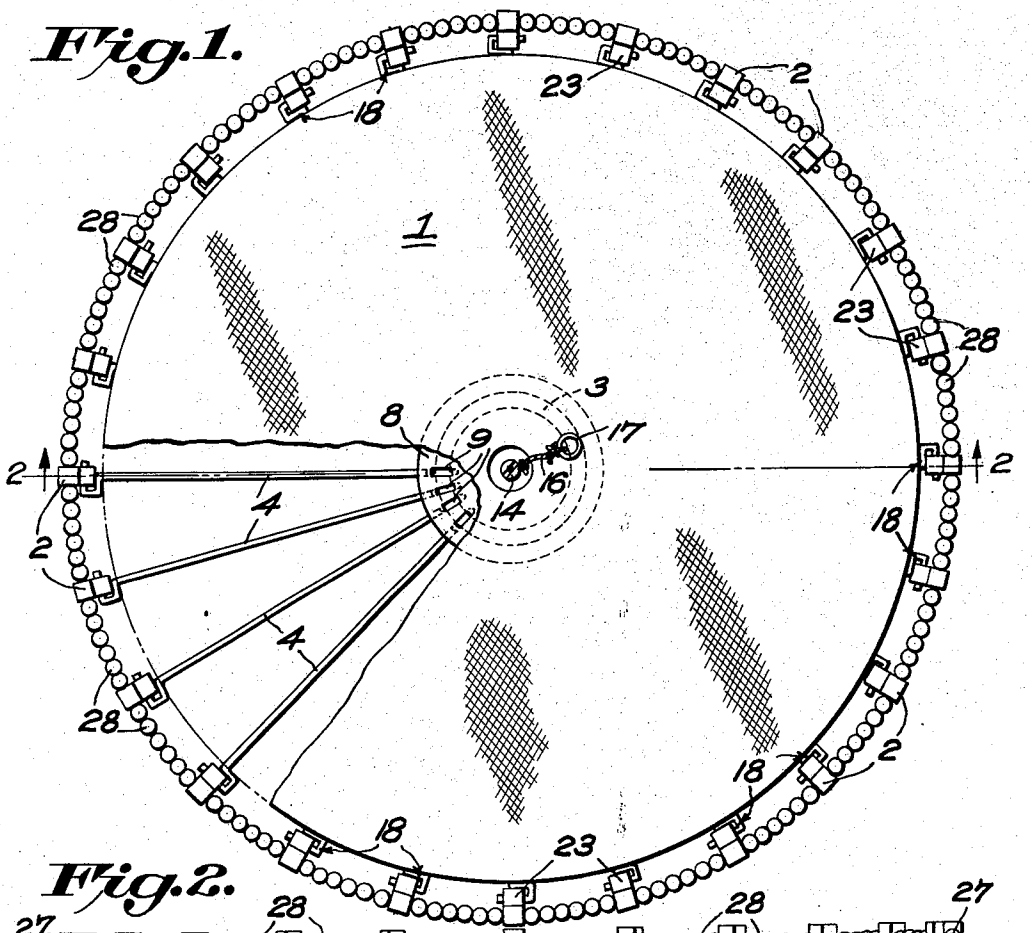
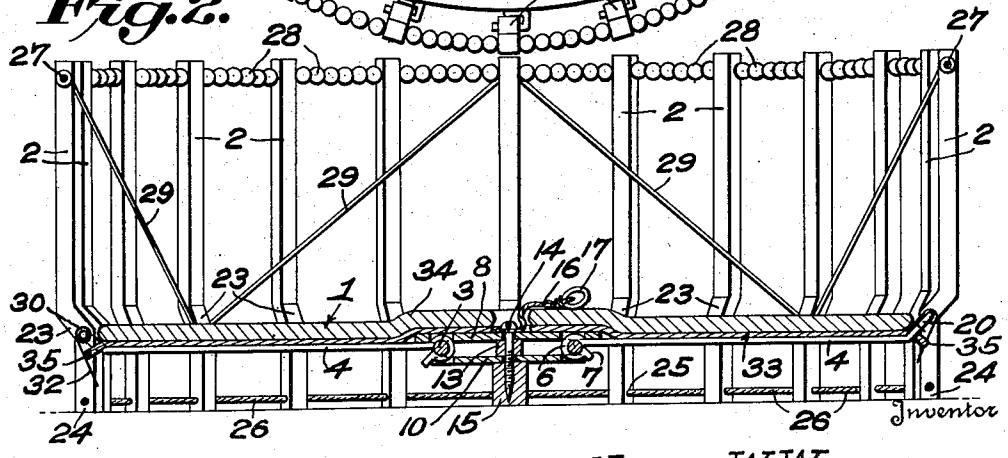


Fig. 2.



