

July 30, 1963

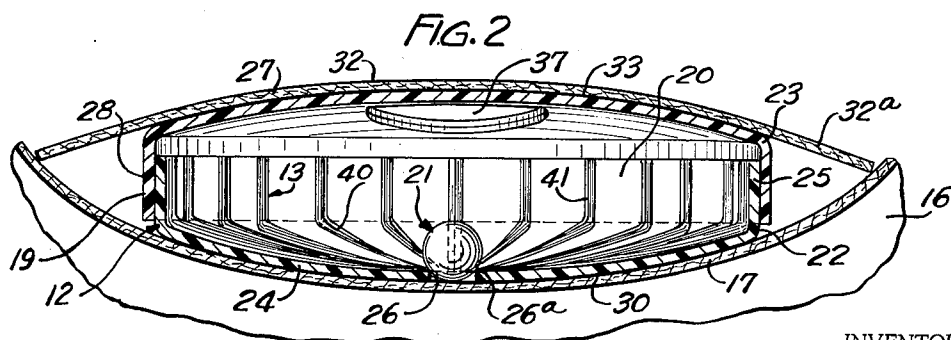
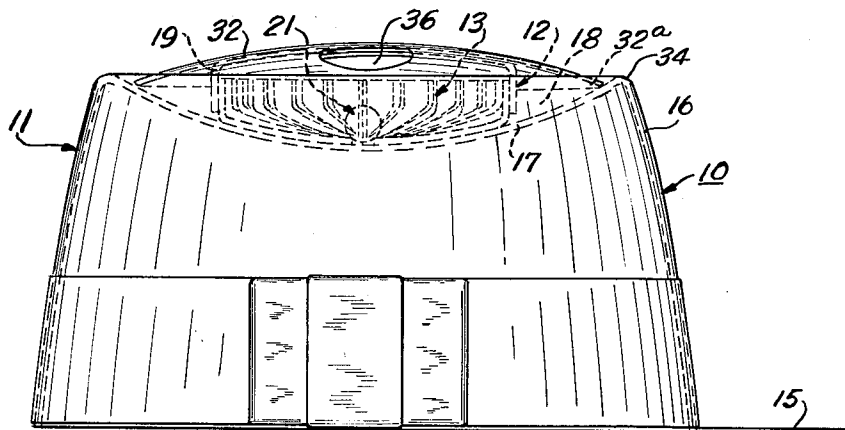
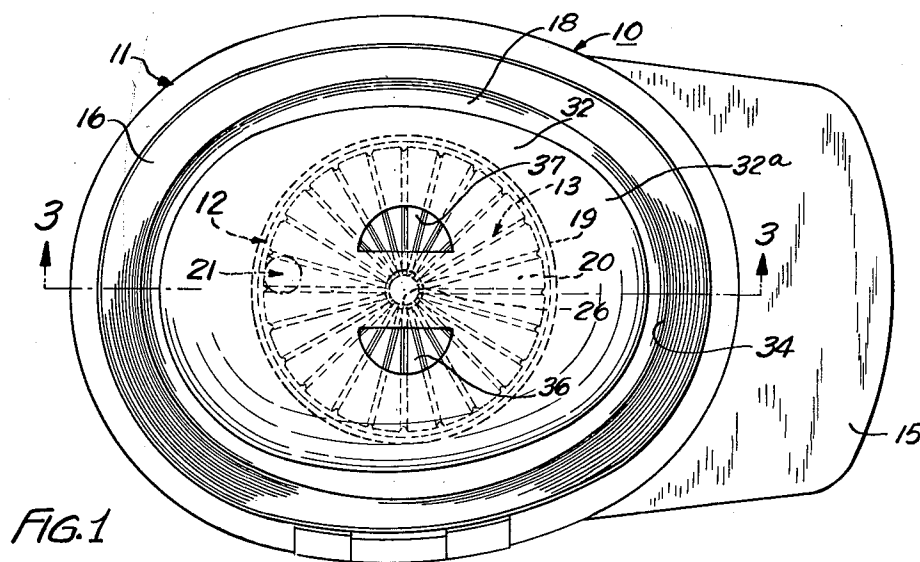
L. D. DEANER

