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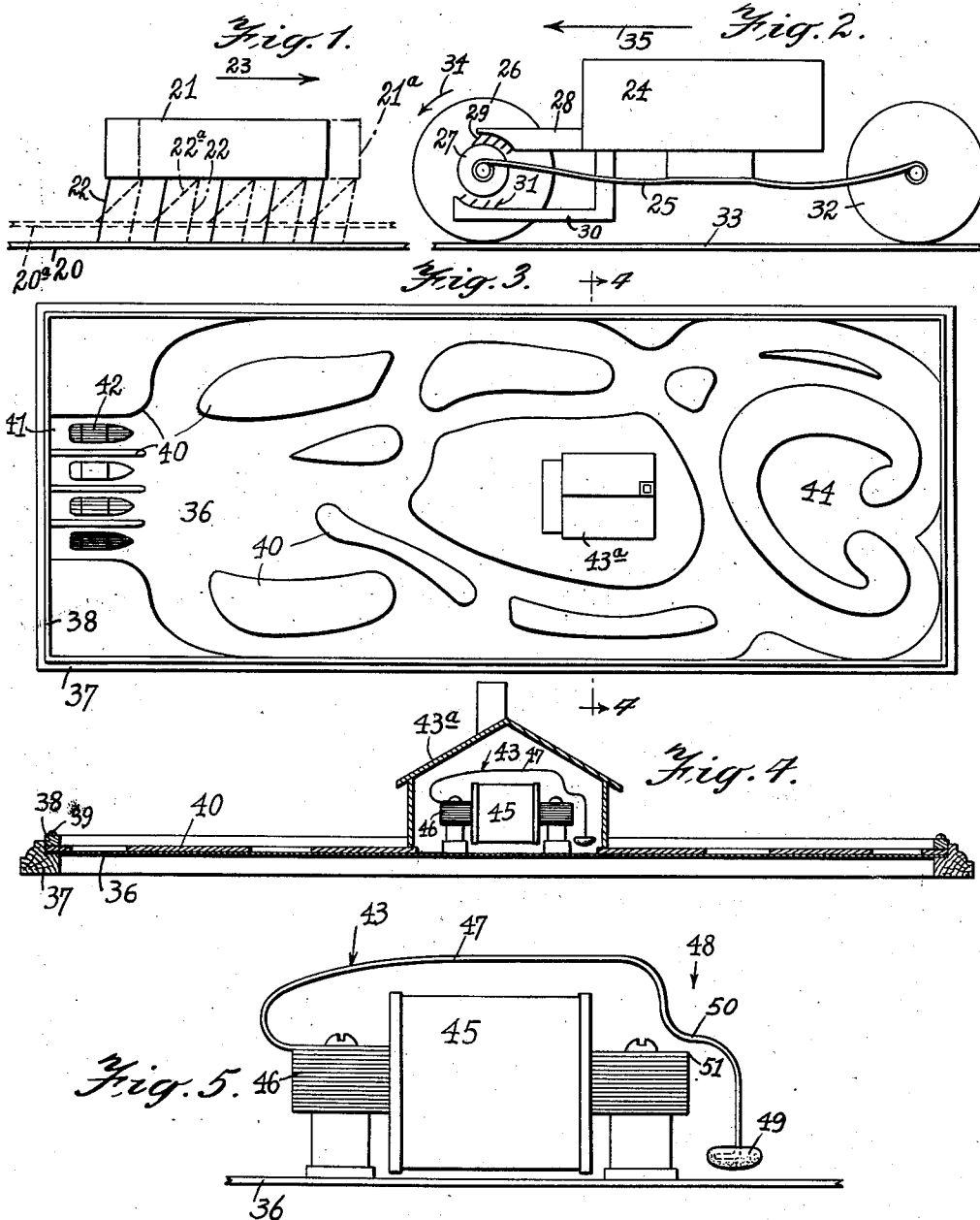
E. LEVAY

2,167,985

VIBRATING PROPELLING DEVICE

Filed April 9, 1937

2 Sheets-Sheet 1



EUGENE LEVAY,

INVENTOR.

BY *Julian J. Wittal,*

his ATTORNEY.