Inventor

NORMAN W. WHITE,

By

Lemmes, Keegin, Robinson & Lemmes.

ATTORNEYS

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Fig. 3.

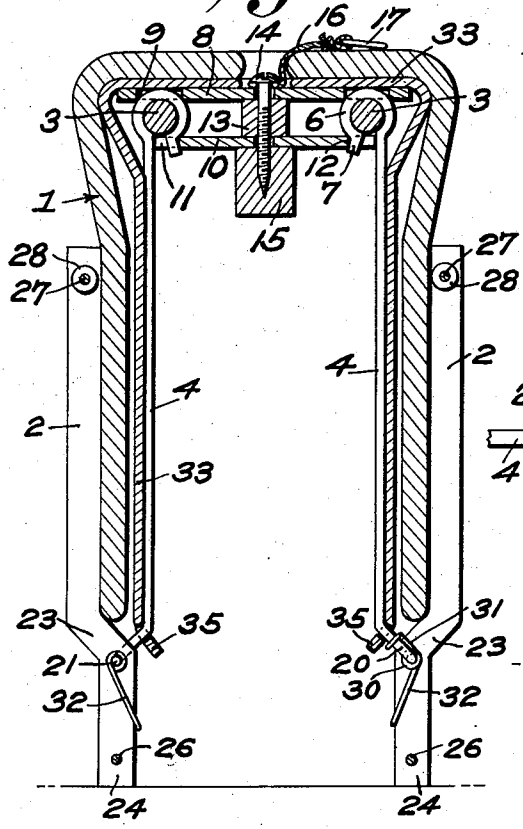


Fig. 4.

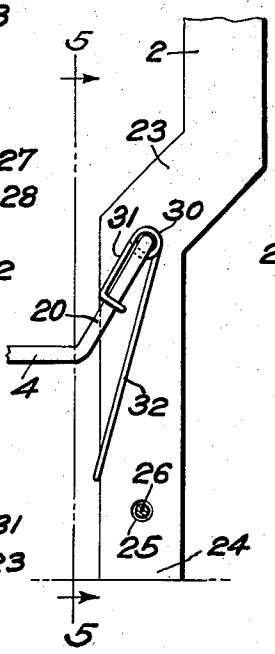


Fig. 5.

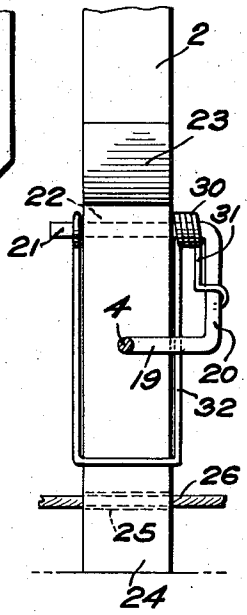
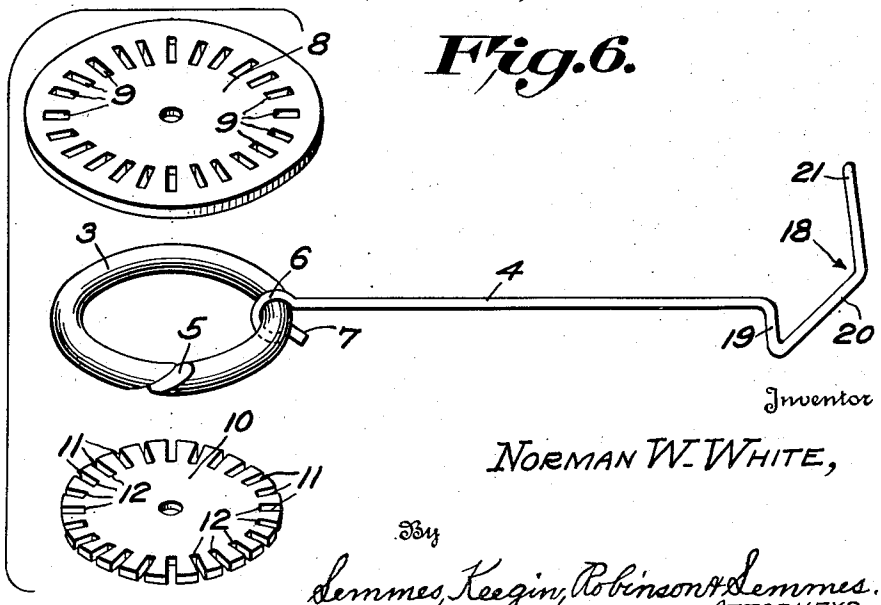


