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SPRING SUPPORTED SEESAW TYPE APPARATUS

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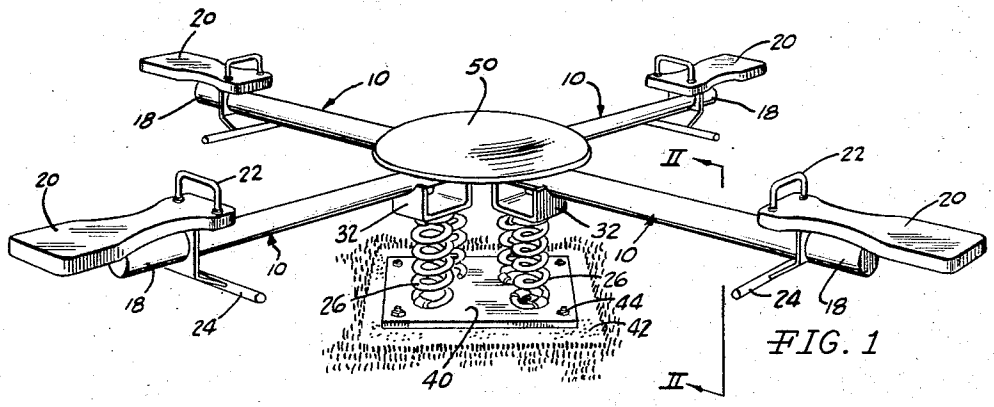


FIG. 1

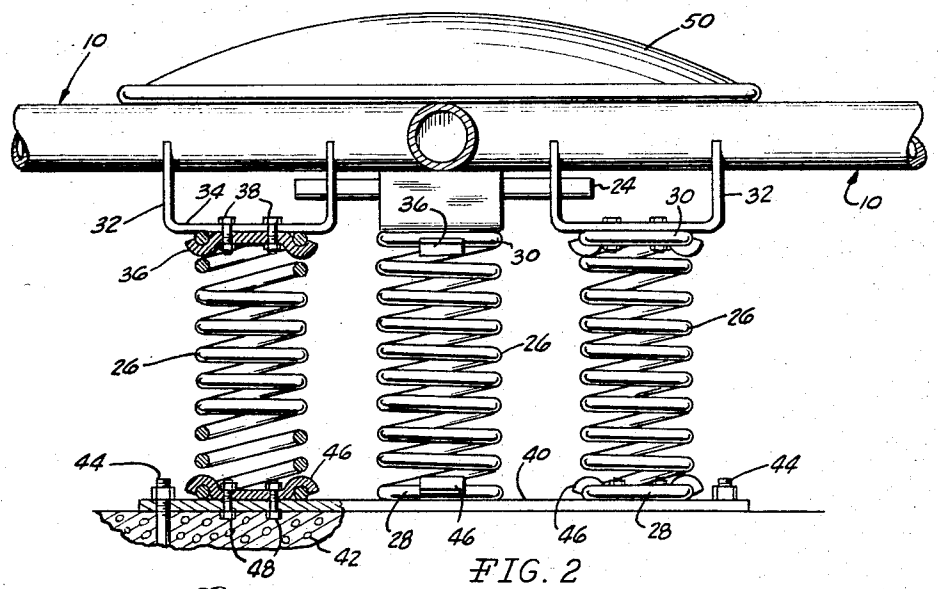


FIG. 2

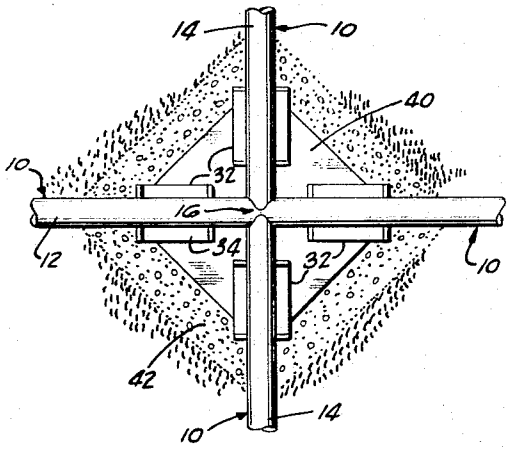


FIG. 3

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SPRING SUPPORTED SEESAW TYPE APPARATUS

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The invention pertains to playground apparatus, and particularly relates to playground apparatus of the occupant-supporting type wherein the apparatus is solely supported upon springs.

