July 15, 1969 D. R. FORBUSH 3,455,549

FAN-PROPELLED MERRY-GO-ROUND

Filed Oct. 12, 1967 2 Sheets-Sheet 1

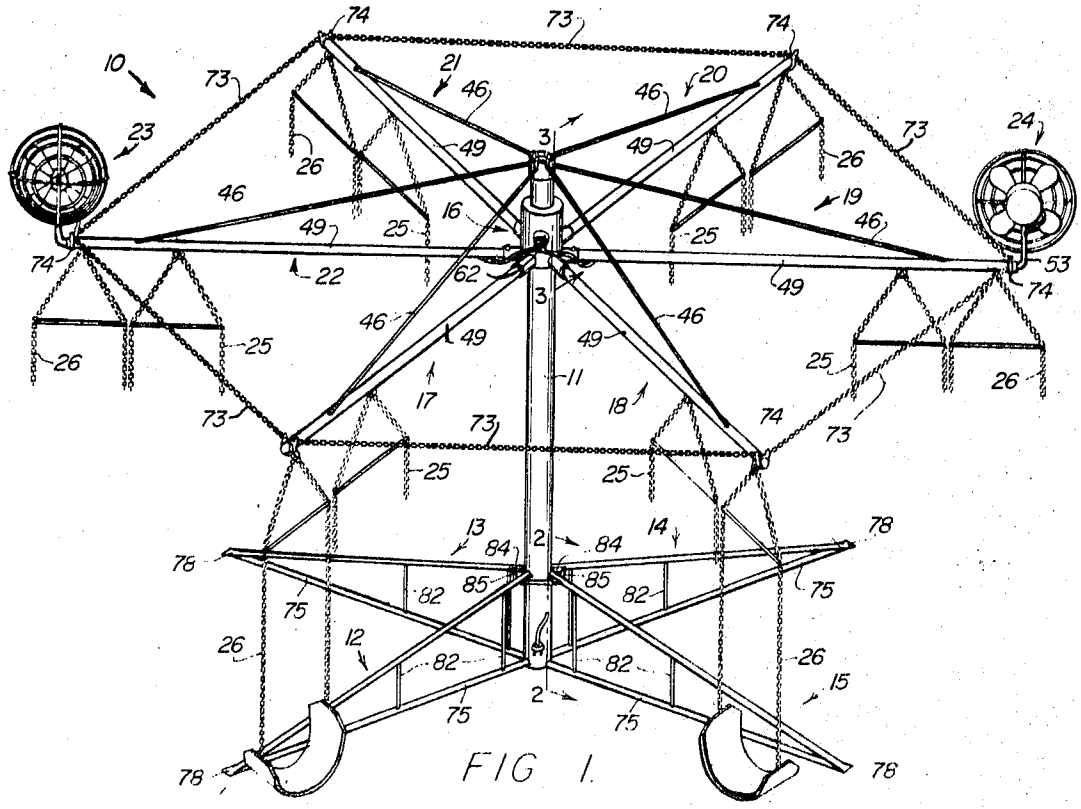


FIG 1.

FIG. 2.

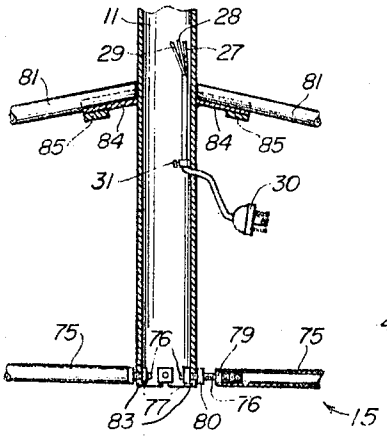


FIG. 3.

