May 4, 1948. J. J. CUNNINGHAM 2,441,060

RACING TOY

Filed Sept. 17, 1946

FIG. 1

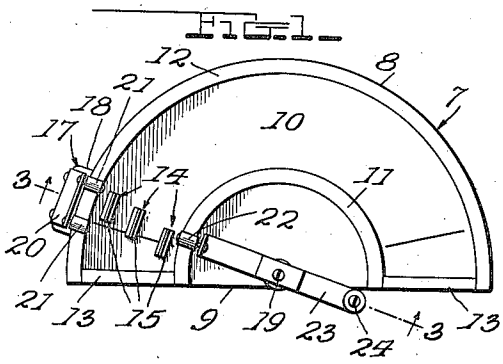



FIG. 2

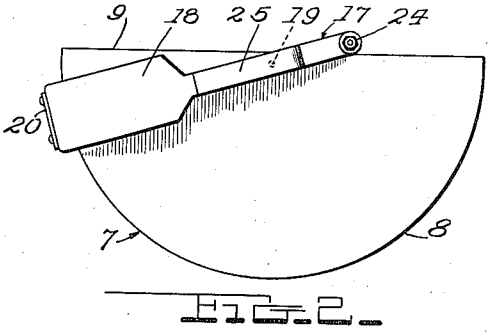



FIG. 3

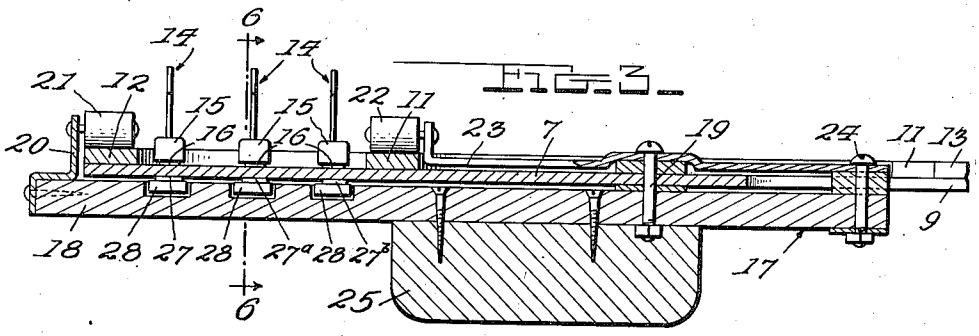



FIG. 4

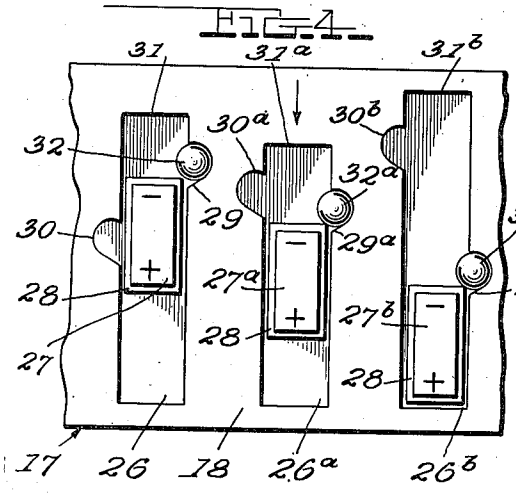



FIG. 5

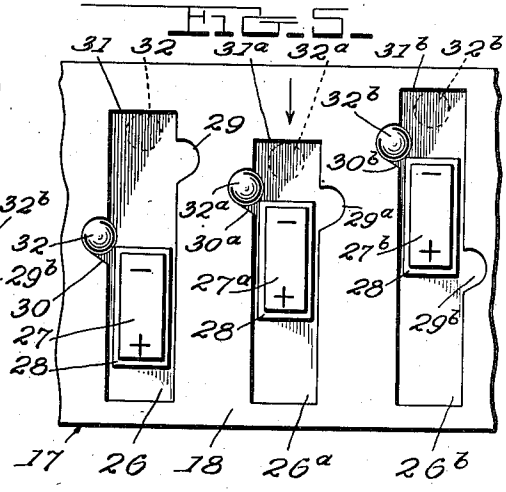
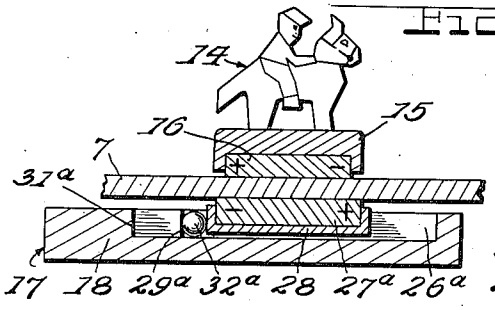



FIG. 6




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## RACING TOY

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9 Claims. (Cl. 46—45)

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The invention aims to provide a new and entertaining racing game in which horse simulations or other figures are provided with armatures (preferably magnets) and are movable along a track area of a board by means of individual magnets carried by a manually movable actuator under said board.