A number of playground amusement devices have been devised which are generally of the seesaw type and incorporate springs to modify the motion characteristics of the apparatus. For instance, seesaw type playground apparatus employing a fixed fulcrum or pivot point and springs biasing the seesaw toward the horizontal are known. While such devices modify the conventional seesaw action, the fact that a fixed pivot point is employed prevents a new or unusual movement from being produced.

It is an object of the invention to provide a playground apparatus capable of supporting a plurality of occupants wherein an unusual and entertaining ride is produced. The novel motion characteristics of the apparatus, in accord with the invention, are largely due to the fact that the device is solely supported upon noncontiguous coil springs, thus eliminating any fixed axis of fulcrum point. A plurality of occupants may be supported on the apparatus and the shifting of their weight produces an erratic and nonrepetitious movement providing an unusual degree of entertainment.

In the practice of the invention a plurality of arms are interconnected and are provided with outer ends upon which occupant-supporting seats are located. The springs supporting the apparatus are associated with the arms adjacent the interconnected portions thereof, and as a considerable radial arm distance exists between the seats and the supporting springs, considerable vertical and horizontal movement of the seats is permitted. In the preferred embodiment of the invention, four perpendicularly disposed arms are used and a single spring is employed with each arm.

Another object of the invention is to provide playground apparatus which is safe, provides an unusual motion, and is economical to produce.

A further object of the invention is to provide a playground apparatus capable of supporting one or more occupants and wherein the motion of the apparatus can be controlled, regulated, and varied by the occupants.

These and other objects of the invention arising from the details and relationships of the components of an embodiment thereof will be apparent from the following description and accompanying drawings wherein:

FIG. 1 is a perspective view of a playground apparatus in accord with the invention,

FIG. 2 is an elevational, detail, enlarged view of the central portion of the playground apparatus as taken along section II—II of FIG. 1, a portion of a spring connecting bracket being broken away for purposes of illustration, and

FIG. 3 is a detail, plan view of the central portion of the playground apparatus with the cover disc removed for purposes of illustration.

The playground apparatus in accord with the invention includes a plurality of radial arms **10**, preferably formed of tubes, or the like. Two of the arms **10** in the illustrated construction are defined by the tube **12** which is of a length actually equal to twice the length of a single arm **10**. The arms **14** are shaped to conform to

the outer configuration of the tube **12** at their inner or interconnected ends, and are welded thereto at a common junction **16**. This method of fabrication places each of the arms **10** in a common plane and in the four seat apparatus illustrated, the arms will be perpendicularly related. Of course, the arms **10** may each consist of a separate tubular member so shaped at its inner end that the inner ends may be welded or otherwise affixed together. Also, it is within the scope of the invention to form the arms **10** by superimposing a tube of a length equal to twice the arm length over a tube of similar length and interconnecting the tubes together. In such an arrangement, the arms would not lie in a common plane.

The outer end portions **18** of the arms are provided with occupant-supporting seats **20**. The seats **20** include handgrip rails **22** and footrest bars **24**. As considerable motion of the seat may occur, the use of the handgrip and the footrest is desirable to prevent the occupant from becoming unseated.

The arms **10** are supported upon a plurality of coil springs **26**. The coil springs **26** are of the noncontiguous coil or compression type, having a normal coil relationship which will be apparent from FIGS. 1 and 2. Preferably, a single spring **26** is associated with each arm **10**. The springs **26** are each provided with a lower portion **28** and an upper portion **30**. Inverted U-shaped brackets **32** are affixed to the underside of the arms **10** adjacent the arm junction **16**, and the brackets **32** include a planar base portion **34**. Shaped brackets **36** adapted to grip the coils of the upper portions **30** of the springs **26** are affixed to the bracket portions **34** by bolts **38**, and in this manner the upper end of each of the springs is firmly attached to an arm **10**. The brackets **32** are arranged equidistant from the arm junction **16**, as will be apparent from FIG. 3, and the springs **26** are, likewise, equidistantly arranged from the tube junction.

The springs **26** may be supported on a base plate **40**. The base plate **40** is attached to a concrete foundation **42** by means of anchor bolts **44** embedded in the concrete, and brackets **46**, attached to base **40** by bolts **48**, are employed to affix the lower portion **28** of the springs **26** to the base plate **40**. The brackets **46** are identical to the brackets **36**. As will be apparent from the drawings, the springs **26** are maintained by the brackets **36** and **46** in spaced, parallel relationship to each other and are disposed in a vertical direction.

