Jan. 28, 1964 G. C. STRADER 3,119,626

TRAVELING KNEE SPRING BOARD

Filed May 14, 1962

FIG. 5

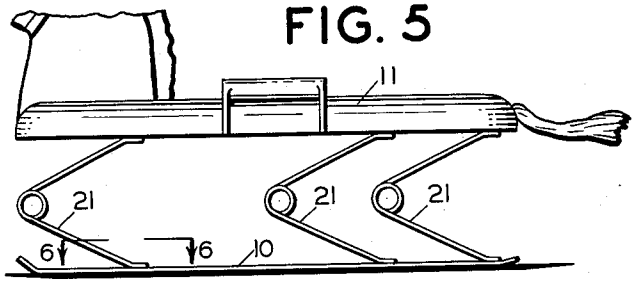
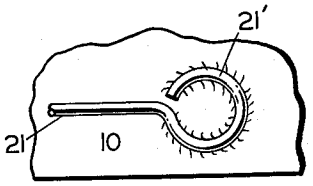


FIG. 6



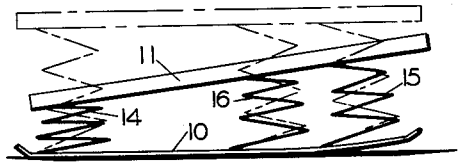
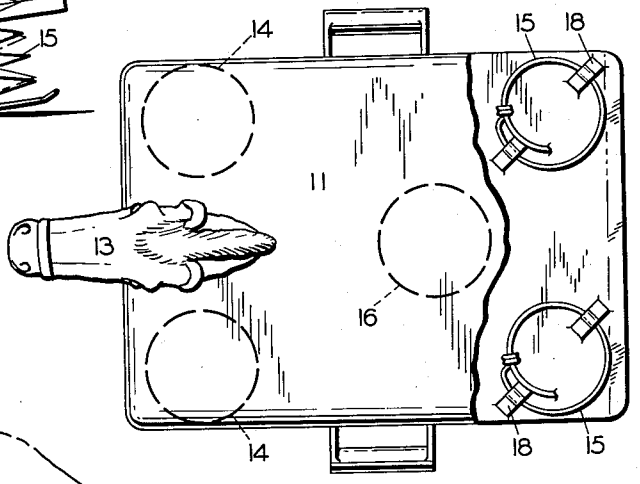


FIG. 3

FIG. 2



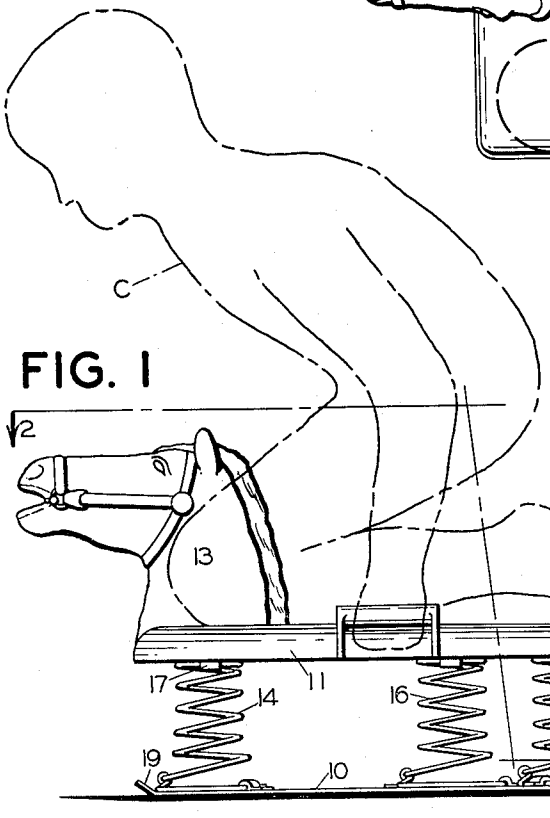


FIG. 1

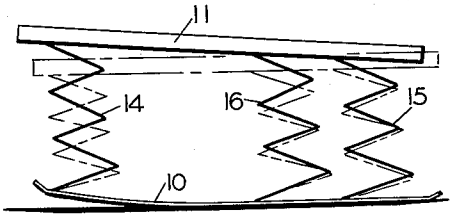


FIG. 4

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TRAVELING KNEE SPRING BOARD

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This invention relates to a combined exerciser and traveling toy device, adapted for use primarily by a small child, through the medium of which the child can readily propel himself over the floor while exercising.

