Aug. 20, 1935. W. V. HEEKIN 2,011,813

EXHIBITION DEVICE

Filed Dec. 18, 1933

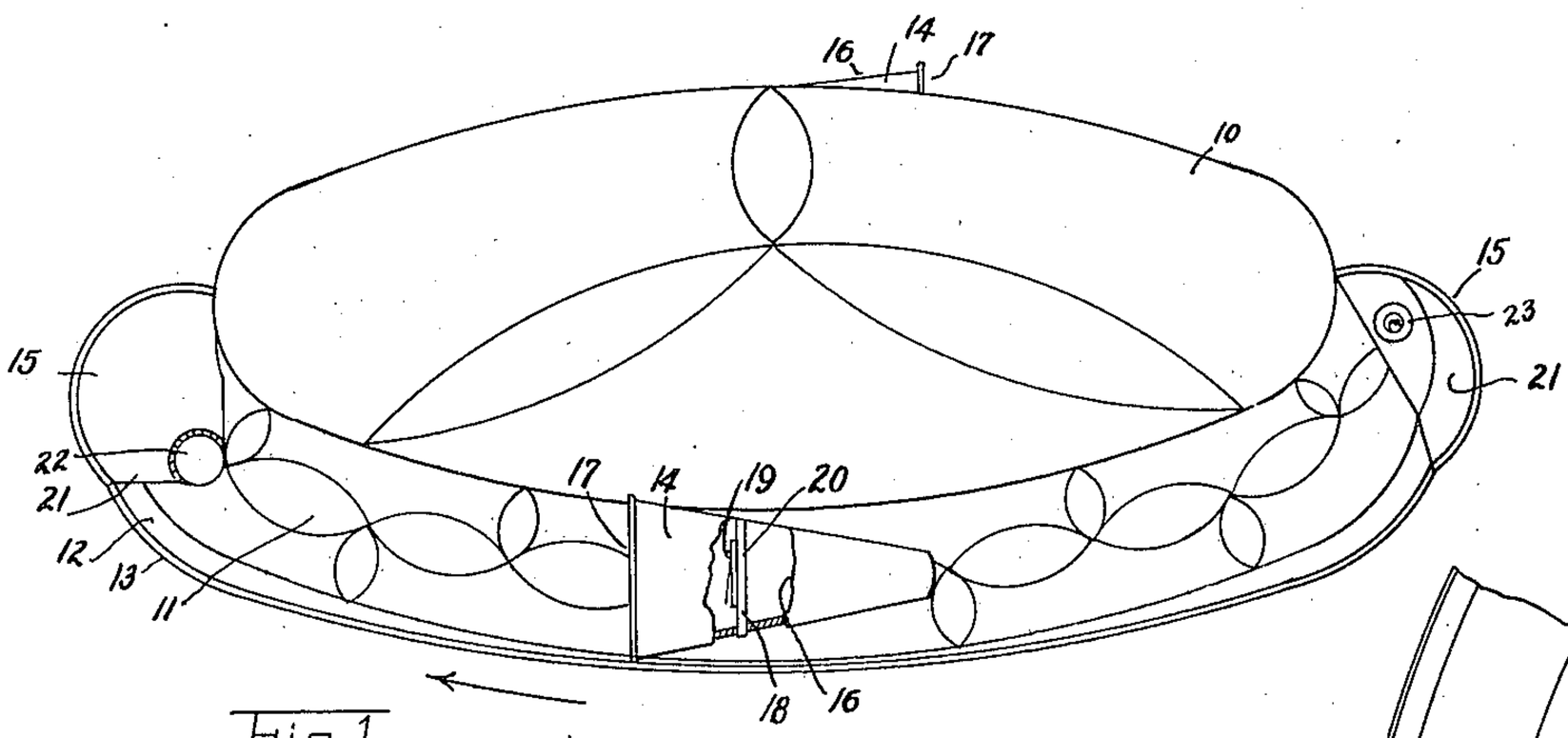

Fig. 1

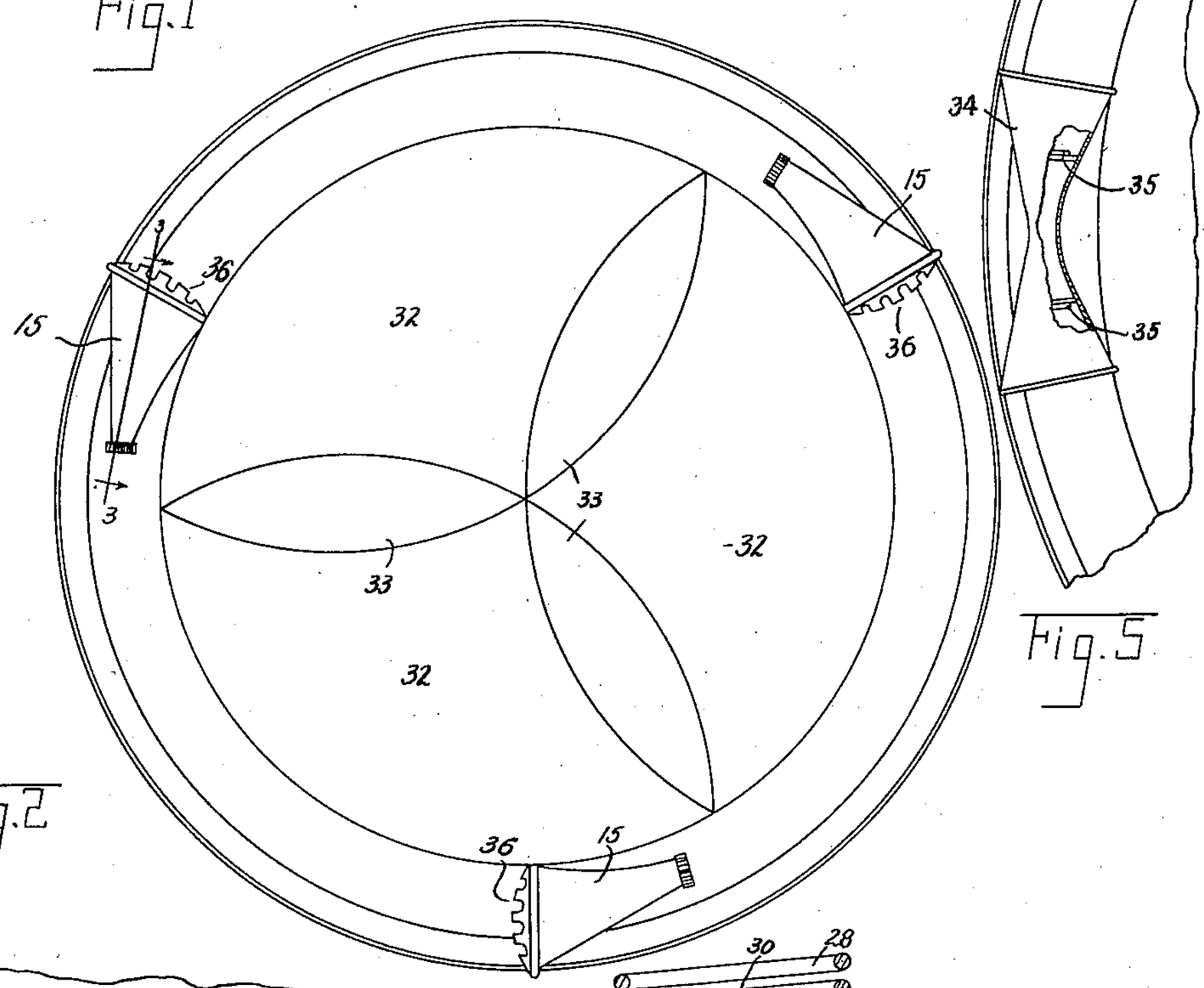

Fig. 2

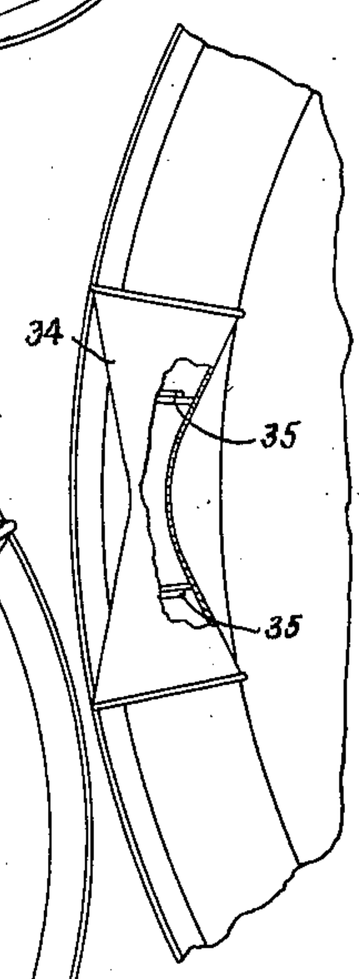

Fig. 5

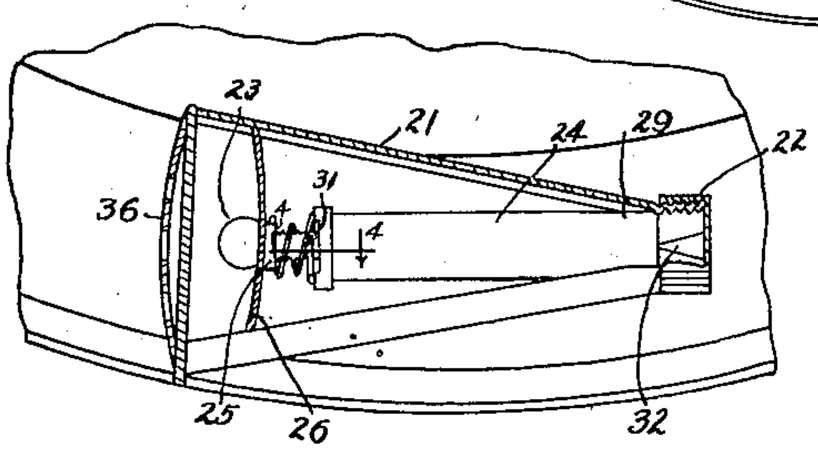

Fig. 3

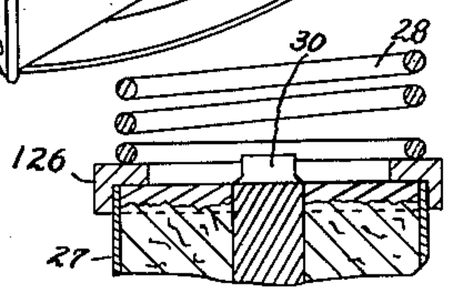

Fig. 4

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2,011,813

EXHIBITION DEVICE

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Application December 18, 1933, Serial No. 702,875

9 Claims. (Cl. 46—46)

This invention relates to an article for use as a toy and as an exhibition device and has for an object the provision of a novel amusement means for children and adults.

Another object is to provide a device of simple construction which a player may throw in such manner as to cause it to simultaneously spin on its axis and travel directionally in a substantially horizontal position and to produce one or more musical tones during flight.

Another object of the invention is to provide a device of this type with a colored design decoration which during its spinning flight produces the optical illusion of blending the colors of the design.