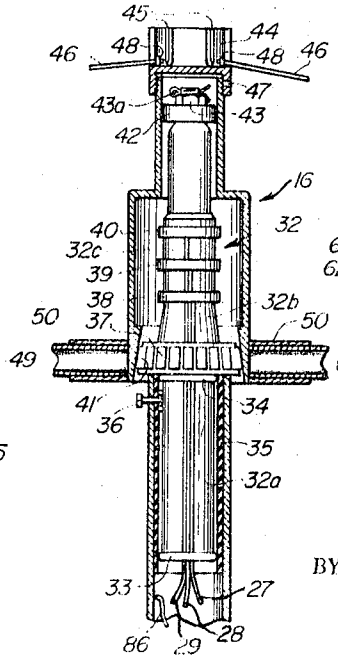
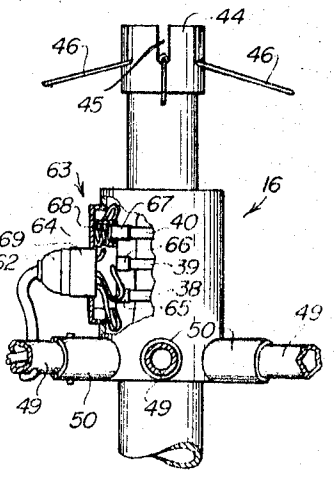


FIG. 4.



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FAN-PROPELLED MERRY-GO-ROUND

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FIG. 5.

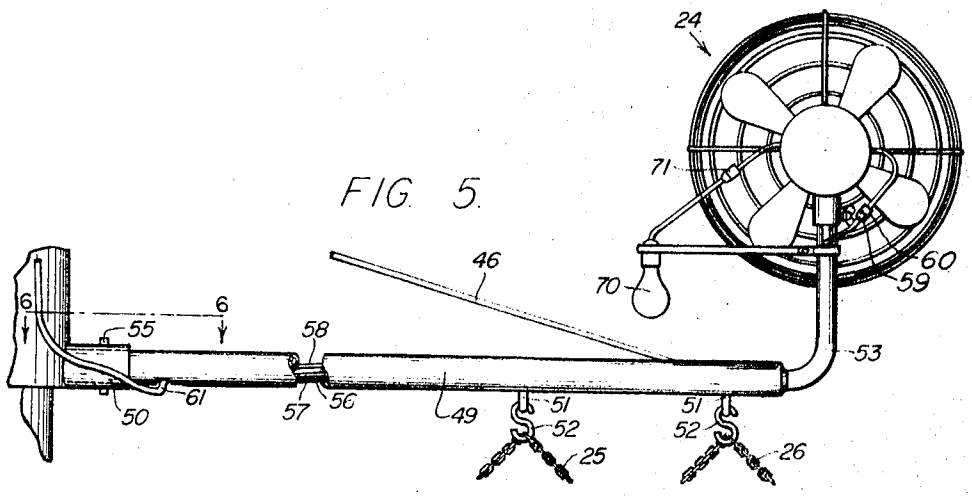


FIG. 6.

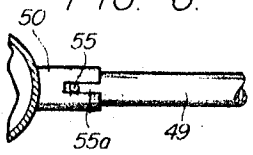
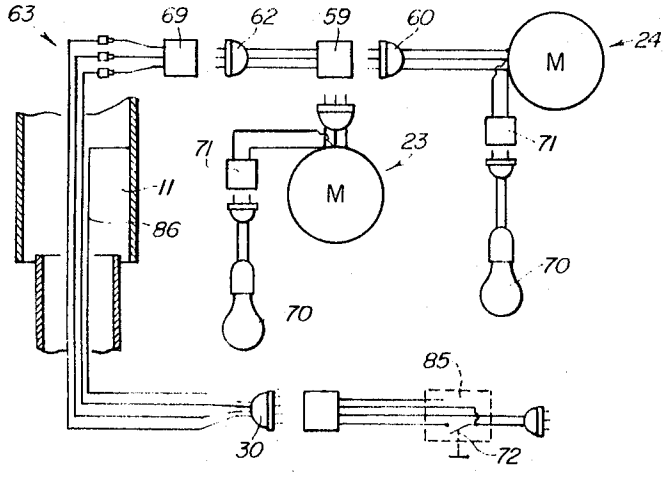


FIG. 7.



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3,455,549

Patented July 15, 1969

3,455,549

FAN-PROPELLED MERRY-GO-ROUND

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Filed Oct. 12, 1967, Ser. No. 674,803
Int. Cl. A63g *1/08, 1/28*
U.S. Cl. 272—41 8 Claims

ABSTRACT OF THE DISCLOSURE

An improved fan-propelled merry-go-round unit having a center post that is adapted to be held stationary, and rotating arms for carrying suspended, swinging seats. The arms are rotated by at least one fan, removably fixed to one of the arms. The improvements include a simplified, safe, weather-tight, sealed power connection at the junction of the stationary center post and the rotating arms, and a resiliently mounted hub for the radiating swing arms that serves as housing for the power connection and that enables the unit, when disassembled, to be compactly packed for shipping. In addition, the arms and the legs of the base are made to be assembled and disassembled easily, without tools, and the legs are made easily adjustable to hold the unit level on uneven terrain.