In carrying out the above end, a further object is to make novel provision, controlled by tilting of the board, for causing any selected figure to lead.

A still further object is to provide a game in which the figures have individual magnets cooperable with the actuator-carried magnets to hold said figures in a predetermined spaced relation and to move them along the track surface, said magnets of the figures serving to cause movement of said figures into "a huddle" or other different relation if the actuator be given such a quick jerk as to move its magnets out of cooperative relation with those of said figures.

Figure 1 of the accompanying drawing is a small top view of the game.

Fig. 2 is a small bottom view.

Fig. 3 is an enlarged vertical sectional view on line 3—3 of Fig. 1.

Fig. 4 is a further enlarged top view of the magnet-carrying portion of the manually movable actuator, showing its magnets in one positional relation, to cause one figure to lead.

Fig. 5 is a top view similar to Fig. 4 but showing the magnets in another positional relation to cause another figure to lead.

Fig. 6 is a detail vertical sectional view on line 6—6 of Fig. 3.

A board 7 is shown having an arcuate edge 8 and a straight edge 9, said board being formed from any suitable stiff and non-magnetic material. The upper side of this board is provided with an arcuate track surface 10, with inner and outer flanges 11 and 12 at the longitudinal edges of said track surface, and with other flanges 13 at the ends of said surface.

Suitable cut-out figures 14 are provided for movement upon the track surface 10, said figures having appropriate non-magnetic bases 15 and armatures 16 in said bases respectively, each armature being preferably in the form of a permanent magnet and slidable on the track surface.

An actuating arm 17 is disposed under the board 7 and is provided with a widened outer end 18, said arm being pivoted by means of a bolt or the like 19 to said board 7, at a point concentric with the flanges 11 and 12. The outer end 18 of this arm 17 is provided with an appropriate

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bracket 20 carrying rollers 21 contacting with the upper side of the outer flange 12. Another roller 22 contacts with the upper side of the flange 11 and is carried by a supplemental arm 23 which is pivoted upon the bolt 19 and is suitably connected at 24 with the inner end of the actuating arm 17. By this construction, the actuating arm is so connected with the board 7 that it can swing only in a plane parallel with said board and cannot move an excessive distance away from the latter. For swinging this arm 17, a handle block 25 has been shown on its lower side. This handle block is gripped in one hand and the board 7 in the other, and the arm 17 may then be swung about the pivot 19 so that its widened end 18 moves longitudinally of or lengthwise but beneath the track surface 10.

The widened end 18 of the actuating arm 17 has three flat-bottomed, upwardly-open grooves 26, 26*a* and 26*b* formed therein. In these three grooves, three permanent magnets 27, 27*a* and 27*b* are slidable, respectively, each of said magnets having a suitable base 28 of non-magnetic material. In one longitudinal side wall of the grooves 26, 26*a* and 26*b*, notches 29, 29*a* and 29*b* are formed, there being one notch in each of said walls. The other longitudinal side walls of the three grooves 26, 26*a* and 26*b* are formed with notches 30, 30*a* and 30*b* respectively, there being one notch in each of these walls. The various notches are spaced different distances from the front ends of the grooves 26, 26*a* and 26*b* and these groove ends may well be spaced equi-distantly from the front edge of the widened end 18 of the actuating arm 17. The rear ends 31, 31*a* and 31*b* of the grooves are spaced different distances from the rear edge of the arm end 18, giving different lengths to said grooves. It will also be noted that the various notches above described, are different distances from the rear ends of the grooves.