Another object of the invention is to provide a device of the type described with illuminating means so that it may be used at night as well as in the day time.

Another object of the invention is to provide a device that will afford amusement to children and adults both as players and spectators and which is susceptible of highly skilled use that will adapt it to stage exhibitions.

These and other objects are attained by the means described herein and disclosed in the accompanying drawing, in which:

Fig. 1 is a perspective view of an exhibition device of the invention equipped with self contained illumination, sound producing means and having a design in colors thereon for producing the color blending effect.

Fig. 2 is a plan view showing a modified form of device.

Fig. 3 is a view taken on line 3—3 of Fig. 2.

Fig. 4 is a view taken on line 4—4 of Fig. 3.

Fig. 5 is a fragmental view of a device of the invention having a modified form of musical tone producer.

The device of the invention is formed of sheet or light molded material such as sheet fiber, light sheet metal, molded vulcanite or any other material that will withstand reasonably rough usage. It may in its simpler form be shaped somewhat like an ordinary pie pan, having a substantially flat circular top 10, an outwardly and downwardly inclined sidewall 11 and preferably a narrow flange 12 which has a reenforcing bead 13.

The surface of the top, bottom, and side walls and the flange is decorated with any suitable design done in colors, for example, leaf shaped patches of dark blue upon a bright yellow background. When the device is whirling in flight it appears to be colored in several shades of green. Numerous variations of color effects may be produced by applying the known principles of color blending.

Uniformly spaced about the circumference of the device on the sidewall and flange are mounted two or more sound producing members of the character requiring actuation by wind, for example of the whistle or wind reed type. These are indicated generally at 14 in Fig. 1. The sound producers 14 may be used alone or in combination with illuminating members 15 which in some embodiments may be used alone.

