Sept. 26, 1950 H. E. DUNN 2,523,422

COLLAPSIBLE PLAY PEN

Filed Nov. 1, 1948 2 Sheets-Sheet 1

Fig. 1.

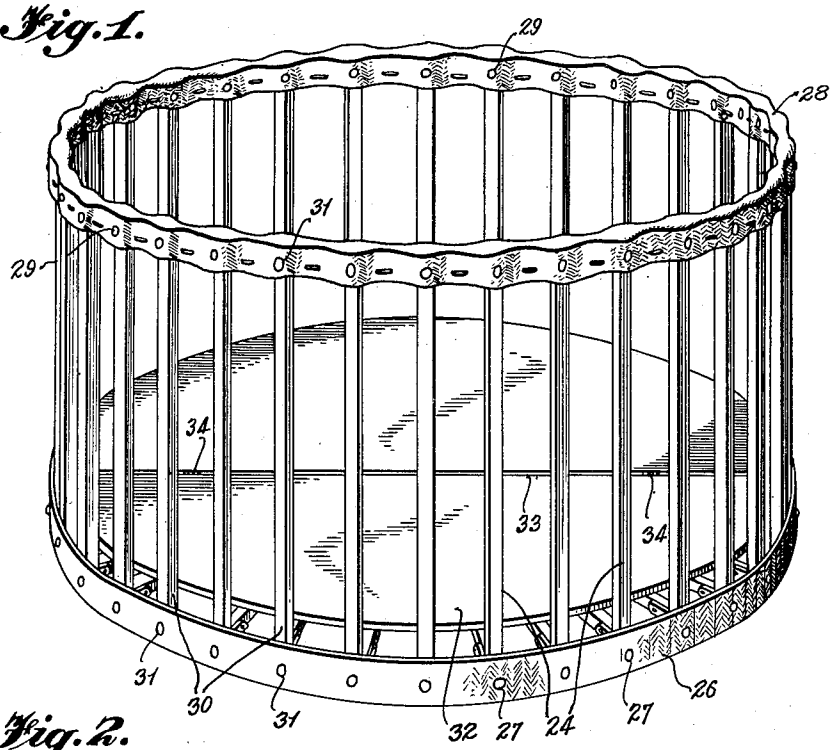
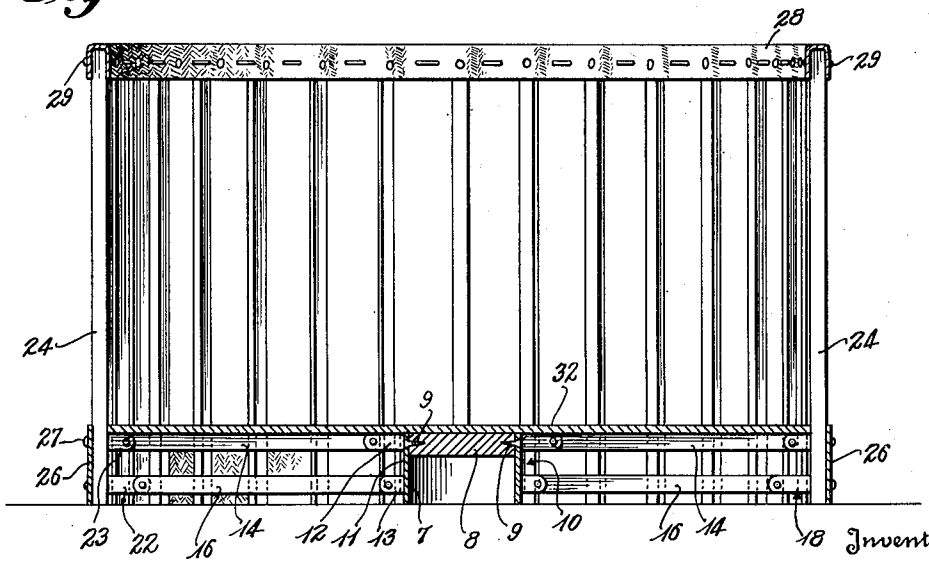


Fig. 2.



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Sept. 26, 1950 H. E. DUNN 2,523,422

COLLAPSIBLE PLAY PEN

Filed Nov. 1, 1948 2 Sheets-Sheet 2

Fig. 3.