BRIEF DESCRIPTION

This invention relates to fan-propelled merry-go-round units of the kind shown by my U.S. Patent No. 2,950,109.

Fan-propelled merry-go-round units of the kind shown by my aforesaid patent have, for the most part, been very successful. However, I have found that the power connection heretofore used at the junction of the stationary center post and the rotating arms has been subject to adverse effects of weather and, since the electrical contacts therein have been exposed, they can be damaged by vandals or mischievous children, or they can easily shock such persons. I have also found that the large hub heretofore used to house the power connection and to support the radiating arms, makes the unit rather difficult to market, since the package required for shipping is entirely too bulky.

In addition, while it has been possible to disassemble the units previously constructed, by removing nuts from the threaded ends of the arms and legs that are inserted through holes in the inverted hub and center post of the merry-go-round, this has not proven as fast and easy as is desired. Since the units are frequently leased for temporary use by church groups, businesses, etc., they must be capable of easy assembly and disassembly, and must be compact for travel.

Principal objects of the present invention are to provide an improved, fan-propelled merry-go-round wherein the electrical circuit connection at the junction of the stationary center post and the rotating arms is enclosed to be completely safe and fully protected against the effects of weather and vandalism, and to utilize a small hub as a housing for such electrical circuit connection so that the unit can be easily packaged, but with the swing arms still being adequately supported by the hub.

Another object is to provide an improved, fan-propelled merry-go-round that can be easily assembled and disassembled in a very short time.

Still another object is to provide such an improved, fan-propelled merry-go-round wherein a more exciting ride is obtained.

A principal feature of my invention is a spindle that is surrounded by electrical rings and a conical bearing. The spindle is fixed to a hollow, non-rotating center post, such that lead wires coming up through the post pass inside the conical bearing and inside the electrical rings before being affixed thereto. A closed, sleeve-like hub member, having socket members and spaced slots for holding swing arms is journaled over the spindle and rests on and skirts the conical bearing. A brush unit is removably inserted into a cut-out section of the sleeve, so that electrical brushes carried thereby will engage the electrical rings to electrically connect them to an outlet capable of receiving a conventional plug that is electrically attached to the lead wires of an electric fan. The fan is removably fixed to the remote end of one of the swing arms.

The spindle extends downwardly into the stationary center post and is resiliently mounted so that persons sitting in swings suspended from the ends of opposite ones of the swing arms will also rock up and down as they swing and are turned by the propelling fan.

The legs for the improved merry-go-round are of triangular truss construction, with a ground engaging member fixed at one end to a strut and with the member and the strut connected along their lengths by short braces. The ground engaging members have projections at the ends thereof, terminating in large heads, and at least one of the projections is adjustable into and out of its longitudinal member to provide for leveling of the merry-go-round. The leg struts are adapted to rest in cradles provided therefor, that project outwardly from the center post above the bottom thereof. The bottom of the center post is slotted to receive the projections on the end of the ground engaging members, the large heads thereof being held against being pulled through the slots.

Additional objects and features of the invention will become apparent from the following detailed description and drawings, disclosing what is presently contemplated as being the best mode of the invention.

THE DRAWINGS

FIG. 1 is a perspective view of the improved fan-propelled merry-go-round of the invention;

FIG. 2, an enlarged, vertical section, taken on the line **2—2** of FIG. 1;

FIG. 3, an enlarged, vertical section taken on the line **3—3** of FIG. 1;

FIG. 4, an enlarged, fragmentary view of the hub, broken away to show how the brush unit is fitted;

FIG. 5, an enlarged vertical section through a swing arm on which a fan is mounted;

FIG. 6, a view from above, taken on the line **6—6** of FIG. 5; and

FIG. 7, a schematic diagram of the electrical circuit of the merry-go-round unit.

