

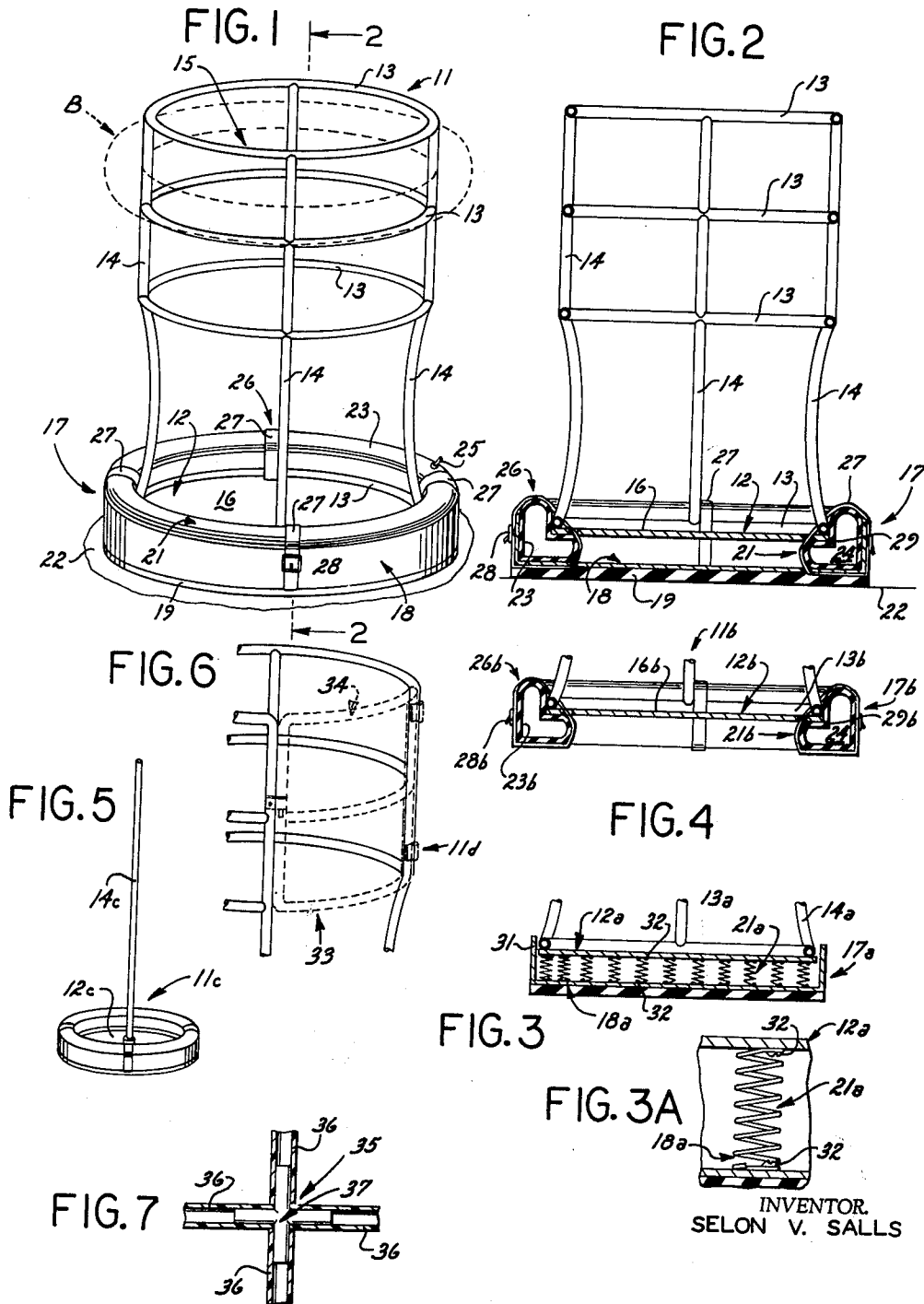
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RESILIENT ACTION JUMPING TOY

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1

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**RESILIENT ACTION JUMPING TOY**  
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Generally speaking, the present invention relates to the toy art and, more particularly, pertains to a jumping toy primarily intended for use by a child, although not specifically so limited.

In one specific form of the invention, the jumping toy comprises upstanding framework means provided with a foot-engageable platform means at the bottom thereof which, in turn, is provided thereunder with effectively compressible elastic energy-storing means adapted for forcible intermittent impact and engagement with an underlying ground surface as a result of the corresponding movements of a child standing upon said platform means. This intermittent impact and engagement with an underlying ground surface causes the effectively compressible elastic energy-storing means to intermittently elastically store energy immediately after impact with said ground surface and to very shortly thereafter release said energy whereby to provide an oscillatory movement to the platform and the upstanding framework means connected thereto.