3,099,245

POSTURE INDICATING DEVICE AND HAT

Filed Oct. 2, 1962

2 Sheets-Sheet 1



INVENTOR.
LELAND D. DEANER
BY *Williams, David,
Hoffmann & Goulet.*
ATTORNEYS

July 30, 1963

L. D. DEANER

3,099,245

POSTURE INDICATING DEVICE AND HAT

Filed Oct. 2, 1962

2 Sheets-Sheet 2

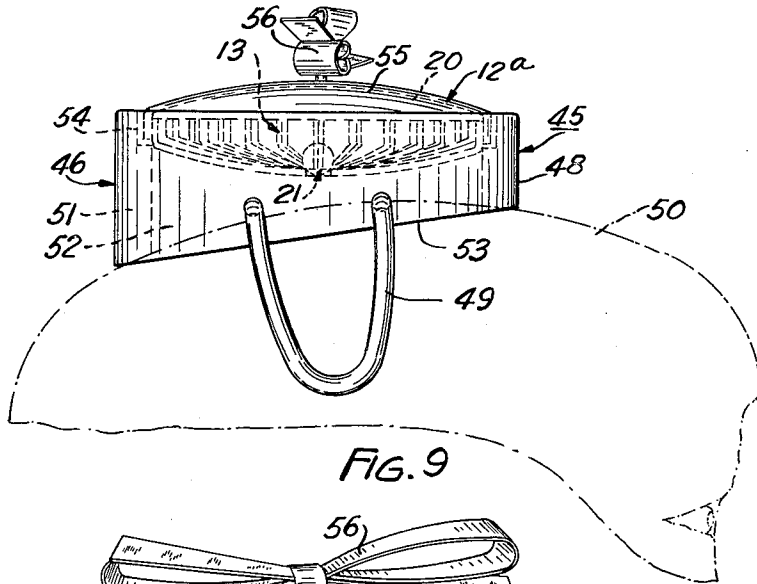


FIG. 9

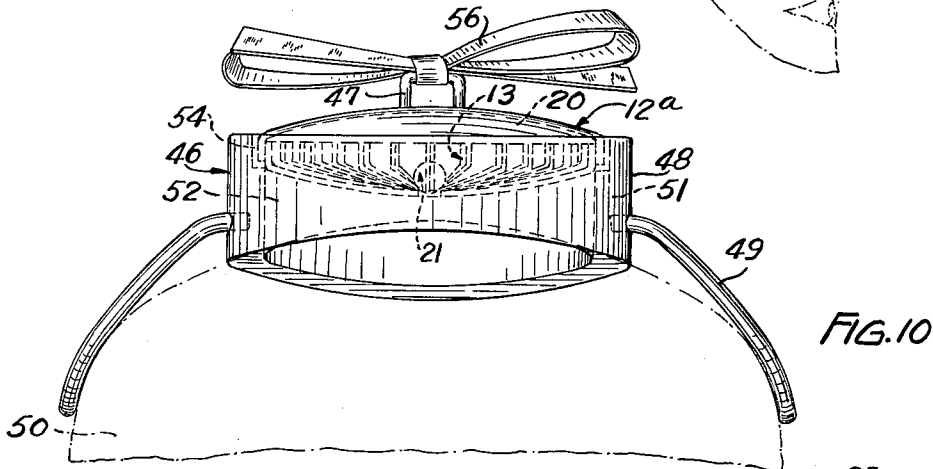


FIG. 10

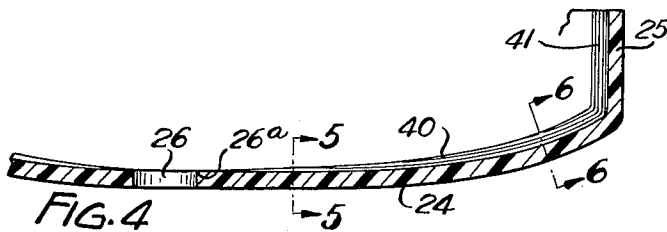


FIG. 4

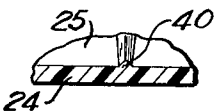


FIG. 5

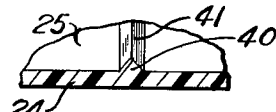


FIG. 6

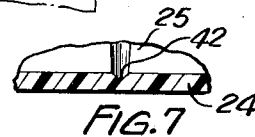


FIG. 7

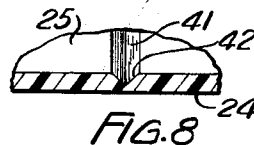


FIG. 8

INVENTOR.
LELAND D. DEANER
BY *Williams, David,
Hoffmann & Young.*
ATTORNEYS

1

3,099,245

POSTURE INDICATING DEVICE AND HAT

Leland D. Deaner, 5499 New Milford Road,

Ravenna, Ohio

Filed Oct. 2, 1962, Ser. No. 227,821

18 Claims. (Cl. 116—67)

This invention relates to a posture indicating device and to hat means embodying such a device.

It has long been known that when a person supports an article such as a book, basket or other load on the top of the head in a balanced relation, that person is induced to assume a good and upright posture for the body and particularly for the trunk and head. It has also been long known that such a good upright posture position is highly beneficial to the general health and good appearance of the person who makes a practice of assuming and maintaining a correct body posture.

As one of the objects thereof this invention provides novel posture indicating and inducing means for use on the human head and by which the wearer is enabled to determine and is induced to assume a correct body posture during standing, walking or sitting positions and without any inconvenience and without attracting embarrassing public notice.

Another object is to provide a novel posture indicating device comprising a raceway and a rollable member therein, and retaining means providing a rest condition for the rollable member during correct body posture position but from which the rollable member is releasable for rolling in the raceway during incorrect body posture positions.

Still another object is to provide such a novel posture indicating device having signaling means associated with the raceway and responsive to rolling of the rollable member therein for signaling to the wearer of the device the need for posture correction.

A further object is to provide such a novel posture device comprising wall means defining an enclosure containing the raceway and wherein the rollable member is a spheroid member confined in the enclosure.

Yet another object is to provide a novel posture device of the character above indicated and wherein the signaling means comprises irregularities on the wall means of the enclosure and engageable by the rollable member.

