March 18, 1958 F. D. WALKER 2,827,296

RACING GAME DEVICE

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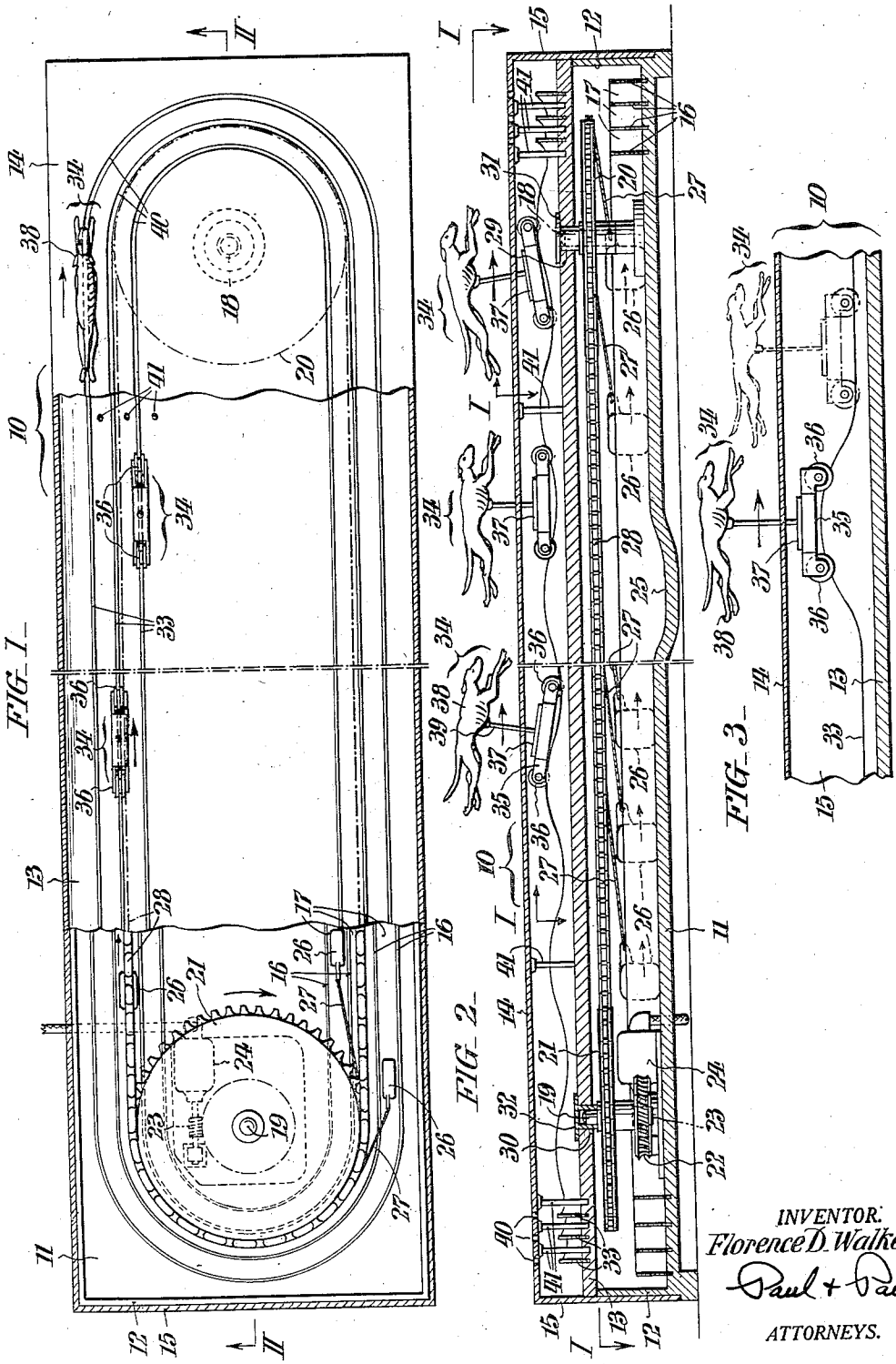