It is an object of the present invention to provide a jumping toy of the broad generic type referred to above, and one which may, if desired, assume any or all of the various specific aspects mentioned above, and/or any partial combination thereof.

It is a further object to provide a jumping toy which is of relatively simple, foolproof, easy-to-use, and easy-to-manufacture construction such as to be conducive to widespread use thereof—particularly by unskilled children and beginners in the use of such jumping toys.

Further objects are implicit in the detailed description which follows hereinafter (which is to be considered as exemplary of the invention but not specifically limiting it) and said objects will be apparent to persons skilled in the art after a careful study of the detailed description which follows hereinafter.

For the purpose of clarifying the nature of the present invention, several exemplary embodiments are illustrated in the hereinbelow described figures of the accompanying drawings and are described in detail hereinafter.

FIG. 1 is a perspective view of one exemplary embodiment of the invention.

FIG. 2 is a view, partly in section and partly in elevation, taken in the direction of the arrows 2-2 of FIG. 1.

FIG. 3 is a fragmentary sectional view, generally similar to the bottom portion of FIG. 2, but illustrating a modified form of the invention.

FIG. 3A is an enlarged view exemplary of any one of the multiple coil compression springs shown in FIG. 3.

FIG. 4 is a fragmentary view very similar to FIG. 2, but illustrates a modified form of the invention.

FIG. 5 illustrates, in a greatly reduced-size perspective view, a slight modification of the first form of the invention illustrated in FIGS. 1 and 2.

FIG. 6 illustrates in fragmentary perspective form and in greatly reduced size, a slight modification of the first form of the invention illustrated in FIGS. 1 and 2.

FIG. 7 is a fragmentary, enlarged sectional view illustrating one exemplary form of joint construction for the upper framework means in those forms of the invention where it is not of unitary construction but is formed of a plurality of tubular sections appropriately joined together by a substantially cruciform junction member.

Referring to FIGS. 1 and 2 for exemplary purposes,

2

one illustrative embodiment of the invention is shown in one typical exemplary form wherein it comprises upstanding framework means, generally indicated by the reference numeral 11, which is provided with foot-engageable platform means 12 at the bottom thereof.

In the exemplary form of the invention illustrated in FIGS. 1 and 2, the upstanding framework means 11 is shown in a particular version thereof wherein it is of open-topped, substantially cylindrical configuration and may be said to define an open-topped, substantially cylindrical cage-like structure, which is generally designated by the reference numeral 11 and which, in the example illustrated, is made up of a plurality of vertically spacedly superimposed circular ring-like frame members 13 rigidly carried in said vertically spaced relationship by a plurality of circumferentially spaced vertical upstanding side frame members 14 whereby to effectively define and enclose an interior region, generally indicated by the reference numeral 15, in which a child (not shown) is adapted to stand with his feet (not shown) resting upon the upper surface 16 of the foot-engageable platform means 12.

It should be noted that, in the specific example illustrated, the ring-like frame members 13 and the vertical upstanding side frame members 14 are shown as being of rigid, tubular, plastic, molded or extruded member construction. However, the invention is not specifically so limited, and various other types of structural members, configurations of the complete upstanding frame means 11, attachment constructions, and materials may be employed in lieu of the specific disclosure of FIGS. 1 and 2 with respect thereto.

In the specific example illustrated in FIGS. 1 and 2, the foot-engageable platform means 12 is shown as being of substantially circular, disk-like shape and is rigidly fastened to, and carried by, the bottom ring-like frame member 13 of the framework means 11 whereby to provide a very effective platform for a child to stand on when his body is at least partially enclosed within the cage-like framework means 11. When in this position, the child will usually hold onto one of the ring-like frame members 13 which may be said to comprise effective hand rail means for hand engagement by the child when he uses the entire device as a jumping toy.

The bottom end of the framework means 11 and the foot-engageable platform means 12 is provided with effectively compressible elastic energy-storing means carried below the platform means 12 for forcible intermittent effective impact and engagement with respect to a substantially horizontal underlying ground surface whereby to intermittently elastically store energy upon impact with said ground surface and whereby to subsequently release said previously stored energy in a manner such as to provide oscillatory movement to the foot-engageable platform means 12 and the framework means 11 as long as a child standing upon the foot-engageable platform means 12 intermittently flexes and extends his knees in a synchronized manner relative to said energy-storing and energy-releasing portions of each complete cycle of jumping operation of the toy. This will, of course, cause the toy, and a child standing upon the platform means 12, to go through a series of jumping actions along the ground surface as long as the above-described operation is continued.