In the illustrated embodiment, from one to four occupants may "ride" the apparatus. Preferably, two or four riders are desired, in that the most entertaining movement can be produced if the apparatus is relatively balanced. The occupants are seated upon the seats **20** and by raising and lowering themselves on the seat and laterally shifting their weight thereupon, the arms **10** will tend to move in the direction of the shifted weight due to the resilient support produced by the springs **26**. Thus, the movement of a seat may be a combination vertical and horizontal movement, or solely vertical, or solely horizontal. Usually, the seat will be moving in a somewhat orbital path, due to the fact that the occupant usually exerts both vertical and horizontal forces thereon. It is the tendency for the occupants to attempt to either counteract or complement the movements of each other and, thus, a "bucking" action or an oscillating action is produced which is very entertaining and enjoyable.

It is possible, particularly when only two occupants are seated on the apparatus, an occupant being located at each end of diametrically opposed arms, that an action somewhat similar to a seesaw can be produced if vertical movements are imposed on the arms. However, in that no fixed pivot axis or fulcrum is present, the seesaw action will be different than that normally encountered,

as the lack of a fixed pivot point does not confine the movement of the apparatus.

For the sake of appearance a cover disc **50** may be affixed to the arms **10** superimposed over the central region thereof whereby the junction **16** of the arms is hidden from view. If desired, decorative designs, or the like, may be affixed to the cover **50**.

It is appreciated that various modifications to the invention may be apparent to those skilled in the art without departing from the spirit and scope thereof, and it is intended that the invention be defined only by the scope of the following claims:

1. A playground apparatus solely supported on springs comprising, in combination,

(a) four perpendicularly disposed arms lying in a common plane, said arms each having an interconnected end and an outer end, said arms interconnected ends being mutually interconnected at a common junction,

(b) an occupant-supporting seat affixed to each of said arms outer end,

(c) a spring supporting each of said arms, each of said springs including an upper portion and a lower portion, said spring upper portion being affixed to the associated arm adjacent the interconnected end thereof,

(d) a base, and

(e) means attaching said springs lower portions to said base whereby said springs are disposed in spaced, vertically extending relationship to each other, said springs being spaced equidistant from said common junction in a horizontal direction.

2. A playground apparatus solely supported on springs comprising, in combination,

(a) four perpendicularly disposed arms each having an inner end and an outer end, said inner ends of said arms being fixed relative to each other,

(b) an occupant-supporting seat affixed to each of said arms outer end,

(c) a base plate,

(d) four vertically disposed springs each having an upper end and a lower end, the lower end of said springs being supported on said base plate, and

(e) means fixing said arms inner ends with respect to said upper ends of said springs whereby the weight of said arms is solely supported by said springs.

3. A playground apparatus solely supported on springs comprising, in combination,

(a) at least three angularly related, elongated arms, each arm having an inner end, an outer end and a longitudinal axis, said arms being so related that the extension of the axes thereof substantially intersect at a common point, the inner ends of said arms being fixed relative to each other,

(b) an occupant-supporting seat affixed to each of said arms outer end,

(c) a base plate,

(d) four vertically disposed springs each having an upper end and a lower end, the lower end of said springs being supported on said base plate, the lower end of said springs being located on said base plate such that said spring lower ends define the corners of a square, said springs lower ends being substantially equidistantly located from the vertical projection of said common point on said base plate, and

(e) means fixing said arms inner ends with respect to said upper ends of said spring whereby the weight of said arms is solely supported by said springs, the upper ends of said springs being substantially equidistantly located from said common point.

4. A playground apparatus solely supported on springs comprising, in combination,

(a) at least three arms radially extending from a common point in a substantially horizontal direction, each of said arms having a central portion and an end portion, said arms central portions being fixed relative to each other,

(b) an occupant-supporting seat defined on each end portion of said arms,

(c) a plurality of springs each having an upper portion and a lower portion,

(d) means fixing said springs upper portions relative to said arms central portions, said springs being equally spaced from said common point, and

(e) means fixedly supporting said lower portion of each spring.

5. In a playground apparatus as in claim **4** wherein:

(a) four arms are employed and said arms are perpendicularly related.

6. A playground apparatus solely supported on springs comprising, in combination,

(a) at least three arms, each of said arms including an inner end portion and an outer end portion, said inner end portions of said arms being fixed relative to each other,

(b) an occupant-supporting seat affixed to the outer end portion of each of said arms,

(c) a plurality of vertically disposed springs supporting said arms adjacent the inner end portions thereof, each of said springs including an upper portion and a lower portion, said springs upper portions being fixed relative to said arms inner end portions, and

(d) means supporting said springs lower portions whereby said springs are disposed in spaced, vertically extending relationship to each other.

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