Additionally, this invention provides novel posture apparatus of the character above referred to and comprising an indicating device as a self-contained unit having a rollable member therein, and hat means having the unit incorporated therein in a concealed or partially concealed relation.

Other objects, novel characteristics and advantages of this invention will be apparent in the following detailed description and in the accompanying drawings forming a part of this specification and in which,

FIG. 1 is a top plan view showing the novel posture indicating device and hat provided by this invention;

FIG. 2 is a side elevation thereof;

FIG. 3 is a partial vertical section on a larger scale taken on section line 3—3 of FIG. 1;

FIG. 4 is a fragmentary sectional view corresponding with a portion of FIG. 3 but on a still larger scale for showing the signaling means of the device;

FIGS. 5 and 6 are fragmentary sectional views taken on section lines 5—5 and 6—6 respectively of FIG. 4;

FIGS. 7 and 8 are fragmentary sectional views similar to FIGS. 5 and 6 but showing a modified construction for the signaling means;

FIG. 9 is a side elevation showing a modified construction comprising another form of hat having the posture indicating device embodied therein; and

FIG. 10 is a front elevation of the modified construction of FIG. 9.

2

As one preferred embodiment of this invention FIGS. 1 to 3 of the drawings show posture apparatus 10 intended for use on the human head for indicating to the wearer whether his posture position is correct or incorrect. The posture apparatus 10 comprises, in general, a hat or the like 11 and an indicating device 12 embodied in the hat and responsive to an incorrect body posture position. The apparatus 10 also includes signaling means 13 for producing signals during the incorrect posture position for informing the wearer of such incorrect position.

The hat 11 is of a size and shape for the incorporation of the posture indicating device 12 therein, but can otherwise be a hat of any desired kind or style and, in the case of a man's hat as here shown, is preferably one of a more or less conventional character which will not subject the wearer to unfavorable or uncomfortable public notice. The hat 11 is here shown as being in the form of a cap suitable for sports or street wear and having a visor 15 and a hollow crown portion 16 connected with the visor and rising thereabove. The crown portion 16 has a downwardly dished transverse top wall 17 and a top recess 18 located above such transverse wall. The hat 11 can be made of any suitable material of the kind commonly used in hats and caps such as fabric, straw or felt.