In the specific example illustrated in FIGS. 1 and 2, the above-mentioned effectively compressible elastic energy-storing means is generally designated by the reference numeral 17 and takes a particular exemplary form wherein it comprises an auxiliary lower ground-engageable platform 18 (provided with a compressible elastomeric impact and shock absorbing lower bumper 19) positioned

below the previously mentioned foot-engageable upper platform means 12 and provided with effectively intervening elastically compressible coupling means, indicated generally at 21, effectively coupling the foot-engageable upper platform means 12 and the ground-engageable lower auxiliary platform 18 for limited relative longitudinal movement toward and away from each other as a result of the above-mentioned intermittent impacting engagement of the ground-engageable platform 18 (by way of the shock absorbing bumper 19) with an underlying ground surface such as is indicated fragmentarily at 22.

In the specific exemplary form of the invention illustrated in FIGS. 1 and 2, the above-mentioned elastically compressible coupling means 21 is shown in a particular specific form wherein it comprises an elastically compressible hollow tubular member of toroidal shape, indicated generally by the reference numeral 21, which has an enclosing wall member 23 of elastic material defining a completely enclosed hollow interior chamber 24, of toroidal shape in the example illustrated, adapted to be provided with and contain therein an elastically compressible fluid such as air or the like, although not specifically limited to air in all forms of the invention.

It is to be particularly understood that the cross-section of the toroidal hollow tubular member 21 shown in FIG. 2 and the hollow interior chamber shown therein at 24 is filled with air in FIG. 2 for the purpose of interiorly supporting the enclosing wall 23 of said hollow tubular member 21. Said air may be introduced into the interior thereof, as indicated at 24, by way of a conventional unidirectional tire check valve of the type indicated at 25 or by any other suitable means. This may be done through the use of a pressurized source of air, such as is conventionally found at automobile and motor vehicle service stations, garages, and the like, or may be done through the use of a hand or foot operated pump of any conventional type, or the elastically compressible fluid might comprise carbon dioxide gas, "Freon," or any other suitable compressed gas or fluid which can be conveniently obtained in pressure vessels and can be conveniently applied to the valve 25 for pressurizing the hollow interior chamber of the hollow tubular member 21, as indicated at 24.

Of course, it will be understood that if the tube 21 is to be collapsed, the unidirectional check valve 25 may be controllably manually operated in a valve-opening direction whereby to allow the entrapped air, or other compressed gas, to escape and thereby result in the tube 21 collapsing to any desired degree. This would normally only be done for purposes of repairing the tube for convenience in storage and/or shipment of the toy.

The elastically compressible hollow tubular member 21 of the exemplary first version of the invention illustrated in FIGS. 1 and 2 includes retaining means for effectively retaining the effectively compressible elastic energy-storing means, indicated generally at 17, in the assembled relationship shown.

In the exemplary version illustrated in FIGS. 1 and 2, said retaining means is indicated generally at 26 and is illustrated in one exemplary form as comprising a plurality of strap means 27 adapted to encompass corresponding portions of the elastically compressible hollow tubular member 21, corresponding portions of the lower ring-like frame member 13 of the framework means 11, corresponding edge portions of the foot-engageable platform means 12, and corresponding portions of the lower auxiliary ground-engageable platform 18 whereby to fasten said elements together when the strap means 27 is controllably tightly fastened by means of the buckle means 28.

In the exemplary form illustrated in FIGS. 1 and 2, the elastically compressible hollow tubular member 21 is provided with an inner annular effective step portion 29 which effectively abuttingly receives the circumferential periphery of the disk-like bottom of the foot-engageable platform means 12 and the corresponding bottom por-

tion, comprising the lower ring-like frame member 13, of the framework means 11 connected to said circumferential periphery of the foot-engageable platform means 12.

This provides a very firm and effective coupling and supporting engagement of the bottom of the framework means 11 and the foot-engageable platform means 12 with respect to the elastically compressible hollow tubular member 21 whereby to facilitate the hereinbefore described oscillatory intermittent bouncing and jumping action of the entire device when a child stands on the foot-engageable platform 12 and intermittently flexes and extends his knees in synchronism with corresponding energy-storing and energy-releasing action of the elastically compressible hollow tubular member 21 whereby to produce an intermittent hopping or jumping action of the entire toy with respect to the ground surface 22 as long as the child continues the above described action.