DETAILED DESCRIPTION

Referring now to the drawings:

In the illustrated preferred embodiment, the improved, fan-propelled, merry-go-round is shown at **10** and comprises a center post **11**, legs **12–15** for supporting the center post in an upright position, a hub **16** at the top of the center post, a plurality of swing arms **17–22** radiating from the hub; a pair of fans **23** and **24**, each fixed to one of the swing arms; and a pair of swings **25** and **26** suspended from each swing arm. As with the merry-go-round disclosed in my aforementioned patent, Patent No. 2,950,109, the arms **17–22**, swings **25** and **26**, and per-

sons sitting therein are rotated around center post **11** by operation of one or both fans **23** and **24**, which are mounted to provide a tangential thrust to the ends of the arms. As they are rotated, occupants of the articulated swings can swing in any direction, i.e. in toward the center post and out away from the post, or back and forth in line with the direction of travel, for example, thus obtaining a combined rotating and swinging ride. As will be explained further, with the present arrangement another aspect is added to the ride to make it even more exciting and occupants of the swings will additionally achieve a rocking or teeter-totter action as they swing and are rotated.

Center post **11** is hollow and has a hole through its side wall, adjacent to the bottom thereof, through which electrical wires **27–29** are passed to be connected to a four pronged electrical plug **30**. A clamp **31** is secured to the wires **27–29**, inside center post **11** to keep them from being pulled out. Power is supplied to plug **30** from any available source, using an extension cord, not shown, that extends out from the merry-go-round unit on the ground.

Wires **27–29** are passed upwardly through the center post and alongside a spindle **32** that has a portion **32***a* extending downwardly into the post. A pair of collars **33** and **34** fit tightly around portion **32***a* at the top and bottom thereof and hold the wires **27–29** tightly against the spindle at the bottom and top of the portion **32***a* respectively.

Collars **33** and **34** are fitted tightly within a resilient sleeve member **35**, preferably made of neoprene rubber or other long lasting resilient material, and the sleeve is secured to the interior of post **11**, at its upper end. A set screw **36**, threaded through post **11** and extending loosely into a cup provided therefor on spindle **32** at the top of portion **32***a* hiolds the spindle in the post, while allowing it to compress sleeve member **35** and to rock.

A conical bearing **37** is mounted to surround a conical portion **32***b* of spindle **32**, just above collar **34** and the wires **27–29** are passed upwardly inside the bearing to spaced commutator rings **38–40** that are mounted, one above the other, on an insulated, straight portion **32***c* of spindle **32**. The wire **27** is electrically connected to the inside of commutator ring **38** and wires **28** and **29** are passed upwardly, inside thereof. Wire **28** is then electrically connected to the inside of commutator ring **39** and wire **29** is passed upwardly inside thereof to be electrically connected to the interior of commutator ring **40**.

Hub **16** extends downwardly over spindle **32** and a flared inner surface **41** of the hub fits over bearing **34** so that the hub is supported by the bearing and is freely rotatable. The hub thus skirts the bearing to prevent any material getting into the bearing and damaging it.

Another bearing **42** is mounted on the top of spindle **32** and is held in place by a nut **43**, threaded thereon and a cotter key **43***a* inserted through the spindle, above nut **43**. Bearing **42** engages the interior wall of hub **16** and maintains the hub aligned in its upright position.

A cap **44** is screwed on the upper end of hub **16** to close the top of the hub and to provide peripherally spaced slots **45** through which arm struts **46** of the swing arms **17–22** are inserted. On internal set-screw **47** is threaded into the skirt of cap **44** and is adapted to be screwed therethrough to engage the hub and to hold cap **44** in its fixed position.

The arm struts each have an enlarged end **48** that can not be pulled through the slots **45** and their other ends are welded, or otherwise affixed, to longitudinal members **49** at a point close to a free end of the longitudinal members. The other end of each longitudinal member **49** is adapted to be inserted into a close-fitting socket member **50** that radiates outwardly from the lower end of hub **16**.

An eye **51** is affixed to each longitudinal member at each point from which a swing is to be hung and is adapted to receive an S-hook **52** at the top of each of the swings **25** and **26**.

A fan, adapted to propel the swings and their occupants, can be located on any desired arm. Each arm, on which a fan is to be mounted, is provided with a tubular elbow **53**, inserted into the free end of the longitudinal member **49** and welded or otherwise affixed thereto, and extending upright therefrom. Pin **55**, fixed to the ends of the longitudinal members **49** of those arms on which a fan is to be mounted, extend through slots **55***a* in their receiving socket members **50** to keep the longitudinal members from turning and the fan, which has a bracket telescoped onto the elbow and secured thereto by a set screw **51**, is held in fixed position above the arm. The speed of rotation of the arms can be controlled by changing the direction of thrust of the fan exhaust with maximum effectiveness and speed being obtained when the direction of thrust is tangential to the turning free ends of the arms.