An object of the invention is to provide a traveling toy device on which the child can kneel when operating the device and consequently on which he will be supported only a short distance above the floor, so that even the youngest child, capable of using the device, will not be injured should he fall off the device onto the floor.

Another object of the invention is to provide a toy device on which the child, kneeling on the device, can, by bouncing up and down, cause the device to travel along the floor, thus providing amusement and diversion for the child as well as physical exercise.

A further object of the invention is to provide an amusement device of the type mentioned which, while easily operated by a very young child, also offers a child an opportunity to develop skill in operating and maneuvering the device and thus will act to retain the child's interest over a prolonged period.

A related object is to provide a traveling toy device with which two or more children, each being provided with such device, can compete with each other, thus affording opportunity for increased entertainment and diversion for a group of children when such is desired.

An additional object is to provide a combined exercising device and traveling toy which will be simple in construction and inexpensive to manufacture and small enough to require very little storage space when not in use.

The manner in which these objects are attained with the device of the present invention, and the construction of the traveling knee spring board and the manner in which it operates, will be briefly described and explained with reference to the accompanying drawings.

In the drawings:

FIG. 1 is a side elevation of the device, the position of the child on the device preparatory to operating the device being indicated by broken lines;

FIG. 2 is a partial plan view and partial sectional view of the device itself taken on the line 2—2 of FIG. 1;

FIGS. 3 and 4 are diagrammatic side elevations of the device, drawn to a slightly smaller scale, and illustrating the relative positions assumed by the device during the downward and upward spring or bounce of the child on the device respectively;

FIG. 5 is a fragmentary side elevation of a modified form of the device in which springs of a different type are substituted for the coil springs of FIG. 1, and

FIG. 6 is a fragmentary section on line 6—6 of FIG. 5, drawn to a larger scale, illustrating how the modified springs shown in FIG. 5 are secured to the bottom member of the device.

Referring first to FIGS. 1 and 2, the device includes a substantially rectangular bottom member 10 and a composite upper member 11 of approximately the same size which is supported on the bottom member by a plurality of specially arranged springs. The composite upper member 11 consists of a rectangular board the top face of which is upholstered with a flat cushion so as to enable the child to kneel comfortably on the upper member.

A pair of handles 12 are secured on opposite sides of the upper member so as to enable the child to hold himself on the upper member in kneeling position, as indicated by the broken lines in FIG. 1, the handles being

approximately centrally positioned along the sides of the upper member respectively.

Preferably, although not necessarily, a head 13 of soft stuffed material, formed to represent the head of an animal such as a horse, is centrally mounted at the front of the upper member 11 in the relative position illustrated in FIGS. 1 and 2. This stuffed head 13 not only makes the device more attractive to the child, but pressure of the knees by the child against the opposite soft surfaces of the neck portion of this head also enables the child to maintain a firmer perch in his kneeling position on the device while bouncing up and down.

In the preferred construction of the device, illustrated in FIGS. 1 to 4 inclusive, the composite upper member 11 is attached to the bottom member 10 through the intermediary of a plurality of identical coil springs. The coil springs are so positioned that there will be more coil springs in the rear half of the device than in the forward half. Thus, in the preferred form of the device as shown in FIGS. 1 to 4 inclusive, two coil springs 14, 14 connect the upper and bottom members 11 and 10 at the front corners of the device respectively, two coil springs 15, 15 connect the upper and bottom members similarly at the rear corners of the device respectively, and a fifth coil spring 16 connects the upper and bottom members along the longitudinal center line but rearwardly of the middle portion of the device.

Thus there is greater spring support in the rear half of the upper member than in the forward half of the upper member. This is an important feature and the reason for this will be later explained. The top and bottom ends of the coil springs 14, 14, 15, 15, and 16 are secured to the upper and bottom members 11 and 10 respectively any suitable means, for example, by anchoring strips (indicated at 17 in FIG.1), screwed to the underside of the upper member, and by similar anchoring strips 18 spot-welded to the top face of the bottom member 10.

The bottom member 10 preferably is made from a sheet of flexible metal, although a flexible sheet of plastic might also be used. The front and rear edges of the bottom member are inclined upwardly as shown at 19 and 20 respectively in FIG. 1. The upward bend 19 of the front edge of the bottom member facilitates the movement of the device forwardly along the floor. The upward bend 20 of the rear edge prevents the scraping of the rear edge along the floor during the flexing or rocking of the bottom member.

