

Jan. 9, 1940.

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2,186,543

EXERCISING DEVICE FOR INFANTS

Filed Oct. 5, 1938

2 Sheets-Sheet 1

FIG. 1.

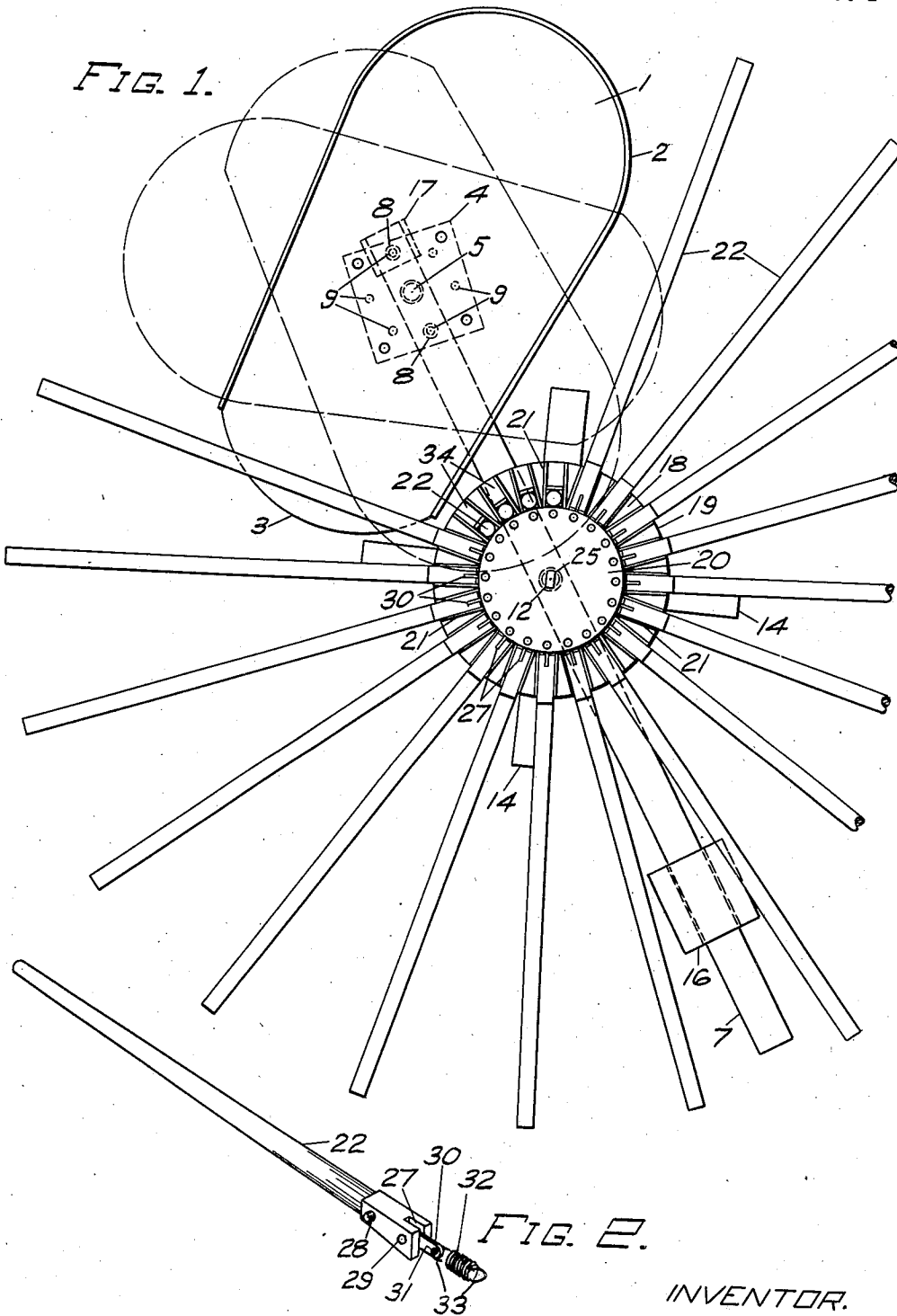


FIG. 2.