FIG. 1

FIG. 2

FIG. 3

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FIG. 4

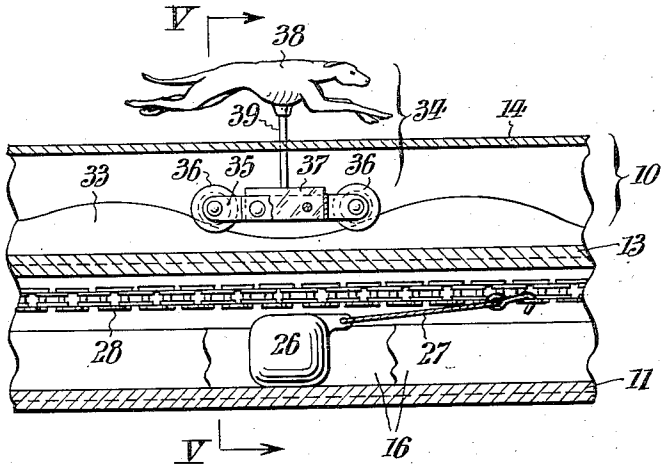
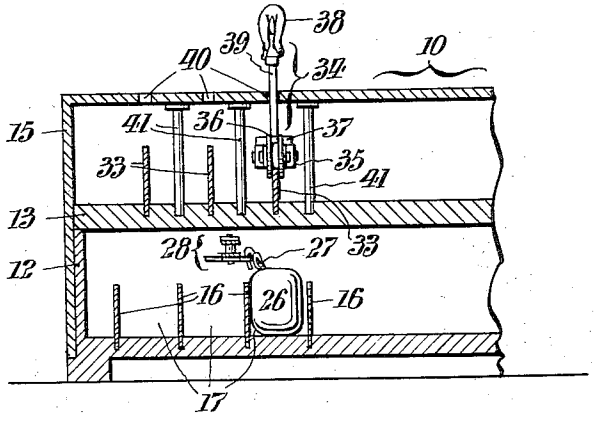


FIG. 5



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RACING GAME DEVICE

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Application February 17, 1956, Serial No. 566,150

4 Claims. (Cl. 273—86)

This invention relates to an amusement device in which a number of movable members are caused to be propelled over a predetermined course and, particularly, a device in which movable members are caused to travel a course defined by a plurality of fixed guide rails.

The principal object of the present invention is to provide an amusement device in which movable members are operated by means which are mounted below the guide rails and are invisible, and, at the same time, exert a varying and random propelling influence upon the movable members without being mechanically connected to the movable members.

Other objects and advantages will appear from the detailed description which follows, having reference to the drawings in which:

Fig. 1 is a plan view of an amusement device constructed in accordance with the present invention with a portion of the top having been broken away illustrating the operating mechanism which is normally invisible.

Fig. 2 is a cross section taken along the line II—II of Fig. 1.

Fig. 3 is an alternative guide rail arrangement for executing the rise and fall of the movable members.

Fig. 4 is a sectional view somewhat enlarged showing details of the propulsion means.

Fig. 5 is a section somewhat enlarged showing the guide rail arrangement and the underlying magnetic propulsion unit channels.

Referring to the drawings, the device of the present invention consists of an enclosure **10** which is made up of a base **11** having upwardly extending portions **12** on which there is mounted a support member **13** in spaced relationship to the base **11**. A cover **14**, having downwardly extending portions **15**, is fitted over the combined base **11** and mounting member **13** as shown in Fig. 2 leaving a space between the cover and the support **13**. Upright dividing wall members **16** are mounted at spaced intervals in the base **11**, thereby forming the channels **17**, the purpose of which will be explained at a later point.

Also mounted on the base **11** in the space between it and support **13** are the shafts **18** and **19** on which are mounted the toothed wheels **20** and **21**, respectively by means of hubs as shown in Fig. 2. Also attached to the hub of wheel **21** is worm wheel **22** which is driven by the worm gear **23** through operation of the motor **24** as shown in Figs. 1 and 2. Base **11** is provided with depressed portions **25** at several irregular intervals which extend across the path of the magnets **26** which travel along this varying surface of base **11**. The magnets **26** are attached by means of lines **27** to a movable chain or belt **28** which is operatively attached to the toothed wheels **20** and **21**. Mounting plate **13** is provided with two openings **29** and **30** which receive the insert bearings **31** and **32** respectively for retention of the shafts **18** and **19**. Mounting plate **13** also carries the upwardly extending guide rails **33** which carry the movable carriage members **34**. The latter consist of a frame member **35** having