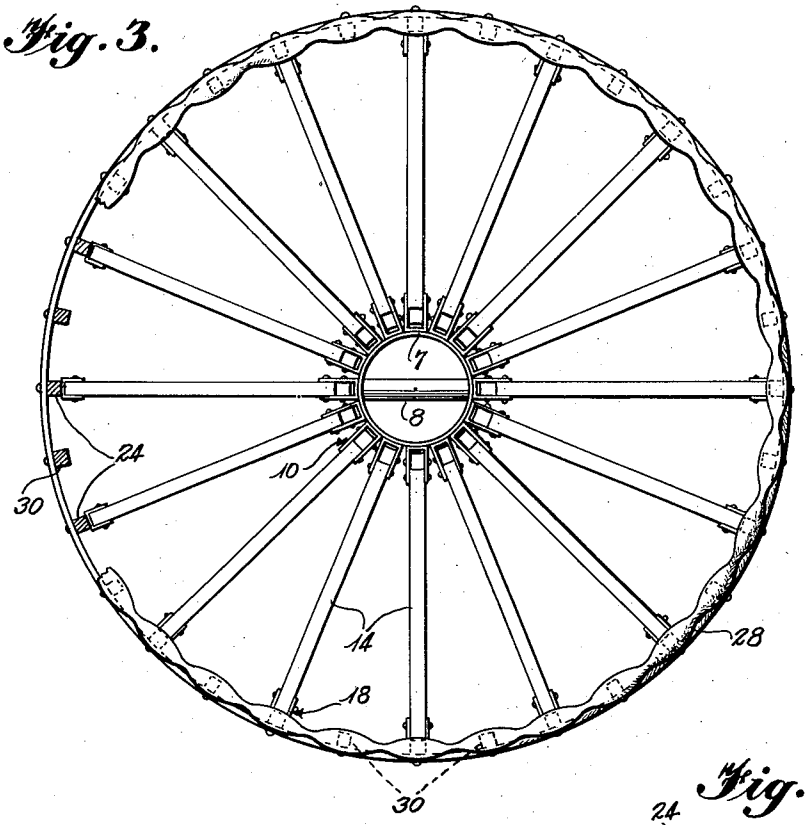


Fig. 4.

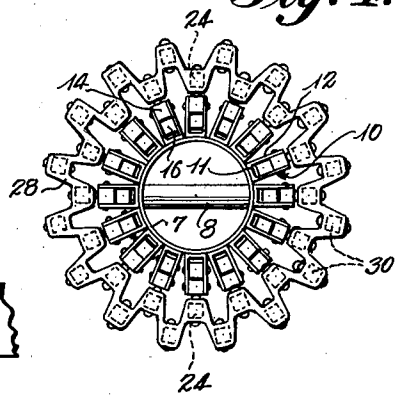


Fig. 5.

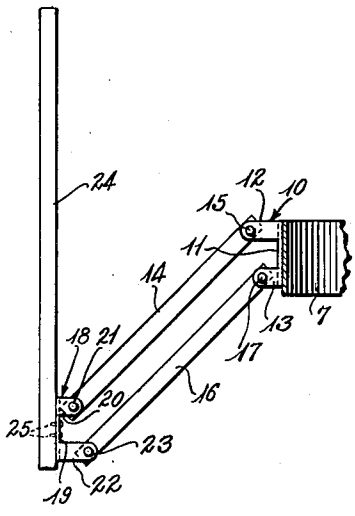
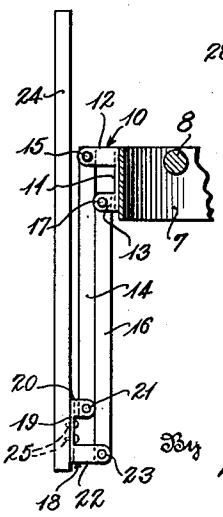


Fig. 6.



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COLLAPSIBLE PLAY PEN

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Application November 1, 1948, Serial No. 57,660

3 Claims. (Cl. 5—99)

1

The present invention relates to a collapsible play pen.

Play pens have become quite popular with families which include infants and very small children. The infant or small child may be placed in the play pen and permitted to remain there in comparative safety without the necessity of close attention. The mother or nurse is thus able to perform other tasks without fear that harm will befall the child. These play pens are usually capable of being collapsed or folded to permit more convenient storage or transportation. The collapsible play pens with which I have heretofore been familiar have had defects which appear to be more or less inherent in the designs which have been used. The play pens which have been capable of being collapsed or folded sufficiently to permit their being easily stored or transported in limited space have been unstable when in use and have lacked the rigidity and strength which are desirable when the pen is used to confine an active child. The play pens which heretofore possessed the desired stability and strength have not been capable of being folded or collapsed into a package small enough for convenient carrying or other transportation.

It is a primary object of the present invention to provide a collapsible play pen which has adequate strength when in use and which can be collapsed to facilitate storage or transportation in limited space.

A further object of the invention is to provide a collapsible play pen which can be manufactured and distributed at low cost.

Other objects and advantages of the invention will be referred to in the following detailed description which has reference to the accompanying drawings wherein:

Figure 1 is a perspective view of an exemplary play pen constructed in accordance with the present invention and illustrating the pen in condition for use;

Figure 2 is a transverse sectional view of the play pen;

Figure 3 is a top plan view of the play pen with the floor removed and shows portions of the device in section;

Figure 4 is a top plan view showing the play pen in collapsed condition;

Figure 5 is a fragmentary view showing portions of the play pen in intermediate positions which they occupy during collapsing or opening of the play pen; and

Figure 6 is a fragmentary view similar to Figure 5 but illustrating the portions of the play pen in the positions which they occupy while the pen is collapsed.