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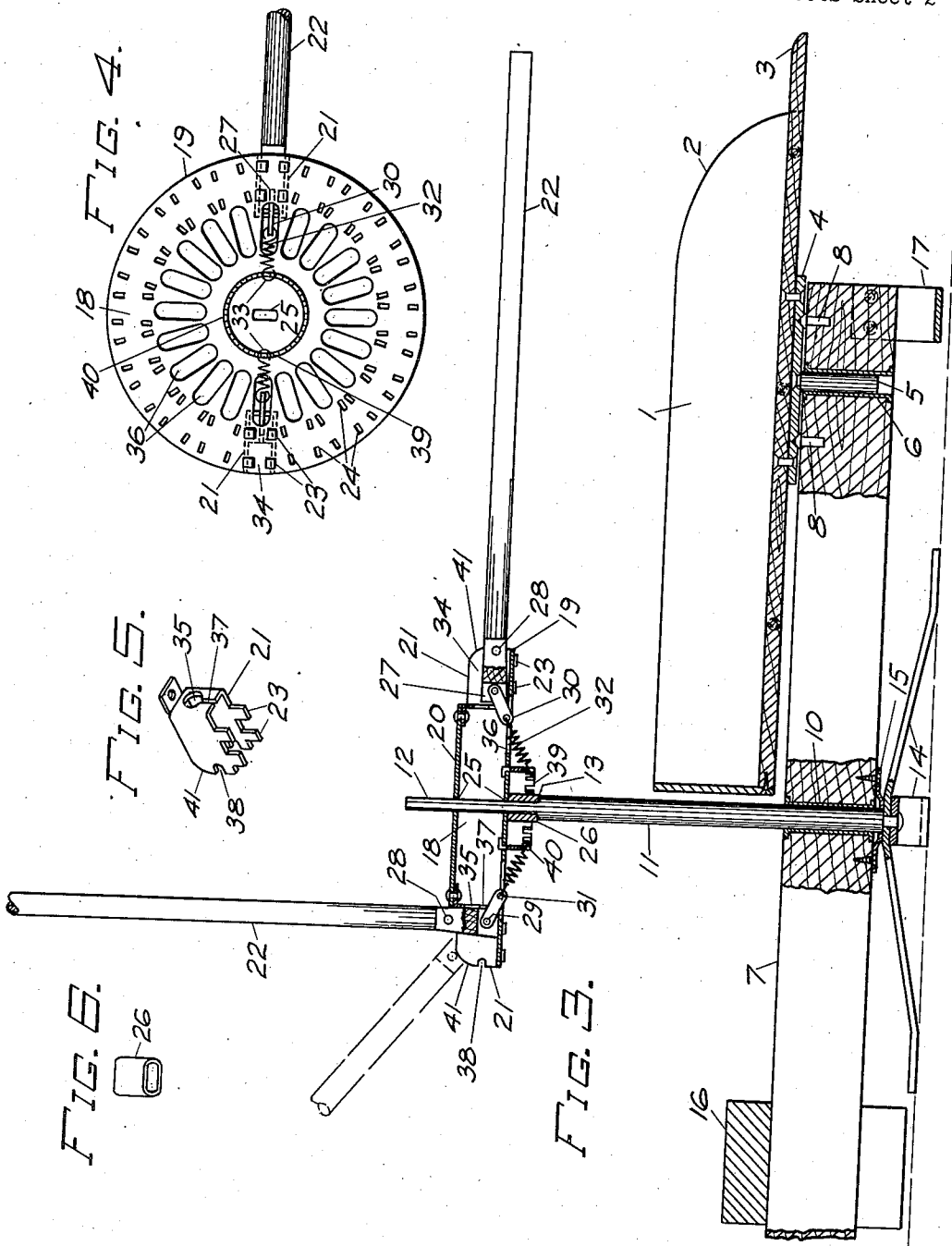
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UNITED STATES PATENT OFFICE

2,186,543

EXERCISING DEVICE FOR INFANTS

Earle Gray Henry, Chicago, Ill.