wheels **36** and carrying member **37** which is made of a magnetic metal. A device in the form of an animal **38** is carried on the movable carriage by means of the vertical member **39** which extends upwardly from the movable carriage through the slot **40** which overlies the guide rail **33**, as will be seen in detail in Fig. 5. Animal **38** may be substituted by various vehicles such as autos, boats, chariots or the like to conform to the particular race selected. Support members **41** are provided to maintain a rigid separation between the top **14** and the intermediate mounting plate **13**, in order to insure clearance at all times for the carriages.

In operation the movable objects are first positioned at a predetermined starting line and the motor **24** is started. Through the worm gear **23** and the worm wheel **22** a rotary motion is imparted to the toothed wheel **21** and this in turn sets the chain **28** in motion. The several magnets **26** are thus caused to move in their respective channels **17** and since there is considerable magnetic attraction between the magnets and the metal portions **37** of the movable devices there is imparted motion to the movable carriages so long as the magnet is moving under it along the upper surface of the base **11**. This motion continues until such time as the moving magnet **26** reaches one of the depressions **25**. These depressions are provided in the base **11** at a number of positions around the track across the magnet channels and have the effect of enlarging the vertical separation between the magnet **26** and the magnetic metal carried by the carriage, thus reducing the strength of the magnetic hold which the magnet has on the movable carriage. The result of this is that the magnet **26** slips relative to the carriage and travels somewhat faster than the carriage above it during the period of transition through the depressed portion **25**. The movable object therefore lags behind the moving magnet as shown in the central figure **34** of Fig. 2, and is thus delayed in its travel around the course until it is picked up by the next magnet travelling in the channel underlying it. This is made possible by the fact that the momentum of the movable object plus the configuration of the guide rail carries it beyond the depression **25**, but the lag is sufficiently great to permit the moving magnet to escape. Since there are a number of moving magnets positioned within each of the channels **17**, there is imparted to the device an element of chance which is outside the control of the operator, and which provides all of the elements required for simulating a race since the "competing" movable objects stop and start again at unpredictable times and for unpredictable intervals.

While the present invention has been described having reference to a preferred embodiment, it will be understood that the invention, as defined in the appended claims, includes equivalent combinations of elements for accomplishing substantially the same results.

Having thus described my invention, I claim:

1. An amusement device comprising a base, a support member mounted in spaced relationship above said base, a plurality of upwardly extending partition members attached to the said base and forming separate guide channels, rotatable members mounted in the space between said base and said support member, endless belt means in operative engagement with said rotatable members, drive means for rotating said rotatable members and for moving said endless belt, a plurality of permanent magnets positioned in said channels, movable attachment means mechanically connecting said magnets with said endless belt, said attachment means being vertically movable with respect to said belt, a plurality of upwardly extending guide rails attached to said support member and positioned respectively over said guide channels, a

plurality of movable objects positioned on said guide rails, magnetic metal elements secured to said movable objects, whereby motion of one of said magnets in a guide channel located beneath said movable object imparts motion to said movable object along said guide rail in response to the position of said magnet in said guide channel, depressions formed in said base member across said guide channels thereby increasing the vertical separation between the base member and the overlying guide rail, whereby the force exerted by said magnets on said magnetic metal attached to the movable members is decreased during the time period required for said magnets to pass through said depressions, the extent of such depressions being such as to cause a sufficient decrease in said magnetic attraction to provide slippage and ultimate escape of the moving magnet from the movable object and its attached magnetic metal thereby causing the magnet to move faster than the object.

2. The invention of claim 1 further characterized by a plurality of magnets within each of said channels.

3. The invention of claim 1 further characterized by the fact that the guide rails positioned over said guide channels have high and low portions, at least one of said high portions being positioned over one of said depressions whereby the movable object is carried by gravity beyond the region overlying said depression.

4. The invention of claim 1 further characterized by the fact that said depressions are positioned at intervals around said base member.

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