FIG. 1 also indicates, in broken line phantom form, the optional provision of an exterior, laterally directed, circumferential bumper means, indicated generally by the reference character B, which is shown as comprising another toroidal, hollow, sealed, interiorly pressurized tube of elastic material positioned in a manner such that the tipping over of the entire device will cause said bumper means to receive the initial impact with the ground surface 22 whereby to minimize any likelihood of the child being injured by the fall.

FIG. 3 illustrates, in fragmentary form, a slight modification of the effectively compressible elastic energy-storing means, indicated generally at 17 in the first form of the invention illustrated in FIGS. 1 and 2, and indicated by the reference numeral 17a in this modification of the invention. Indeed, because of the basic similarity of this modification to the first form previously described, all functionally corresponding parts are indicated by corresponding reference numerals, followed by the letter "a," however.

In the modification shown in FIG. 3, the elastic energy-storing means 17a includes the lower auxiliary ground-engageable platform means 18a, functionally similar to the auxiliary ground-engageable platform means 18 in the first form of the invention. However, in this modification the elastically compressible coupling means 21a does not comprise a hollow tubular member, such as shown in the first form of the invention, but rather comprises elastically compressible compression spring means, indicated generally by the reference numeral 21a, located at, and coupled with respect to, a plurality of vertically superimposed points of the underneath surface of the foot-engageable platform means 12a and the upper surface of the auxiliary lower ground-engageable platform 18a whereby to provide the elastically compressible functional equivalent of the hollow tubular member 21 in the first form of the invention.

The lower ground-engageable platform means 18a is provided with a circumferential upwardly directed skirt member 31 provided mainly for maintaining alignment of the lower ground-engageable platform 18a with respect to the upper foot-engageable platform means 12a. However, in certain forms of the invention, the skirt 31 may be modified or eliminated entirely.

It should also be noted that in the modified form of the invention illustrated in FIG. 3, each of the coil compression springs 21a is connected by suitable fastener means 32 to the foot-engageable platforms means 12a and the ground-engageable platform means 18a whereby to positively connect them together in a retaining manner so as to retain the elastic energy-storing means 17a in assembled relationship irrespective of the degree of energy-storing and energy-releasing relative compression and extension movement of the lower ground-engageable platform 18a with respect to the upper foot-engageable platform means 12a. However, various other types of retaining means may be employed in lieu thereof and, in certain of such cases, the coil compression springs 21 need not be

5

actually fastened by the fastener 32 to the platforms 12a and 18a.

The spacing of the multiple coil compression springs 21a may be such as to effectively distribute the compressive load in a most efficient manner.

FIG. 4 illustrates, in fragmentary form, a very slight modification of the elastic energy-storing means indicated generally by the reference numeral 17 in the first form of the invention illustrated in FIGS. 1 and 2. Therefore, in this slight modification thereof, similar reference numerals, followed by the letter "b," however, are employed to designate similar parts.

This modification is substantially the same as the first form illustrated in FIGS. 1 and 2 except that the lower auxiliary ground-engageable platform 18 of the first form of the invention is eliminated entirely in this modification and the retaining strap means 26b directly fasten the hollow tubular member 21b to the peripheral outer portion of the foot-engageable platform 12b and the bottom ring-like member 13b of the framework means 11b for direct impact of the bottom surface of the hollow tubular elastically compressible member 21b with a ground surface.

Since the remainder of this form of the invention is identical to the first form of the invention illustrated in FIGS. 1 and 2 and described in detail hereinbefore, further detailed description of this modification would be redundant and is thought to be entirely unnecessary.

FIG. 5 illustrates, in a greatly reduced-size perspective view, a slight modification of the first form of the invention illustrated in FIGS. 1 and 2, wherein the framework means 11c is the only portion which is substantially different from the first form of the invention. In view of the similarity of this modification to the first form of the invention, similar parts are indicated by similar reference numerals, followed by the letter "c," however.

In this modification it will be noted that the framework means 11c merely comprises what may be termed an upstanding structural member 14c which is substantially centrally positioned in this example, although not specically so limited, and which is appropriately connected to a corresponding central portion of the foot-engageable platform means 12c, although it may be connected at any location with respect thereto. The remainder of this modified form is identical to the first form illustrated in FIGS. 1 and 2 and described in detail hereinbefore. Therefore, further description would be redundant and is thought to be entirely unnecessary.