When the child kneels on the device and thus takes the position indicated by the broken lines C in FIG. 1, the downward movement and upward return movement on the part of the child while bouncing on the device will cause the device first to assume the position indicated diagrammatically in FIG. 3 as a result of the downward pressure exerted by the child's knees and body. Then, upon the return or upward movement or bounce, the device will assume the position indicated diagrammatically in FIG. 4. Since the three springs 15, 15 and 16 provide greater spring support for the rear portion of the upper member 11 than is provided by the two springs 14, 14 for the forward portion, the upper member 11 will be thrust into an inclined position sloping downwardly and forwardly during the downward thrust of the child's body. During this moment the forward edge of the upper member 11 will move slightly rearwardly with respect to the bottom member while the bottom member remains momentarily stationary on the floor under the extra downward thrust. Then, upon the return upward spring of the upper member 11, the upper member, in moving back up to and beyond its normal position with respect to the bottom member, will move slightly forwardly. However, during this moment in which the upper member moves upwardly, the bottom member, being unweighted,

and having its forward portion lifted slightly from the floor, tends to move forward slightly because of the forward impetus imparted by the upwardly moving upper member.

In this way, the downward and upward bouncing of the child on the device, causes the forward end of the upper member to move down and up to a greater extent than the rearward end of the upper member, and this in turn produces a series of intermittent forward movements of the bottom member of the device causing the entire device to travel forward intermittently. This tendency can of course be greatly increased by a forward body thrust on the part of the child during the upward bounce as the child instinctively becomes more accustomed to an up and down springing movement in the operation of the device. The up and down movement of the upper member and the forward and reverse tipping of the upper member also produce related flexing of the bottom member **10**, as will be observed by a comparison of FIGS. 3 and 4, and this flexing of the bottom member also facilitates the sliding of the bottom member along the floor. For this reason it is desirable that the bottom member should be made of moderately flexible sheet metal or plastic and that the underside of the bottom member should be perfectly smooth.

With a little practice it is also possible for the child on the device, by leaning slightly to one side or the other during the bouncing, to guide the device to one side or the other as the device travels forwardly. This involves the same general principle, since leaning to one side or the other also causes the upper member to incline to one side correspondingly in addition to inclining forwardly during the downward thrust on the upper member.

Instead of using coil springs for connecting the upper and bottom members, other spring means could be used, such as the sear springs **21** shown in FIG. 5. When springs of this type are used their ends would be formed into loops, such as the loops **21'** shown in FIG. 6, the bottom loop ends of these springs being welded to the bottom plate **10**, and the top loop ends of these springs being secured in any suitable manner to the underside of the upper member **11**. As will be noted in FIG. 5, the arrangement of these sear springs **21** corresponds to the arrangement of the coil springs previously described. In other words, there is always less spring support for the forward half of the upper member **11** on the bottom member than for the rear half of the upper member.

Further minor modifications would be possible in the construction of this traveling knee spring board without departing from the principle of the invention. While I regard the construction illustrated in FIGS. 1 to 4 inclusive as the preferred means for carrying out the invention it is not my intention to limit the invention otherwise than as provided in the claims.

I claim:

1. A toy spring board adapted to travel along a surface, said spring board comprising a substantially rectangular bottom member formed of flexible sheet material and having an upturned forward edge and an upturned rearward edge, an upper member of approximately the same size as said bottom member and having a cushioning covering on its top face, a pair of hand grips mounted at the side edges of said upper member respectively and substantially centrally positioned along said side edges, and spring means supporting said upper member on said bottom member, said spring means including a coil spring positioned near each corner of said upper member and an additional spring positioned along the longitudinal center line of said upper member but rearwardly of the middle portion of said upper member, whereby the forward end of said upper member will move up and down to a greater extent than the rearward end of said upper member during the operating of said spring board, thereby causing said spring board to tend to move forwardly intermittently with the upward bouncing of said upper member.

2. A toy spring board adapted to travel along a surface, said spring board including a substantially rectangular bottom member formed of flexible sheet material and having an upturned forward edge, an upper member of approximately the same size as said bottom member and having a cushioning covering on its top face, a pair of hand grips mounted at the side edges of said upper member respectively, a simulated head of an animal mounted at the center of the forward portion of said upper member and extending forwardly from said upper member, and spring means supporting said upper member on said bottom member, said spring means so arranged as to provide weaker spring support for the forward half of said upper member than for the rearward half of said upper member, whereby the forward end of said upper member will move up and down to a greater extent than the rearward end of said upper member during the operating of said spring board, thereby causing said spring board to tend to move forwardly intermittently with the upward bouncing of said upper member.

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