2

I provide a central core member or ring 7 which has a diametrically extending handle 8 secured thereto by any suitable means such as screws 9. A plurality of hinge clips which are designated generally by reference numeral 10 are disposed circumferentially about the outer surface of the core member 7 and are secured thereto by spot welding or by any other suitable means. The hinge clips 10 are best illustrated by Figures 4, 5 and 6, and include a base plate 11, a pair of outwardly extending ears 12 at the upper end of the base plate and a pair of outwardly extending ears 13 at the lower end of the base plate. The ears 12 are somewhat longer than the ears 13 for a purpose which will be apparent as the description proceeds.

An upper arm 14 is hinged to the ears 12 by means of a pin 15, and a lower arm 16 is hinged to the ear 13 by means of a pin 17. A hinge clip is designated generally by the reference numeral 18 and may be identical to the hinge clip 10 except for the fact that the hinge clip 18 is in inverted position. The hinge clip 18 includes a base plate 19 provided with a pair of upper ears 20 to which the outer end of the upper arm 14 is hinged by means of a pin 21 and a pair of lower ears 22 to which the outer end of the lower arm 16 is hinged by means of a pin 23. The base plate 19 of the hinge clip 18 is secured to the lower end of an upright bar 24 by any suitable means such as screws 25.

It will be understood that there are a plurality of assemblies of the hinge clips 10 and 18, of the pairs of upper and lower arms 14 and 16 and of the upright bars 24. Each such assembly is identical in all essential respects, and it is sufficient to specifically describe only one of the assemblies. It will be seen that the hinge clips 10 and 18 cooperate with the upper and lower arms 14 and 16 to form a four-bar linkage which serves to maintain the upright bar 24 always parallel to the wall of the ring 7.

A heavy textile webbing 26 is secured to the outer surface of the lower end of each of the upright bars 24. The webbing 26 may be secured to the bars 24 by any suitable means such as upholstery nails 27. A heavy textile webbing 28 is folded in the manner best illustrated in Figures 1 and 2, and the upper ends of the upright bars 24 are received within the fold of the webbing 28. This webbing is secured to the upper ends of the bars 24 by any suitable means such as upholstery nails 29. The webbing 28 covers the upper ends

of the bars 24 and thus protects a child from possible injury. The webbings 26 and 28 are of such length that they are taut when the upper and lower arms 14 and 16 extend horizontally from the central core member 7 in the manner illustrated in Figure 2. I prefer to provide additional upright bars 30 which are positioned intermediate the bars 24 and which are secured only to the lower web 26 and the upper web 28 by any suitable means such as upholstery nails 31.

A circular floor 32 is provided which rests on the upper arms 14. The floor 32 is divided in two parts along the line 33 and the two parts are hinged by means of hinge members 34 to permit the floor to be folded.

When the play pen is in open condition as shown in Figures 1 and 2, it may be collapsed by removing the floor 32 and grasping the handle 8 and lifting upwardly. This causes the central core member 7 and the inner ends of the arms 14 and 16 to rise. The bars 24 will be drawn inwardly toward the center of the pen and they will be maintained in parallel relationship because of the four bar linkages mentioned above. The bars 30 will also be drawn inwardly by the webbings 26 and 28. When totally collapsed the play pen will be in the condition illustrated in Figure 4 and each of the linkage assemblies will be in the condition illustrated in Figure 6. It will be seen from this figure that the respective lengths of the ears 12, 13, 20 and 22 permits the arms 14 and 16 to assume the positions shown without interfering with each other.

The play pen may be opened from the collapsed condition shown in Figure 4 by grasping the handle 8 and turning the wrist slightly to cause limited rotational movement of the pen. The slight centrifugal force thus imparted to the upright bars 24 and 30 will cause the linkages to assume the position shown in Figure 5. The handle 8 then can be pushed downwardly until the play pen assumes the position shown in Figures 1 and 2.

The play pen which I have illustrated and specifically described is to be considered as exemplary only and it will be understood that various modifications may be resorted to without departing from the broader concept of the invention as defined by the following claims.

Having thus described my invention, I claim:

1. A collapsible play pen comprising a central core member, a plurality of pairs of upper and lower arms hinged at their inner ends to said core member for swinging in vertical planes radiating from said core member, upright bars hinged to the outer ends of each pair of arms and a ring of flexible material connecting said upright members.

2. A collapsible play pen comprising a central core member having a plurality of pairs of upper and lower arms radiating therefrom and hinged thereto for vertical swinging movement, upright members hinged to the outer ends of each pair of arms, flexible means joining said upright members, and a floor for resting on said upper radiating arms.

3. A collapsible play pen comprising a horizontally disposed ring, a plurality of pairs of arms radiating from said ring and hinged thereto for vertical swinging movement, one arm of each pair being hinged to said ring at a position vertically spaced from the position at which the other arm of such pair is hinged, the outer ends of each pair of arms being hinged at vertically spaced positions on an upright bar, a first flexible webbing secured to the upper ends of said bars, a second flexible webbing secured to the lower ends of said bars, said webbings being taut when said arms are extended horizontally from said ring, additional upright members positioned intermediate said bars and secured only to said first and second flexible webbings and a floor removably positioned on the upper radiating arms.

HAROLD E. DUNN.

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