The indicating device 12 can be built into the hat 11 during the manufacture thereof or, if desired, can be separately produced as a self-contained unit to be embodied in the hat during or after the manufacture thereof. As shown in the drawings and hereinafter described, the indicating device 12 is in the form of such a self-contained unit.

The indicating device 12 comprises a container 19 of shallow depth providing a raceway chamber 20 lying in a generally horizontal plane, and a rollable member 21 operable in the raceway chamber. The container itself comprises bottom and cover members 22 and 23 of which the bottom member 22 is provided with a dished wall portion 24 at the bottom thereof. The dished wall portion 24 forms the bottom wall of the raceway chamber 20 and is disposed so that the concavity thereof forms the lower portion of the raceway chamber. The bottom member 22 is here shown as being of a substantially circular plan shape and as having an upright side wall portion 25 extending around the raceway chamber 20. The side wall 25 is integrally connected with the bottom wall 24 around the periphery of the latter.

The container 19 is provided at the lowermost point of the dished bottom wall 24 with a retaining means for the rollable member 21 and which is here shown in the form of a detent recess 26. The recess 26 is located at an intermediate point of the raceway chamber 20, in this case, substantially centrally of the bottom wall 24. The recess 26 provides a rest position for the rollable member 21 when the raceway chamber 20 is in a generally horizontal-plane position which is the position of the container 19 when the trunk and head of the wearer of the hat 11 are in correct posture position.

The cover member 23 extends over the raceway chamber 20 for confining the rollable member 21 therein. The cover member 23 is here shown as having an upwardly bowed top wall 27 and a depending annular flange 28 around the periphery thereof. The depending flange 28 is adapted for telescoping co-operation with the upright wall 25 of the bottom member 22 when the cover member is in assembled position on the latter for closing the raceway chamber 20.

The indicating device 12 is incorporated in the hat 11 by locating the container 19 in the crown portion 16, in this case in the top recess 18, with the curved bottom wall 24 of the container resting on the curved transverse top wall 17 of the crown portion. The bottom wall 24 and the transverse wall 17 are here shown as having sub-

stantially the same curvature and the container 19 can be conveniently retained in the recess 18 as by cement or the like 30 located between such curved walls.

For concealing the indicating device 12 when thus incorporated in the hat 11, the crown portion 16 of the latter is provided with an auxiliary wall 32 at the top thereof and disposed in a superposed transverse relation to the container 19. The auxiliary wall 32 is shown as having a curvature similar to that of the bowed top wall 27 of the cover member 23 and as being secured to such top wall by an interposed layer of cement or the like 33. The auxiliary wall 32 is of a plan size and shape to extend over the major portion of the recess 18 with a marginal portion projecting beyond the cover member 23 as an overhanging flange portion 32^a. The overhang portion 32^a extends into contact with the transverse wall 17 preferably by dipping down into the recess 18 adjacent the surrounding ridge 34. When the auxiliary wall 32 has the shape and location just above described it will conceal the indicating device 12 and will appear as a continuous part of the crown portion 16 of the hat 11.

The cover member 23 is removable from the bottom member 22 for insertion or removal of the rollable member 21 relative to the raceway chamber 20. Since the auxiliary wall 32 of the hat 11 is here shown as connected with the cover member 23, the auxiliary wall will likewise be removable from the crown portion 16 upon disengagement of the cover member from the bottom member 22. To facilitate the removal and replacement of the cover member 23, suitable grip holes 36 and 37 are provided in the top wall of the cover member and in the auxiliary wall 32. By insertion of the thumb and index finger in a co-operating relation in the holes 36 and 37, the cover member 23 can be readily lifted from the bottom member 22 of the container and replaced thereon.