Fig. 6.



Inventor

NORMAN W. WHITE,

By

Lemmes, Keegin, Robinson & Lemmes.

ATTORNEYS

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PLAY PEN

Norman W. White, Lynnfield Center, Mass.

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3 Claims. (Cl. 5—99)

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This invention relates to a play pen and more partcularly to a play pen which may be folded into a compact unit to facilitate its storage and transportation.

In most instances it is desirable that the play pens for infants be collapsible into a compact unit suitable for storage or transportation when the pen is not in use. Most of the play pens hitherto available have folded into a relatively long and wide, but thin, unit which will not fit into a small storage space. In addition to the large amount of room required for storage, which generally is at a premium in many apartments, the long dimension of the folded play pen makes it awkward to handle. Moreover, the rigid floorboards with which most play pens are equipped add appreciably to the weight of the pen.

It is an object of this invention to provide a play pen which may be folded into a compact bundle to facilitate its transportation and storage.

Another object of this invention is to provide a play pen which may be folded into a compact bundle for transportation and readily set up at the point of use.

A further object of this invention is to provide a folding play pen of unitary structure in which the mat covering the floor of the pen folds with the pen.

It is also an object of this invention to provide a light-weight top folding play pen which may be easily transported.

With these and other objects in mind which will become apparent in the following detailed description, this invention resides in a substantially circular play pen in which horizontal rods extend substantially radially from a central supporting member to which they are rotatably connected. Posts pivotally attached to the outer end of the rods normally extend upward to form the outer wall of the play pen. On folding the play pen, the horizontal rods rotate downwardly in an umbrella fashion and the posts rotate in an opposite direction to lie flat against the rods.

In the drawings:

Figure 1 is a plan view, with portions of the floormat removed, of the play pen in the upright position ready for use;

Figure 2 is a vertical sectional view along the section line 2—2 in Figure 1 of the play pen in an upright position;

Figure 3 is a sectional view of the pen in the folded position;

Figure 4 is a detailed view of the structure rotatably supporting the posts at the end of the horizontal rods;

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Figure 5 is also a detailed view along the section line 5—5 in Figure 4 illustrating the means of supporting the posts and the resilient means aiding in the folding of the play pen; and

Figure 6 is an exploded perspective view of the means for attaching the horizontal rods to the central member.

As is best illustrated in Figure 2, the play pen of this invention has a floor, indicated generally by 1, with an outer wall formed by a plurality of spaced posts 2 extending upwardly from the floor 1 of the pen. A ring 3 is supported at the center of the floor 1 for the reception and support of a plurality of rods 4, substantially horizontal when the pen is in the upright position, which extend radially from the ring to the outer wall of the play pen. As is best illustrated in Figure 6, ring 3 may be broken at 5 for the reception of loops 6 at the inner end of the horizontal rods 4. A lug 7 is provided on the end of the loop 6 to limit the rotation of the rods 4 as the play pen is folded.

A top plate 8 having slots 9 is mounted on the upper surface of the ring 3. The slots 9 receive the loop 6 of the horizontal rods 4 and thereby space the rods regularly around the circumference of the ring 3. In addition to spacing the rods 4, the slots 9 limit the rotation of the rods 4 to a single plane perpendicular to the plane of the ring 3 and prevent any twisting of the rods 4 about their longitudinal axes. The lower surface of the top plate 8 outside of the slots 9 engages the upper surface of the rods 4 to limit their upward rotation on ring 3 to the horizontal position illustrated in Figures 2 and 6.