The embodiment illustrated in Fig. 1 carries two of the sound producers 14 which in this case are vibrating wind reeds of the type used in mouth harmonicas or other kindred musical instruments. As will be noted hereafter these reeds are vibrated into sound producing activity by reason of the wind resistance which is set up during flight of the device and concentrated as an actuating wind stream or blast by the funnel shaped structures or tapered tubes 16. Tubes 16 present the enlarged open ends 17 to the air resistance as the device is whirled during flight and the velocity air stream is trapped by the funnel and is directed upon the reed or other sound producer to actuate it. The reed 18 is fixed at one end as by a rivet 19 to seat over an aperture in plate 20. This is the commonly employed manner of mounting a musical tone producing reed in harmonicas and requires no detailed description. The plate 20 closes the interior of funnel 16 except for the aperture in which the reed 18 may vibrate. The funnel extends beyond plate 20 so as to avoid the effect of eddy currents of air which would retard or prevent the useful tone producing vibration of the reed.

The illuminating devices 15 are also employed in the devices of Fig. 1. The illuminating means are mounted within stream line hoods or funnels 21 having the small end suitably capped with a removable cap and actuator 22. Interiorly of each hood 21 is mounted a flash light lamp 23 and a small sized dry battery cell 24. The lamp 23 is supported in a suitable socket or connector sleeve 25 carried by a transverse member 26, fixed within the hood. The dry cell 24 is provided with an annular conductor cap 126 frictionally receiving the cylindrical metal shell 27 of the cell and a coil spring 28 is fixedly mounted on this annular cap for the purpose of receiving the lamp socket and supporting the end of the cell in axial alignment therewith. The cell has its other end reciprocably mounted in the reduced end 29 of the hood.

The spring 28 normally holds the center electrode 30 of the dry cell out of electrical contact with the center button electrode 31 of the lamp. The cap 22 has a center finger 32 which pushes the dry cell 24 forwardly as the cap 22 is screwed further onto the free end of the hood to compress the spring 28 and complete the circuit through center electrodes 30 and 31 of the dry cell and lamp. It will be understood that other means may be employed for mounting and selectively energizing the illuminating means.

The device shown in Fig. 2, like that shown in Fig. 1, has a suitably colored background surface 32 on which are the differently colored areas 33. In this embodiment only the illuminating devices 15 are employed.

In Fig. 5 there is illustrated a modified form of sound producer that is adapted to use in lieu of the members 14. The members 14 as applied in Fig. 1 will produce sound only when the device is thrown by a right handed person so that the device rotates in the direction of the arrow in its flight through the air. For left handed persons it would be necessary to provide devices wherein the sound producers were reversed. The double ended funnel members 34 may be used and two reeds mounted therein in reversed relation to each other so that one reed will be vibrated when the device turns in one direction and the other reed will be effective when the device is whirled in the opposite direction. The reeds and their mountings are indicated at 35.

It is intended that a plurality of sound producers be employed for each device and that they may be selected to sound either in tonal unison or harmony. The reeds producing lower tones become operative at slower rates of whirling movement of the device while those producing higher tones become operative only at more rapid rates of rotation.

The reticulated finger guards 36 are optionally mounted over the large ends of the funnel and hood members.

The operation of the device is as follows. The pan-shaped device is grasped by the flange and sidewall with the thumb and fingers and then, with a swinging movement of the forearm and wrist, it is thrown with a twirling movement and with the body of the device as nearly horizontal as possible. If properly thrown and with sufficient velocity the inverted pan shaped body assumes a substantially horizontal position within a few feet of the place at which it leaves the player's hand. According to the general principles of aero dynamics, air pressure is built up beneath the body while the directional movement of the pan tends to produce reduced air pressure immediately at the top surface thereof and hence affords some lifting power. The pressure and lift counteract the force of gravity to a considerable degree, with the result that the rate of directional bodily flight need not be great if the rate of rotation is high. The device is easily made to travel 60 feet or more in a floating directional manner so that it may be caught by a second player who returns it in like manner. The descent of the device, if it is not caught or touched by the second player, is normally such as to cause little or no damage to the device. When properly thrown, the device settles down to earth in a horizontal position at the end of its flight. During flight initiated in the manner described, the reed members each produce their respective notes with a frequency equal to the rate of rotation of the device during flight. The several colors on the surface blend completely during rapid rotation and then show up distinctively as the device loses speed and is about to be caught by a companion player. When equipped with the illuminating members the device may be used at night and it appears as a glowing ring that is easily seen and caught and that presents a pleasing sight to both players and spectators. The dry cells are conserved by unscrewing the caps 22 sufficiently to permit the springs 28 to separate the electrodes of the cell and lamp.