The rollable member 21 is of a size and shape suitable for its intended manner of operation in the raceway chamber 20 and is here shown as a spheroid member, preferably a ball, of a suitable mass and diameter. The detent recess 26 is of a size and shape so that when a portion of the rollable member 21 is engaged therein, the rollable member will be in a rest position in the raceway chamber 20. The bottom wall 24 extends in a surrounding relation to the detent recess 26 and slopes downwardly toward the latter so that the rollable member 21 will normally tend to move into and remain in the detent recess when the raceway chamber 20 is in a substantially horizontal plane.

Assuming that the hat 16 is properly positioned on the head of the wearer, then if the trunk and head of the wearer are in correct upright posture position, the raceway chamber 20 will lie in the horizontal plane. Upon tilting of the container 19 so that the raceway chamber 20 is displaced a predetermined extent from the horizontal plane, the rollable member 21 will disengage itself from the detent recess 26 under the influence of gravity and will move about in the raceway chamber 20 by rolling on the bottom wall 24.

The size of the rollable member 21 in relation to the diameter of the detent recess 26 is preferably such that the center of gravity of the rollable member is a substantial distance above the corner edge 26^a surrounding the detent recess. This relationship permits easy dislodgment of the rollable member 21 from the detent recess 26 because when the force of gravity or a slinging force acts on the rollable member it will do so with a very effective lever-arm action.

The signaling means 13 is responsive to the rolling movement of the rollable member 21 and is here shown as associated with the container 19 by being mounted thereon in a location to be engaged by the rollable member during the rolling movement of the latter. The signaling means 13 is here shown as comprising irregularities on the wall means of the container 19 and such irregularities can assume the form of spaced ribs 40 on the bottom wall 24 in a radiating relation to the detent recess 26 and

spaced ribs 41 on the upright wall 25. The engagement of the rollable member 22 with the ribs 40 and 41 causes vibrations which are transmitted through the hat 11 to the wearer's head for informing the wearer that the rollable member has moved out of the detent recess 25.

The sensing of the vibrations by the wearer as signals, informs the wearer that his posture position is incorrect by reason of an inclination of his trunk or head, or both, from an upright position. The signals also indicate to the wearer that his posture should be restored to an upright position, whereupon the rollable member 21 will automatically return to its rest position in engagement with the detent recess 26.

The indicating device 12 will operate effectively for the purpose intended during standing, walking or sitting positions of the person wearing the hat 11. When a correct body posture is maintained during those body positions, the person's head remains in a position which is a continuation of an erectly upright position of the trunk of his body. So long as the correct body posture position is maintained, the rollable member 21 will remain in the detent recess 26 and no signals will be produced. If the person shifts his trunk to an incorrect posture position, the accompanying inclination of his head will tilt the container 19 so that the raceway chamber 20 will be displaced from the horizontal plane and, since such inclination of the wearer's head is a more or less lateral swinging movement, the rollable member 21 will be disengaged from the detent recess 26, in part by a slinging or throwing action on such member, and in part by the action of the force of gravity thereon.

The slinging component of the displaying force acting on the rollable member 21 will usually vary in magnitude with the suddenness, rapidity and extent of the movements of the wearer. The characteristics of the movements of the wearer will, in turn, usually vary according to whether the wearer is walking, standing or sitting. When the wearer is walking his movements causing dislodgment and rolling of the member 21 will usually occur more suddenly and with greater rapidity and extent than when sitting, and the characteristics of the wearer's movement for a standing position will usually be between those for walking and sitting positions.

The combined slinging and gravity displacement movement of the rollable member 21 from the detent recess 26 causes the member to roll about on the bottom wall 24 in more or less of an endless-loop path within the raceway chamber 20. During such rolling movement of the member 21 it engages and moves across the ribs of the signaling means 13 to produce the vibrations for informing the wearer of his incorrect body posture position. In some instances the member 21 will engage only the radiating ribs 40 but, in the case of more sudden or rapid movements of the wearer during the changes in body posture position, the member will roll around the periphery of the raceway chamber 20 and will engage and move across the upright ribs 41 as well as across the radiating ribs 40.