A bottom plate 10 having a series of notches 11 spaced in alignment with the slots 9 in the top plate 8 is held firmly against the lower surface of the ring 3. The notches 11 receive the loops 6 of the rods 4 in much the same manner as slots 9. The absence of a rim surrounding the notches 11 allows the rods 4 to rotate downward from the horizontal position. The inner ends 12 of notches 11 engage the lug 7 at the end of loop 6 to limit the downward rotation of the rods 4 to approximately the vertical position illustrated in Figure 3 of the drawings.

The top plate 8, ring 3 and bottom plate 10 may be supported by any suitable means such as a bushing 13 through which a screw 14 passes for engagement with a block 15. The block 15 should be of the proper height to support the plates 8 and 10 at a level to hold rods 4 in a

horizontal position when the play pen is in the normal upright position. Any suitable handle, such as a cord 16 engaging screw 13 and having a ring 17 attached to its end should be secured to the top plate to facilitate the folding of the play pen in the manner hereinafter described.

A hook indicated generally by 18 is provided at the outer end of each of the rods 4 for the rotatable mounting of one of the posts 2. The hooks 18, in the preferred form illustrated in the drawings, consist of a base 19 adjoining the rod 4 and extending horizontally substantially at right angles to the rod. A diagonal rod 20 perpendicular to base 19, extends upward and outward from the base 19 to an outer arm 21 extending horizontally and generally parallel to the base 19. In the drawings, hooks 18 are formed by bending the outer end of arm 4. They may, of course, be constructed in any suitable manner. Each of the posts 2 has a horizontal opening 22 passing laterally therethrough near its lower end for the reception of the arm 21 which serves as an axis about which the posts rotate.

Posts 2 may be straight members or may be off-set at 23 to allow the play pen to fold into a slightly more compact bundle, as illustrated in Figure 3. The lower ends 24 of the posts 2 rest on the floor or the ground and support the rods thereabove when the play pen is in use. The posts 2 are apertured at 25 between their lower ends 24 and the openings 22 receiving arms 21. A wire 26 passes through openings 25 in each of the posts and is drawn into a taut condition when the play pen is in the upright position to limit the outward rotation of the lower ends of the posts to the vertical position.

The upper ends of the posts 2 are also apertured for the reception of a cord 27 passing through each of the posts. Cord 27 like wire 26, is in a taut condition when the play pen is in the upright position and limits the outward movement of the upper ends of the posts. A plurality of varied colored beads 28 are strung on the cord 27 to space the upper ends of the posts 2 properly and prevent lateral movement of the posts 2 when the play pen is in use. The beads 28 therefore contribute to the rigidity of the structure as well as providing a source of entertainment for the infant. A further support of the posts 2 is provided by tightly drawn stays 29 extending diagonally from the upper end of some of the posts 2 to substantially the point of attachment to the rods 4 of other posts 2. In this manner, posts at regular intervals around the circumference of the play pen are held in position by stays 29 and lateral displacement of the other posts is prevented by the beads 28 on the tightly drawn cord 27.

A torsion spring 30 is mounted on the arm 21, which serves as an axis for the spring, and has one of its arms 31 hooked around the diagonal member 20 of the hook 18. The other arm 32 engages the posts 2 below their point of support on arm 21. In the preferred form shown, the arm 32 of the torsion spring 30 crosses the inner surface of the posts 2 and is bent back to loop around the arm 21. In this manner the torsion spring 30 holds the posts 2 in place on the arm 21 and prevents them from sliding along the length of the arm.

The torsion spring 30 constantly urges the lower end of the posts 2 outward and tends to rotate the upper end of the posts 2 against the floor surface 1 of the play pen. The force of the torsion spring 30 is opposed when the play pen is in the upright position by the wire 26. The wire 26 is prevented from pulling the lower ends of the posts inward beyond the vertical position by the bases 19 of the hooks 18 which serve as stops, engaging the posts 2 and thereby obstructing inward rotation of the lower end of the posts 2.