Application October 5, 1938, Serial No. 233,459

10 Claims. (Cl. 272-33)

My invention relates to exercising apparatus and, more particularly, to a foot operated riding device for infants. Many infants make strong and purposeful kicking movements long before they develop any comparable control of their hands. The primary object of my invention, therefore, is to provide a device which will be a natural outlet for an infant's foot and leg energy and which will also give him pleasant movement, a changing view for his eyes and, most important, the feeling of achievement. To attain this object, I provide, in the preferred form of my invention, a receptacle so mounted as to be easily revolvable around a bearing and wherein an infant may lie comfortably, on his back and with his feet free to kick. Mounted on the device, above the path of the movable receptacle and within reach of the infant's feet, is a series of stationary treads against which he may successively kick and, by reaction, propel himself and the receptacle around the bearing.

The treads consist, preferably, of round, horizontal rods which are within reach of the baby's hands as well as his feet and which he may grasp and use, in various ways, for upper limb exercise. However, since sitting erect would be harmful to a very young infant and would prevent the intended use of this preferred form of the device, an important secondary object of my invention is to frustrate any attempt the infant may make to pull his body upright by grasping the treads.

Another important object of the invention is so to join the parts together that the device may be readily folded or disassembled, when not in use, and thus occupy but little space.

Other features of the device which are especially useful will be made clear in the following description and in the accompanying drawings wherein like parts have been similarly designated and in which:

Figure 1 is a plan view of the device as it appears when ready to receive an infant.

Figure 2 is a perspective view of one of the treads with attached parts.

Figure 3 is a sectional elevation of the device with certain duplicate parts omitted, for clarity.

Figure 4 is a bottom plan view of the tread supporting structure with certain duplicate parts omitted.

Figure 5 is a perspective view of a part of the tread supporting structure.

Figure 6 is a perspective view of a spacer for vertical adjustment of the device.

Receptacle 1, in which the infant rides, is adjustably mounted on sweep 7, which is rotatably

mounted on a central stand consisting of shaft 11 and legs 14 14. Counterweight 16 fits loosely around sweep 7 and may be shifted so as to balance infants of different weights who may occupy receptacle 1. Hub 18, which supports the treads 22 22, is mounted on the flattened upper portion 12 of the shaft. Since the oblong holes 25 25 fit snugly on the flattened shaft, the hub cannot rotate or rock appreciably.

Peg 5 serves as a mounting means for receptacle 1, to which it is rigidly joined by means of plate 4. Peg 5 fits closely but not tightly in tube 6 which is immovably fixed in a hole in sweep 7. The conical heads of the two pegs 8 8 engage, by gravity, two of the conical depressions 9 9 in plate 4, so that moderate force is required to rotate the receptacle about peg 5, out of the engaged positions shown in Figures 1 and 3. Tube 10, which is immovably fixed in a hole in the sweep, acts as a rotational bearing on shaft 11; plate 15, which is securely joined to the under side of the sweep, rests on one of the legs 14 14, forming a vertical bearing.

When the device is resting on a floor and properly balanced, safety foot 17, which is securely joined to sweep 7, and counterweight 16 clear the floor by a short distance, as indicated in Figure 3, allowing the sweep to turn freely. Whenever the infant or counterweight has been removed, or the counterweight is improperly placed, so that the device is greatly unbalanced, it will tilt slightly, bringing either the safety foot or the counterweight into contact with the floor, but will not overturn.

Hub 18 comprises a lower disc 19, an upper disc 20 and a plurality of box-like connecting pieces 21 21, all rigidly joined together, as shown. Ears 23 23, on each connecting piece, extend downward through slots 24 24 in the lower disc and are bent into permanent engagement therewith. Lower disc 19 may be allowed to rest directly on shoulders 13 13, or spacers of various lengths, similar to spacer 26, may be placed on shaft 11, for vertical adjustment of hub 18. With this construction, it is impossible for hub 18, with its attached treads 22 22, slide downward on the shaft, so as to press upon and injure an infant occupying receptacle 1.

Each of the treads 22 22 is circular in cross section except for a portion of its inner or mounting end which is rectangular in cross section and which contains a vertical slot 27, a tightly driven pin 28 whose ends project somewhat and a tightly driven pin 29 whose ends are flush. As shown in Figure 2, each tread is flexi-

bly joined, by means of its pin 29, to a link 30 which has holes 31 31 in its ends. Each link is also joined to a tension resisting spring 32 which has hooks 33 33 formed in its ends.