Three balls 32, 32*a* and 32*b* are loosely positioned in the grooves 26, 26*a* and 26*b*, behind the magnets 27, 27*a*, and 27*b*. When the actuator is moved to advance the figures along the track surface 10, the balls 32, 32*a* and 32*b* push the bases 28 of the magnets 27, 27*a* and 27*b*. Therefore, the positions which the balls have before starting to push the magnets 27, 27*a* and 27*b*, will control the positional relation of these magnets while the actuator 17 is being advanced. If the board 7 be tilted in one direction, the balls 32, 32*a* and 32*b* may be made to enter the notches 29, 29*a* and 29*b* respectively, as seen in Fig. 4. With this positioning of the balls, the magnets

27, 27*a* and 27*b* will have the relation shown in Fig. 4 while the actuator is being advanced, and as the magnets 16 of the figures 14 cooperate with the actuator-carried magnets to move said figures along the track area 10, the innermost of the figures will cross the finish line ahead of the others, as seen in Fig. 1. If the board 7 be tilted in the opposite direction, the balls 32, 32*a* and 32*b* may be made to enter the notches 30, 30*a* and 30*b* respectively, as seen in Fig. 5. With this relation of the balls, the actuator-carried magnets will have such a positional relation that the outermost of the figures 14 will lead. If the board be properly tilted in a third direction, all of the balls will abut the rear walls 31, 31*a* and 31*b* of the grooves and will push the actuator-carried magnets in such positional relation that the central figure will lead the others.

To insure that the magnets 16 of the figures 14 shall be properly under the control of the actuator-carried magnets, the latter are preferably larger or stronger than the former. Normally, the figures will remain in a predetermined laterally spaced relation with each other as they are being moved along the track area 10, but if the actuator 17 be given such a quick jerk that the figures 14 will not immediately follow it, said figures will be freed. When this occurs, the magnets 16 of said figures will cause them to move into a different relation with each other, for instance, into "a huddle." In order that this rather amusing movement of the figures shall be possible, it is necessary that the magnets 16 of any two adjacent figures 14, be within magnetic range of each other under normal circumstances, and they are held in this relation with each other, due to the spacing of the magnets 27, 27*a* and 27*b*. After the actuator 17 has been given a quick jerk as above described to permit the magnets 16 to attract each other to move the figures into "a huddle," the latter may be restored to their normal laterally spaced positions, that is, arranged in a row transversely of the track by moving the actuator back under them. That actuation of the figures, will of course be due to the fact that the magnetic flux of magnets 27, 27*a* and 27*b* is greater than the magnetic flux of magnets 16.

From the foregoing, taken in connection with the accompanying drawing, it will be seen that novel and advantageous provision has been made for carrying out the objects of the invention, and while preferences have been disclosed, attention is invited to the possibility of making variations within the scope of the invention as claimed.

I claim:

1. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, an actuator mounted under said board for movement under said track surface, magnets slidably mounted on said actuator for forward and rearward shifting into different positional relations with each other, said magnets being cooperable with said armatures respectively to advance said figures along said track surface when said actuator is advanced, and means for holding said magnets in any selected one of said positional relations to cause any selected one of said figures to lead.

2. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, an actuator mounted under said board for movement under said track surface, magnets slidably mounted on said actuator for forward and rearward shifting into different positional relations with each other, said magnets being cooperable with said armatures respectively to advance said figures along said track surface when said actuator is advanced, and means controlled by tilting of said board for holding said magnets in any selected one of said positional relations to cause any selected one of said figures to lead.



3. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, magnets under said board for cooperation with said armatures to move said figures along said track surface, an actuator under said board and movable under said track surface in the direction of the length of the track, the upper side of said actuator being provided with grooves extending in the direction of the length of the track and slidably receiving said magnets respectively, whereby said magnets may shift forwardly and rearwardly into different positional relations with each other, and a ball confined in each of said grooves behind the magnet therein for pushing this magnet forwardly when said actuator is moved forwardly, one longitudinal edge wall of each of said grooves having a notch, said notches being adapted to receive said balls when said board is tilted in one direction and being located to cause said balls to push said magnets in one of said positional relations to cause one of said figures to lead.

4. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, magnets under said board for cooperation with said armatures to move said figures along said track surface, an actuator under said board and movable under said track surface in the direction of the length of the track, the upper side of said actuator being provided with grooves extending in the direction of the length of the track and slidably receiving said magnets respectively, whereby said magnets may shift forwardly and rearwardly into different positional relations with each other, and a ball confined in each of said grooves behind the magnet therein for pushing this magnet forwardly when said actuator is moved forwardly, one longitudinal edge wall of each of said grooves having a notch, said notches being adapted to receive said balls when said board is tilted in one direction and being located to cause said balls to push said magnets in one of said positional relations to cause one of said figures to lead, the other longitudinal edge wall of each groove having a ball-receiving notch, these notches being adapted to receive said balls when said board is tilted in another direction and being located to cause said balls to push said magnets in another of said positional relations to cause another of said figures to lead.

5. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, magnets under said board for cooperation with said armatures to move said figures along said track surface, an actuator under said board and movable under said track surface in the direction of the length of the track, the upper side of said actuator being provided with grooves extending in the direction of the length of the track and slidably receiving said magnets respectively, whereby said magnets may

shift forwardly and rearwardly into different positional relations with each other, and a ball confined in each of said grooves behind the magnet therein for pushing this magnet forwardly when said actuator is moved forwardly, one longitudinal edge wall of each of said grooves having a notch, said notches being adapted to receive said balls when said board is tilted in one direction and being located to cause said balls to push said magnets in one of said positional relations to cause one of said figures to lead, the rear ends of said grooves being located to abut said balls and cause the latter to push said magnets in another of said positional relations when said board is tilted in another direction, thereby causing another of said figures to lead.

6. A racing toy comprising a board having a track surface, separate figures resting on and movable along said track surface and having individual armatures, magnets under said board for cooperation with said armatures to move said figures along said track surface, an actuator under said board and movable under said track surface in the direction of the length of the track, the upper side of said actuator being provided with grooves extending in the direction of the length of the track and slidably receiving said magnets respectively, whereby said magnets may shift forwardly and rearwardly into different positional relations with each other, and a ball confined in each of said grooves behind the magnet therein for pushing this magnet forwardly when said actuator is moved forwardly, one longitudinal edge wall of each of said grooves having a notch, said notches being adapted to receive said balls when said board is tilted in one direction and being located to cause said balls to push said magnets in one of said positional relations to cause one of said figures to lead, the other longitudinal edge wall of each groove having a ball-receiving notch, these notches being adapted to receive said balls when said board is tilted in another direction and being located to cause said balls to push said magnets in another of said positional relations to cause another of said figures to lead, the rear ends of said grooves being located to abut said balls and cause the latter to push said magnets in another of said positional relations when said board is tilted in another direction, thereby causing another of said figures to lead.

7. A racing toy comprising a board to be held in one hand of the user and having an arcuate track surface, separate figures slidably supported on said track surface and movable lengthwise of the track, each of said figures having an individual armature, a movable arm under said board to be actuated by the other hand of the user, means pivoting said arm to said board for swinging movement lengthwise of said arcuate track surface, the portion of said arm extending transversely of said arcuate track surface being provided with parallel guides extending in the direction of the length of the track, and separate magnets in said guides and slidable lengthwise thereof, said magnets coacting with said armatures to move said figures along said track surface.



8. A toy comprising a board having a track surface, separate figures slidable upon the track of said board and carrying individual permanent magnets, an actuator mounted under said board for movement lengthwise of said track, said actuator having a portion extending transversely of said track, and a row of permanent magnets carried by the transverse portion of said actuator and equal in number to said figure-carried magnets, said actuator-carried magnets having a greater magnetic flux than said figure-carried magnets and cooperable therewith to hold said figures in laterally spaced relation transversely of said track and to move them along the same when said actuator is moved lengthwise of said track, said actuator-carried magnets being sufficiently close to each other to keep the magnets of any two adjacent figures within magnetic range of each other, whereby if said actuator be quickly jerked, its magnets will free the magnets of said figures and the latter magnets will cause said figures to relatively move into different relation to each other.

9. A racing toy comprising a board to be held in one hand of the user and having a track surface, separate figures slidable on said track surface and having individual permanent magnets, a movable actuator under said board and extending transversely of said track surface to be moved by the other hand of the user, means mounting said actuator on said board for movement lengthwise of the track, a plurality of elongated parallel guides on said actuator extending in the direction of the length of the track and equal in number to the number of said figures, additional permanent magnets slidable in said guides and cooperable with the magnets of said figures to hold the latter in spaced relation and move them upon said track surface when the actuator is moved lengthwise of the track, said actuator-carried magnets having a greater magnetic flux that said figure-carried magnets and being sufficiently close to each other to keep the magnets of any two adjacent figures within magnetic range of each other, whereby if said actuator be quickly jerked, its magnets will free the magnets of said figures and the latter magnets will cause said figures to relatively move into a different relation with each other.

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