The floor of the play pen is formed by a sheet 33 of canvas or other stretch resistant material extending over the upper surface of the rods 4 to form a support for a mat 34. The sheet 33 should be apertured at 35 and equipped with grommets or other reinforcement to engage the hook 18 at the end of each of the rods 4. In this manner the sheet 33 is held in a tight condition and forms a resilient floor for the play pen. The mat 34 is preferably of greater thickness in the regions between the rods 4 than in the regions directly over the rods to form a flat playing surface in the play pen.

If the play pen is in the upright position shown in Figure 2 and it is desired to fold the pen to the position shown in Figure 3 the ring 3 is lifted by means of cord 16 and ring 17. As the ring 3 is lifted, the weight of the posts 2 causes the rods 4 to rotate downwardly. Continued lifting of the ring 2 will diminish the diameter of the circle formed by the outer ends of the rods 4 and the wire 26 will become loose. As wire 26 is loosened, the torsion springs 30 rotate the upper ends of the posts 2 inwardly towards the surfaces of the mat 34. Continued lifting of the ring 17 will ultimately bring the play pen into the condition illustrated in Figure 3. It will be noted that it is not necessary to remove the sheet 33 or the mat 34 as the play pen is folded. These members merely fold into the space between the rods 4 and the posts 2 and are thereby held firmly in place.

The play pen is set up by grasping two posts 2, and their respective rods 4, spaced about 90° apart at the region of the arm 21, and giving an outward pull while the pen is held at an angle to cause the lowermost rods to fall away in a more or less fan-like fashion. The pen is then set on the floor and the opening completed by exerting pressure on the plate 8. As the pen is opened the wire 26 becomes increasingly taut and rotates the posts 2, against the forces of springs 30, to an upright position. The continued exertion of pressure on the top plate 8 results in the posts 2 being pulled by wire 26 against the base 19 of the hooks 18 on the outer end of the rod. When the posts 2 are in this condition the cord 27 at the top of the posts and the stays 29 are taut and provide lateral support for the posts. The sheet 33 is held in a taut condition because of its engagement with the diagonal members 20 and provides a flat resilient floor for the play pen.

The novel play pen described herein folds in an umbrella-like manner into a unitary compact bundle which may be stored in a small space and is easily carried. The unique method of folding allows one to dismantle the pen easily by simply lifting the cord attached near the center of the floor of the pen. By providing a taut sheet of canvas to support a floor mat, the weight of the pen is greatly decreased, thereby further facilitating the carrying of the pen.

While this invention has been described in detail with respect to a particular modification of the play pen, it is to be understood that the concept of this invention is not limited to those

details, but is determined by the scope of the appended claims.

I claim:

1. In a folding play pen a ring, a top plate on the upper surface of the ring, slots in the plate overlying the ring, a bottom plate on the lower surface of the ring and connected to the top plate, slots in the edge of the bottom plate in alignment with the slots in the top plates, rods rotatably engaging the ring at the slots and extending outwardly from the ring under the top plate, posts rotatably mounted on the outer ends of the rods, and resilient means urging the posts to rotate in a direction opposite the direction of rotation of the rods to fold the pen as the top plate is lifted.

2. In a folding play pen a central ring, a plurality of rods, said rods being pivotally mounted at one end of said plurality in spaced relation on the ring to permit the rods to extend radially in the plane of the ring when the pen is in an open position and to be moved perpendicularly to the plane of the ring when the ring is raised, a plurality of vertically extending posts, one end of each post being rotatably secured to the remaining end of a rod, means urging the posts to rotate in a direction opposite to the rotation of the rods to fold the pen when the ring is raised and means supported by the posts to form an enclosure for the pen.

3. In a folding play pen a pair of plates, a central ring secured between two plates, a plu-

rality of rods, said rods being pivotally mounted at one end of said plurality in spaced relation on the ring to permit the rods to extend radially in the plane of the ring when the pen is in an open position and to be moved perpendicularly to the plane of the ring when the ring is raised, a plurality of vertically extending posts, one end of each post being rotatably secured to the remaining end of a rod, means urging the posts to rotate in a direction opposite to the rotation of the rods to fold the pen when the ring is raised, means to maintain the posts in a vertical position when the pen is opened, and means supported by the posts to form an enclosure for the pen.

NORMAN W. WHITE.

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