In joining one of the spoke-like treads 22 22, with its attached parts, to its supporting hub 18, its rectangular end is inserted into one of the recesses 34 34, fitting closely but not tightly therein, and its attached spring 32 is passed inwardly (that is, toward shaft 11), through round hole 35 and downward through opening 36. Link 30, meanwhile, is brought downward into engagement with slot 37, sliding freely therein, and the projecting ends of pin 28 are brought into engagement with slots 38 38, fitting closely but not tightly therein. Spring 32 is then stretched and the hook 33 at its free end is passed over one of the ears 39 39 on ring 40 which is securely joined to lower disc 19. Spring 32 then exerts a continuous inward and downward pull on the inner end of its tread, through its link 30, thereby maintaining the tread in its horizontal or operating position and returning it thereto whenever the outer end of the tread is temporarily depressed.

An outward, horizontal pull on one of the treads stretches its spring and releases the ends of its pin 28 from their engagement with slots 38 38, after which the tread may be raised into its upright or folded position, its spring 32, with associated parts, acting as a hinge for the tread. Excessive outward movement of the tread, tending to over-stretch and damage its spring, is prevented by the hook 33 which, being joined, crosswise, to its link 30, is unable to enter slot 37. When one of the upright treads is tilted slightly, inwardly or outwardly, from its upright position, its spring is stretched and, by reaction, returns the tread, when released, to its upright position.

When an infant is to use the device, several of the treads which are directly above receptacle 1 are raised into their upright positions and the receptacle is rotated, about its supporting peg 5, into the position shown by full lines in Figure 1, where it will remain because of the engagement of pegs 8 8 with two of the depressions 9 9 in plate 4. The infant is then placed in the receptacle, lying on his back on any suitable pad and with his feet directed toward the foot end 3 of the receptacle. For very young infants, rim 2 is the only necessary safeguard against falls. For older, more active babies, a suitable safety strap or harness may be necessary.

Each of the upright treads is then pulled down into its horizontal position. When a tread is part way down, as indicated by broken lines in Figure 3, the projecting ends of its pin 28 come into contact with the curved edges 41 41, and farther motion results in a cam-like action which draws the tread outward, stretching its spring. Still farther downward motion allows the spring to pull the ends of pin 28 into their former engagement with slots 38 38.

With all of the treads in their operating positions, the infant finds at least one tread within reach of his feet and aligned approximately at right angles to his direction of kicking, at every position into which receptacle 1 may be revolved around shaft 11 and, by his natural kicking movements, he is able to propel himself and the receptacle in a clockwise direction around shaft 11. A second operating position for receptacle 1, adapted for counter-clockwise motion, and a folded position, are shown by broken lines in Figure 1. Additional depressions 9 9, for main-

taining the receptacle in these supplementary positions, are provided. Alternate use of the two operating positions insures symmetrical body development for the infant.

Each of the treads 22 22, in its operating position and because of its engagement with recess 34 and the engagement of its pin 28 with slots 38 38, is strongly resistant to upward thrusts and horizontal thrusts and pulls from the feet and hands of an infant riding in receptacle 1. When, however, the infant pulls downward on one of the treads, it swings readily about its pin 28, offering but little spring or frictional resistance to his pull and, hence, no temptation to pull himself into an upright position.

When it is desired to remove the infant from the receptacle, several of the treads are elevated into their upright positions, in the manner previously described. With all of the treads so elevated, or folded, and with receptacle 1 rotated into its folded position, parallel to sweep 7, the device occupies but little space and may, for example, be pushed against a wall, out of the way. The device may be readily disassembled, simply by lifting off hub 18 with its attached parts, spacer 26, receptacle 1, counterweight 16 and sweep 7, in the order named.

My invention may be embodied in many forms differing in various details from the preferred form which I have described and portrayed herein. For example, the receptacle might be adapted for holding an infant lying in a sloping position, on his side or even facing downwardly, and the treads could be positioned accordingly. By making suitable changes in the mechanism, the path of the receptacle could be changed from a horizontal circle into more complex forms, possibly more pleasing to the infant.