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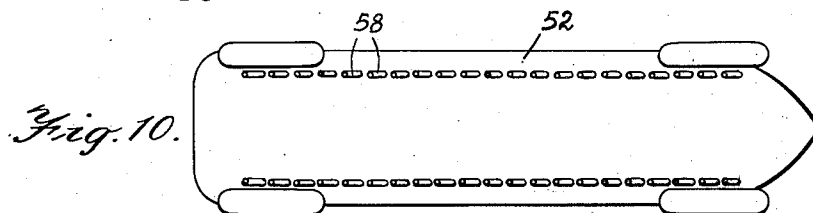
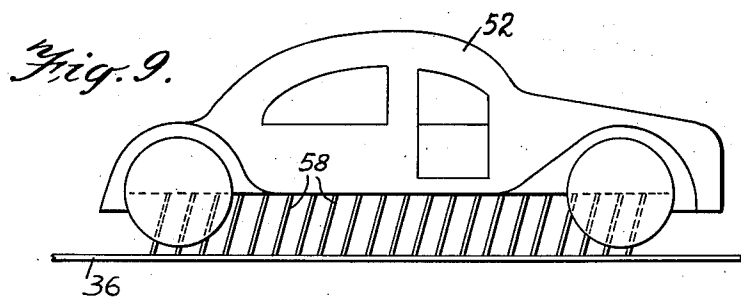
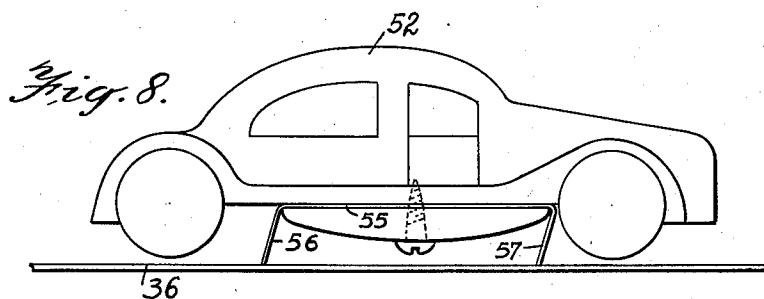
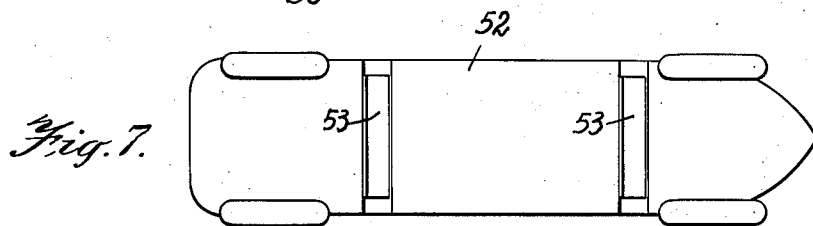
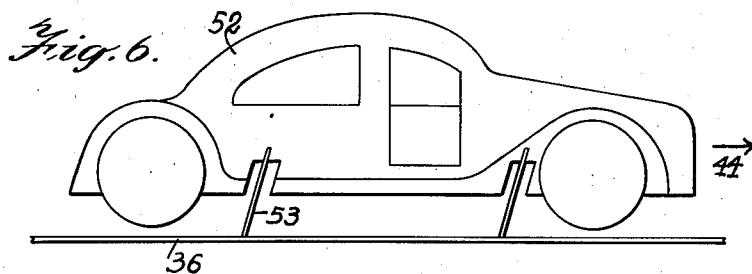
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INVENTOR.

BY

Julian J. Wittal,
his ATTORNEY.

UNITED STATES PATENT OFFICE

2,167,985

VIBRATING PROPELLING DEVICE

Eugene Levay, New York, N. Y.

Application April 9, 1937, Serial No. 135,877

1 Claim. (Cl. 273—86)

This invention relates to novel methods and means of propelling an object through the vibration of a base on which it normally rests.

Another object of this invention is to provide a novel toy or game device which will utilize said method of propelling objects or articles on a vibrating base.

Other objects of the invention will be apparent as the specification of the same proceeds:
In the drawings forming a part of this specification and accompanying the same:

Fig. 1 is a diagrammatic elevational view of an object and a vibrating base for the same indicating the principle of my novel method of propelling;

Fig. 2 is a diagram of a vehicle which may be operated through the same principle of propulsion;

Fig. 3 is a plan view of a game or race device or toy constructed according to my invention, and

Fig. 4 is a sectional elevation thereof;

Fig. 5 is a diagrammatic but somewhat enlarged or detailed view of an electric vibrator used in the device of Figs. 3 and 4;

Figs. 6 to 10 indicate in a diagrammatic manner, toy automobiles which may be used in connection with the race or amusement game of Figs. 3 and 4.

Referring now to the drawings more closely by characters of reference, and particularly to Fig. 1, the numeral 20 indicates a vibrating base preferably a resilient sheet of material kept in an intermittent repeated quick vibratory up and down motion, that is in a vertical direction to its plane, and the numeral 21 indicates an object which it is desired to propel on said base through my novel method. Inclined, resilient or elastic members 22, as, for instance, small wires or flat springs, depend from the object 21, and said object may rest on the base 20 through said resilient members 22.

It will be obvious that when the plate 20 vibrates and moves in an upward direction, taking for a moment the position of 20a, indicated by the dotted lines, for a moment the depending resilient members 22 will be bent closer towards the article 21, as indicated by their dotted positions 22a, said bending being caused by the force exerted on their lower ends by the vibrating plate 20. The upward impact of said plate 20 on said resilient members may somewhat raise the article 21, but it will be obvious that a resultant of that force will cause said article to move forwardly, as indicated by the arrow 23,

said article the next moment taking the position 21a, indicated by the dot and dash lines in said Fig. 1. By repeated quick vibrations of the plate 20, the article or object 21 will be caused to move forwardly in the direction of the arrow 23, its speed being dependent on the quickness and force of the vibrations and on the other characteristics of the article 21 and the dependent resilient propelling elements 22.