Skilled performers are able to play simple airs with the devices if provided with a suitably large number of the devices with the necessary variety of sound producing reeds. In this type of novel performance the player who catches the devices controls the type of musical performance by his skill in arresting or catching the devices after the proper relative length of beat for each note during its flight.

For ordinary use as a toy or game piece the device is found very satisfactory when the side wall is disposed at an angle of about 125° to 150° to the top. A multiplicity of the devices with their respective side walls inclined at different degrees of angularity afford opportunity for the educational observation of different degrees of lifting power of the air upon the different devices. The general similarity of the edge of the device and its action in the air to the leading edge of an airplane wing renders the device especially interesting to those interested in aerodynamics.

From the foregoing it will be seen that many amusing and interesting forms of game and play for almost any number of participants can be had with the devices of the invention. It is to be understood that modifications in structure are contemplated within the spirit of this invention and within the scope of the appended claims.

What is claimed is:

1. As a new article of manufacture an amusement and display device comprising a circular member having a downwardly inclined wall adapted to be tossed into whirling and floating directional flight through the air and wind-actuated sound producers secured adjacent the periphery of said wall.

2. As a new article of manufacture an amusement and display device comprising a circular member having a flared sidewall and adapted to be tossed into whirling and floating directional flight through the air, wind-actuated reeds mounted peripherally of said sidewall and means for concentrating the wind of resistance to movement upon the reeds during such flight.

3. As a new article of manufacture an amusement and display device comprising an inverted pan shaped member adapted to be tossed into whirling and floating substantially horizontal directional flight through the air, tapered wind funnels mounted peripherally of the member and wind-actuated sound producing means in said funnels.

4. As a new article of manufacture a toss and movement amusement and display device comprising a circular inverted pan shaped member adapted to be tossed into whirling and floating directional flight through the air, tapered wind funnels mounted peripherally of the member and wind-actuated sound producing means mounted within said funnels.

5. A toss and catch amusement device comprising a circular inverted pan-shaped body adapted for rotating and bodily directional flight

in a horizontal condition through the air, and illuminating means comprising reflectors on said body for illuminating the periphery of the body.

6. A toss and catch amusement device comprising a body of sheet material having a substantially flat circular top, an outwardly and downwardly extending side wall and a flange on the lower edge of said side wall in substantial parallelism with the top, distinctively colored areas on the surface of said device adapted to produce the illusion of blending the colors upon rapid rotation of the body and means carried by said sidewall actuatable by the air resistance to rotation of the body for producing sound.

7. In a non-captive toss and catch amusement device the combination of a disc having a flat top, a depending outwardly flared sidewall portion, musical reeds and wind concentrating hoods associated with said sidewall whereby the device, when tossed with spinning motion will partake of a directional substantially horizontal floating flight by the action of the air and will produce musical sound during the major portion of its flight.

8. A toss and catch amusement device comprising a downwardly and outwardly flanged disc, the upper surface of said disc and its flange having different colors thereon, the flange serving to sustain said device in substantially horizontal floating linear flight when tossed with a spinning motion, said colors on said device producing the optical effect of color blending when in flight, illuminating means on said flange and reflector means on the flange and concentrating the illumination upon the colored portion of the flange and the immediately surrounding area.

9. A non-captive toss and catch amusement device comprising a member having an annular inclined sidewall presenting a leading edge to the resistance of air when tossed into whirling directional flight, whereby a sustained floating flight is attained, a funnel member on said sidewall and a vibrating reed mounted in said funnel and actuated during said whirling directional flight.

WALTER V. HEEKIN.

CERTIFICATE OF CORRECTION.

Patent No. 2,011,813. August 20, 1935.

WALTER V. HEEKIN.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 66, claim 4, for "movement" read catch; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of September, A. D. 1935.

(Seal)

Leslie Frazer

Acting Commissioner of Patents.