The treads need not be mounted in the rigidly stationary manner which I have shown and described. It is only necessary that the receptacle and the treads be relatively so mounted that the treads may come successively within reach of the feet of an infant lying in and riding in the receptacle, and that kicking movements of the infant, against the treads, result in circuitous travel of the receptacle.

What I claim as my invention is:

1. In an exercising and riding device for infants, the combination of a receptacle adapted for holding an infant in an upward facing and approximately horizontal position and a series of stationary treads, said receptacle being easily propellable along a definite circuitous path and said treads being distributed along and above said path.

2. In an exercising and riding device for infants, the combination of a centrally positioned bearing, a sweep rotatably mounted on said bearing, a receptacle mounted on an eccentric part of said sweep, and a series of stationary treads positioned along and above the path of said receptacle, said receptacle being adapted for holding an infant in an upward facing and approximately horizontal position.

3. In an exercising and riding device for infants, the combination of a receptacle adapted for holding an infant in an upward facing and approximately horizontal position, and a series of treads, said receptacle being easily propellable along a definite circuitous path, said treads being distributed along and above the path of said receptacle and said treads being easily movable downward but relatively difficult to move in other directions.

4. In an exercising and riding device for infants, the combination of a hub, a spoke-like tread and a spring, said tread having one of its ends flexibly joined to said hub and being readily movable into a definite upright position and into a definite position which is approximately horizontal, and said spring being adapted for returning said tread to its upright position when said tread is slightly displaced therefrom and for returning said tread to its horizontal position when said tread is displaced downward therefrom.

5. In an exercising and riding device for infants, the combination of a hub and a spoke-like tread flexibly joined to said hub by a link and a spring, said link being movable in a narrow slot and being provided, at one of its ends, with a stop for preventing excessive stressing of said spring.

6. In an exercising and riding device for infants, the combination of a series of spoke-like treads and a hub for mounting said treads, said hub comprising an upper disc, a lower disc and a series of box-like connecting parts, each of said connecting parts having its upper portion rigidly joined to said upper disc and its lower portion rigidly joined to said lower disc.

7. In an exercising and riding device for infants, the combination of a receptacle adapted for holding an infant in an upward facing and approximately horizontal position, a hub and a series of spoke-like treads, each of said treads projecting approximately horizontally from said hub and being so hinged to said hub as to be easily flexible downward but relatively inflexible in other directions, and said receptacle being so mounted as to be easily propellable along a definite, circuitous and approximately horizontal path below said treads.

8. In an exercising and riding device for infants, the combination of a series of stationary treads, a receptacle mounted in said device and means for guiding said receptacle along a definite circuitous path, said receptacle being adapted for carrying an infant lying down therein and

with his feet free to kick and being easily movable along said path, said treads having surfaces adapted for receiving approximately horizontal kicks and thrusts from the feet of the infant so carried in said receptacle, and said treads being so positioned in said device as to be successively within reach of the feet of the infant so carried in said receptacle when said receptacle is propelled along said path.

9. In an exercising and riding device for infants, the combination of a series of treads, a receptacle mounted in said device, said treads and said receptacle being easily movable relative to each other, means for guiding said receptacle along a definite circuitous path and means for converting relative movement of said treads and said receptacle into travel of said receptacle along said path, said receptacle being adapted for carrying an infant lying down therein and with his feet free to kick, said treads having surfaces adapted for receiving approximately horizontal kicks and thrusts from the feet of the infant so carried in said receptacle, and said treads being so mounted in said device as to be successively within reach of the feet of the infant so carried in said receptacle when said infant kicks against said treads.

10. In an exercising and riding device for infants, the combination of a series of treads, a receptacle mounted in said device, said treads and said receptacle being easily movable relative to each other, means for guiding said receptacle along a definite circuitous path and means for converting relative movement of said treads and said receptacle into travel of said receptacle along said path, said receptacle being adapted for carrying an infant in an upward facing and approximately horizontal position and with his feet free to kick, and said treads being so mounted in said device as to be successively within reach of the feet of the infant so carried in said receptacle and above the level of his back when said infant kicks against said treads.

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