Electrical wires **56–58** are passed through the longitudinal member and the elbow and terminate at one end in a jack **59**, adapted to receive an electrical plug **60** from the fan and then come out an opening **61** provided therefor in the underside of the longitudinal member **49** to terminate in a plug **62** that is adapted to be inserted into a jack of a brush unit **63**.

Brush unit **63** includes a housing **64**, having guideways therein to receive sliding brushes **65–67** that are adapted to engage the commutator rings **38–40**. Springs **68** bias the brushes outwardly from the housing and against the rings so that, even as the brushes and rings become worn, good electrical contact is maintained.

The brushes are electrically connected to one or more jacks **69** at the face of the housing **64** so that when one or more plugs **62** are inserted therein a circuit is completed from plug **30** and the extension cord (not shown) connected thereto, to the fan or fans on the swing arms. Also, if desired, lights or other electrically powered devices can be mounted on the merry-go-round and can be plugged into the jacks **69**. One or more lights **70**, FIGS. 5 and 7 can also be plugged into a socket **71** provided therefor ande connected through the motor M of the fan. A switch **72**, FIG. 7, is provided to cut og power to the motor M, without breaking the circuit to socket **71**. Thus, the lights **70**, plugged into socket **71** can operate continuously, even though the motor may be turned off.

Chains **73** are tautly connected between hooks **74** on the free ends of each of the longitudinal members **49** so that the free ends of the swing arms are mutually supporting.

In practice the unit can be easily packaged. The arm struts **46** lay flat against the longitudinal members **49** and they are laid alongside the center post **11** to be boxed. The fans and swings are separately boxed and the legs are compactly wired together.

The center post **11** is held upright by legs **12–15** that are attached to and radiate outwardly from the bottom of the post.

Each leg includes a ground engaging member **75**, having projections **76**, terminating in an enlarged head **77** at one end and a flat pad **78** at the other end.

Projection **76**, of leg **15**, is threaded through a nut **79**, into and out of the leg, and includes a collar **80** spaced from its head **77**.

The legs also each include a reinforcement strut **81** that is welded or otherwise affixed at one of its ends to the end of the ground engaging member having the flat pad **78** on the bottom thereof. Cross-braces **82** then interconnect the ground engaging members and the struts so that the legs are of generally triangular, truss construction.

Spaced, peripheral slots **83**, extend upwardly in the wall of post **11**, at the bottom thereof and the projections **76** will pass through the slots, but the enlarged heads **77** and the collar **80** will not.

Cradles **84**, corresponding to the four legs, and fixed thereto by braces **85**, project outwardly from center post **11** to receive the unattached ends of the struts **81** and to hold them against lateral movement.

The entire merry-go-round unit can be assembled in

five minutes since it is only necessary to position projections **76** of the ground engaging members **75** of the legs in slots **83** and to pivot the leg trusses to rest in their cradles **84**. If the center post is not vertical, after the legs have been attached, the collar **80** can be turned to move its leg in or out, with respect to its projection member **76**, until the center post is vertical. The swing arms are connected by positioning the struts **46** in slots **45** and swinging the ends of longitudinal members **49** into socket members **50**. The chains **73** are positioned, the fans are placed, tightened and electrically connected, and the swings **25** and **26** are hung from the eyes **51**.

All that is required to make the electrical connections is that plug **60** of the fan be inserted into jack **59**, plug **62** be inserted into jack **69**, and plug **30** be connected to an extension cord that is in turn connected to a suitable power source, through a control housing **85**, containing the switch **72**. A ground wire **86**, fixed to center post **11**, can also be connected through plug **30** to the extension cord and the control box to meet local safety codes, if necessary.

Disassembly of the merry-go-round is also a simple matter, and requires only a reversal of the assembly procedure.

While a three wire and three commutator ring electrical system has been here illustrated, it should be obvious that more or less wires and commutator rings could be used, so long as complete electrical circuits are established that are adequate to power the fans, lights, and any other desired pieces of equipment added to the merry-go-round.