FIG. 6 is a fragmentary perspective view, generally similar to a portion of FIG. 1, but illustrates a slight modification of the invention wherein the framework means 11d is provided with entry means, generally designated by the reference numeral 33, and which merely comprises an entry opening in the cage-like structure of the upper framework means 11d. This is shown in fragmentary form in solid lines in FIG. 6. However, in certain versions of the invention, it may be desirable to provide an effective closure gate for closing the entry aperture 33 and one such typical exemplary closure gate (which may be provided with suitable locking means if desired) is shown in broken lines at 34 in FIG. 6. It will be understood that the entry means and/or closure gate means may be modified substantially within the basic spirit and scope of the present invention.

FIG. 7 illustrates, in enlarged fragmentary form, one typical junction, generally designated by the reference numeral 35, adapted to fasten together a plurality of hollow tubular members 36 by a press-fit engagement of the ends of each of said hollow tubular members 36 with the corresponding ends of a substantially cruciform junction member indicated generally at 37. This engagement may merely comprise a very tight press-fit or may include suitable adhesive, cohesive or mechanical fastening means, or the like, for enhancing the rigidity of the junction so provided.

It should be clearly understood that this type of junction

6

means merely illustrates one arrangement by which the various members of the framework means 11 of the first form of the invention, or the corresponding framework means of any of the other forms of the invention, may be constructed in the event that it is to be made of tubular members rigidly joined together to comprise the complete framework means rather than being made up of a rigidly formed framework means. However, both constructions, and various other equivalents, are intended to be included and comprehended within the broad scope of the present invention and this junction means, shown in FIG. 7, merely illustrates one means for cheapening the construction of the device by allowing conventional tubing of various suitable materials to be joined together by cruciform shaped junction members, or the equivalent thereof, in order to provide an extremely rigid framework structure without the necessity of having molds for molding the complete framework means, or substantial portions thereof, as a whole.

It should be understood that the figures and the specific description thereof set forth in this application are for the purpose of illustrating the present invention and are not to be construed as limiting the present invention to the precise and detailed specific structure shown in the figures and specifically described hereinbefore. Rather, the real invention is intended to include substantially equivalent constructions embodying the basic teachings and inventive concept of the present invention.

I claim:

1. A jumping toy comprising: upstanding framework means fixedly provided with a substantially horizontal, substantially circular, disk-shaped foot-engageable platform means at the bottom thereof having a substantially horizontal foot-engageable top surface of larger area than that adapted to be coextensive with the feet of a person supported thereby; and effectively compressible elastic energy-storing means carried immediately below said platform means for forcible intermittent effective impact and engagement with an underlying ground surface whereby to intermittently elastically store energy upon impact thereof with said ground surface and to subsequently release said elastically stored energy whereby to provide a vertical oscillatory movement to said foot-engageable platform means and said framework means carried thereby, said elastic energy-storing means comprising effective ground-engageable elastically compressible coupling means positioned immediately below said foot-engageable platform means for effectively coupling said foot-engageable platform means directly with respect to said underlying ground surface for relative longitudinal movement of said foot-engageable platform means toward and away from said underlying ground surface, said elastically compressible coupling means comprising an elastically compressible hollow tubular member of toroidal shape having an enclosing wall member of flexible material defining a completely enclosed hollow interior chamber of toroidal shape adapted to be provided with and contain an elastically compressible medium therein, said elastically compressible hollow tubular member being provided with an effectively inner annular step portion directly receiving and supporting a corresponding circumferential peripheral portion of the disk-like bottom of said foot-engageable platform means, said elastically compressible hollow tubular member also being provided with a circularly disposed bottom and ground-engageable contact surface portion directly and vertically spacedly underlying said circumferential peripheral portion of said disk-like bottom of said foot-engageable platform means and positioned for direct impact and contact with said underlying ground surface during said oscillatory movement of said foot-engageable platform means and said framework means, said elastic energy-storing means also including a plurality of retaining strap means removably encircling corresponding portions of said elastically compressible hollow tubular member and said foot-engageable platform means posi-

7

tioned immediately thereover for retaining said elastically compressible hollow tubular member in operative relationship immediately below said circumferential peripheral portion of the disk-like bottom of said foot-engageable platform means and for positioning said circularly disposed bottom ground-engageable contact surface portion of said coupling means at a lowermost position for direct intermittent impact with said underlying ground surface during said oscillatory movement thereof.

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