In Fig. 2 I illustrated another embodiment of the same principle of propulsion, in which an object to be moved, is a vehicle having the body 24 preferably resting on a spring 25, having a wheel 26 with a hub 27 freely rotating at the one end thereof. An upper bracket member 28 may extend from the body over the hub 27 and may have appropriately inclined elastic resilient propelling elements 29 secured therein touching said hub 27, and, similarly, a lower bracket member 30 may contact with said hub 27 through the appropriately inclined resilient members 31. The vehicle may have other wheels like 32, on which to rest and run, as will be obvious, and all the wheels of the vehicle will rest on a vibrating plane or plate 33. It will be seen that when the plate 33 is put into quick vibrations, the action of the resilient elements 29 and 31 will cause the free wheel 26 to rotate in the direction of arrow 34, and cause the vehicle to be propelled in the direction of the arrow 35.

The principle hereinbefore explained and illustrated is applied in my toy and amusement game shown in Figs. 3 and 4. The main element of said toy is a plate or sheet member 36 of any appropriate material preferably metal. In one embodiment of my invention said plate 36 is resting at its circumferential edges on a frame member 37 and is secured thereon through an upper frame member 38, and through the screws 39, by which its securing may also be regulated. Raised portions 40 may be formed in the plate or secured thereon in separate layers as shown, forming a labyrinthical maze of passageways and obstacles for a race game, as will be obvious.

At one end of the plate, starting positions 41 are arranged, in which may be placed at the start of the game, the racing members 42 of any appropriate type like automobiles, ships, horses, etc. Preferably in the center portion of the device is arranged an electric vibrator 43, to be described presently and in this embodiment the same may be concealed underneath an ornament like the building 43a.

At the end of the plate opposite to the starting positions 41, a goal 44 may be arranged. When

the vibrator starts to vibrate the plate 36, the racing elements or units 42 will start from the starting positions 41 and will negotiate the maze of passages and obstacles thereby meeting great variations of situations, reverses, changes, and the one which first succeeds in entering the goal 44 will be the winner. The electric vibrator may be any of the well known devices used, for such purposes, and one of such devices used by me in the present game is indicated in a diagrammatic manner in Fig. 5. In this form of the vibrator, an electric magnet is secured on the plate 36 by any appropriate means, having the electric spool 45 and the iron core 46, and an electric current is led into said vibrator in such a manner that the core 46 will be magnetized, whereupon a flat spring device 47 will be pulled downwardly, as indicated by the arrow 48, and its lower end 49 will hit the plate 36. The circuit of my electric current may be arranged in such a manner, as it is well known in this art, that when a portion of the metal spring 47, as that indicated at 50, will contact with an iron part of the device, as, for instance, the portion 51 of the core 46, the electric current passing through the wire spool 45 will be broken and the core 46 demagnetized. When the core 46 loses its magnetic force, the spring 47 will return to its original position, breaking the contact of the parts 50 and 51, and thereupon the core 46 will again be magnetized, as will be obvious, and the head 49 will again hit the plate 36. In this manner the plate 36 will be put into constant, quick vibrations.

Several forms of imitation or toy automobiles to be used as racing units or members 41 are illustrated in Figs. 6 to 10. In Figs. 6 and 7 an imitation automobile body 52 may have the inclined flat spring plates 53 depending therefrom, and contacting with the vibrating base

plate 36 whereby the imitation automobile will be propelled in the direction of the arrow 44, as has been explained hereinbefore. In Fig. 7, the device of Fig. 6 is shown in a bottom view.

Fig. 8 indicates a modification of the device of Figs. 6 and 7 wherein the automobile body 52 will have a single flat spring 55 secured to the underside thereof as indicated, and its two downwardly bent inclined terminations 56 and 57 will contact with the vibrating plate 36.

In Figs. 9 and 10, a modified form of such imitation automobiles is shown, wherein the automobile body 52 will have two or more rows of rearwardly inclined single resilient wires, animal hair, etc., 58 depending therefrom and contacting with the vibrating plate 36.

While I have described a preferred embodiment of my invention, it is to be understood that changes and variations may be made in the arrangement, forms and combinations of the parts thereof, and I desire to reserve my rights to all such changes and variations which are within the spirit of this specification and the claim hereunto appended.

One of such changes may consist in securing the vibrator on the frame of the device, independently of the vibrating plate.

What I claim as new, is:

In a racing toy, having a resilient plate with a system of passages and obstacles, including a start and a goal thereon, a plurality of racing units to be propelled through depending resilient members by which they are resting on said plate and through the transverse vibrations of said plate; a frame member secured around the periphery of said plate by which the same may rest on a support and be kept spaced apart from said support.

EUGENE LEVAY.