Persons sitting in seats suspended from opposite arms will receive a teeter-totter ride since the spindle **32** will move slightly back and forth inside center post **11**, compressing resilient sleeve member **35**. This action, coupled with the rotation created by the fan or fans and the swinging created by the individual, results in a more exciting ride than has been heretofore obtained.

Although a preferred form of my invention has been herein disclosed, it is to be understood that the present disclosure is made by way of example and that variations are possible without departing from the subject matter coming within the scope of the following claims, which subject matter I regard as my invention.

I claim:

1. An improved, fan-propelled, merry-go-round unit, comprising

a hollow center post;

a spindle tightly fitted into the upper end of said post and extending upwardly thereabove and including a bearing receiving portion;

a conical bearing extending around the bearing receiving portion of the spindle at the top of the center post;

a hub, closed at its top and extending downwardly over the spindle and including an interior wall at the bottom thereof adapted to rest on the conical bearing;

a bearing fixed to the upper end of the spindle and arranged to engage the inner wall of the hub to hold the hub in alignment on the spindle;

a plurality of spaced commutator rings, surrounding, but insulated from the spindle between the said bearings;

a plurality of conductors wires extending upwardly through the center post and inside the conical bearing and the commutator rings, with one wire electrically connected to each said commutator ring;

an electrical connector member outside the center post at the bottom thereof and electrically connected to the said conductor wires;

a plurality of swing arms extending outwardly from the hub, each of said arms having swing supporting means affixed thereto;

means interconnecting the free ends of the swing arms to make them mutually supporting;

at least one swing, suspended from each arm by swing supporting means;

at least one fan;

means fixedly, but removably, mounting the fan to the free end of one of the arms;

electric wires interconnecting an electrical connector member at the free end of the arm on which the fan is mounted, and another electrical connector member at the other end;

means, including a mating electrical connector member, interconnecting the fan and the electrical connector member at the free end of the arm;

a brush unit, including a brush for each of the commutator rings and an electrical connector member electrically connected to the said brushes and adapted to matingly receive the electrical connector member connected to the electric wires;

means fixing the brush unit to the hub, whereby the brushes extend into the hub to each engage a commutator ring; and

a plurality of legs, removably fixed to and radiating outwardly from the bottom of the center post.

2. An improved fan-propelled, merry-go-round according to claim **1**, wherein

the hub is closed at its top by a cap having vertically extending, circumferentially spaced, slots therein and has a plurality of short socket members radiating outwardly from the bottom thereof; and

the arms each include a longitudinal member, having one end adapted to fit into a socket member, and at least one eye affixed thereto, and a strut having one of its ends fixed to the longitudinal member adjacent to the other end of the longitudinal member and an enlargement at its other end, whereby said strut will rest in one of said slots and the enlargement will not pass through the said slot.

3. An improved fan-propelled merry-go-round according to claim **2**, wherein

the center post has vertically extending, circumferentially spaced slots in the bottom thereof; and downwardly sloping cradles radiating outwardly therefrom at a point above the bottom of the center post; and wherein

the legs each include a ground engaging member with a protrusion culminating in an enlargement at one end thereof, a leg strut member angularly fixed to the ground engaging member at the end opposite the protrusion and braces interconnecting the ground engaging member and the leg strut, whereby the protrusions will pass through and the enlargements will not pass through the slots in the bottom of the center post such that when the protrusions are passed through the said slots the leg struts will rest in the said cradle.

4. An improved, fan-propelled merry-go-round according to claim **3**, wherein

at least one of the projections on the end of the ground engaging member is threaded into the ground engaging member and wherein a collar is fixed to the projection a spaced distance from the enlargement, whereby the collar can be turned to move the ground engaging member with respect to the projection.

5. An improved, fan-propelled merry-go-round, according to claim **4**, wherein

a resilient sleeve member is provided between the center post and the portion of the spindle extending downwardly thereinto.

6. An improved, fan-propelled merry-go-round according to claim **1**, wherein

resilient means are provided between the center post and the portion of the spindle extending downwardly thereinto.

7. An improved, fan-propelled merry-go-round according to claim **6**, wherein

the resilient means comprises a resilient sleeve.

8. An improved, fan-propelled merry-go-round according to claim 7, wherein
the resilient sleeve is of neoprene rubber.

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U.S. Cl. X.R.

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