The rollable member 21 can be selected as to size and mass to provide a desired responsiveness to the body posture changes of the particular individual wearing the hat 11, and such size and mass can also be selected according to whether the wearer of the hat 11 is occupying a standing, walking or sitting position. For use of the posture apparatus 10 in standing and walking positions the rollable member 21 should preferably be of greater mass and smaller diameter than when the posture apparatus is being used in a sitting position. For standing and walking positions the rollable member 21 can therefore be a metal ball or the like, and for sitting positions the rollable member can be made of less dense material such as a nonmetallic material, for example, glass or plastic, and if desired, can be hollow in character.

The bottom and cover members 22 and 23 of the container 19 can be produced as molded members and are

5

preferably made of a suitable plastic material although, if desired, they can be die-formed from lightweight sheet metal such as aluminum. The ribs 40 and 41 of the signaling means 13 are here shown as formed integral with the bottom and side wall portions of the bottom member 22.

As shown in FIGS. 4, 5 and 6, the ribs 40 are in the form of ridges of a more or less V-shaped cross-section. The ribs 40 preferably are of a low height near the detent recess 26 (see FIG. 5) and are of progressively increased height at greater distances from the detent recess (see FIG. 6). When the rollable member 21 rolls around the recess 26 at only a short distance therefrom it will encounter and move across the low portions of the ribs 40 and produce a signal similar to a whirring noise which will indicate to the wearer the occurrence of only a small change toward an unsatisfactory posture position. When the member 21 moves across the higher portions of the ribs 40, it will produce a more distinct vibratory noise or clatter to signal to the wearer a greater change toward an unsatisfactory posture position.

Instead of ribs, the irregularities on the bottom wall 24 can be grooves formed therein such as the substantially V-shaped grooves 42 shown in FIGS. 7 and 8. The grooves 42, when provided, are in the same radiating relation around the detent recess 26 and are of narrow width near the recess (see FIG. 7) and of greater width (see FIG. 8) at greater distances from the recess. The grooves 42 function in a similar manner to the ribs 40 in producing signals when the rollable member 21 moves thereacross.

FIGS. 9 and 10 of the drawings show posture indicating apparatus 45 of a modified form comprising a hat 46 and an indicating device 12^a embodied therein. The hat 46 is of a different construction than the hat 11, but the indicating device 12^a is of substantially the same construction as the above-described indicating device 12 except that the device 12^a is provided with a loop-shaped handle 47 on the top wall thereof instead of grip holes. The hat 46 is representative of a hat to be worn by a woman using the posture indicating apparatus 45 indoors and while performing housekeeping tasks.

The hat 46 is here shown as comprising a crown portion 48 and curved holder members 49 connected therewith and extending outwardly and downwardly therefrom. The crown portion 48 is shown as being of a small size adapted to rest on the top and rear portion of the wearer's head 50, and the holding members 49 are of a length and shape to extend downwardly into embracing relation to the size of the wearer's head. The holder members 49 are shown as being loop members comprised of bent wire, plastic or the like, and having upper end portions thereof anchored on or in the material of the crown portion 48.

The crown portion 48 can be made of any suitable material and is here shown as comprising a hollow member having an annular wall 51 extending around a central vertical-axis recess 52. The lower end of the wall 51 is of a truncated shape represented by the annular taper 53 so as to fit comfortably and appropriately on the top and rear portion of the wearer's head. The wall 51 is provided at the upper end thereof with an annular counter-recess 54 in which the indicating device 12 is received in a countersunk relation in the hat so that only the convexly curved top portion of the cover member 55 projects above the annular wall.

The annular wall 51 can be made of felt, layers of fabric, molded plastic or any other suitable material and, when the crown portion 48 has the shape shown in the drawing and described above, the indicating device 12^a will be located with the raceway chamber 20 thereof lying substantially in the horizontal plane even though the hat 46 is worn on the top and rear portion of the head 50. The hat 46 can be provided with suitable ornamentation

6

for enhancing the appearance thereof and which ornamentation can include a bow 56 of ribbon or the like tied on the loop-shaped handle 47 of the cover member 55.

The modified posture apparatus 45 is used in substantially the same way as the posture apparatus 10 and functions in a similar manner for enabling and inducing the wearer of the apparatus to assume and maintain a correct posture position while standing, walking or sitting.

From the accompanying drawings and the foregoing detailed description it will now be readily understood that this invention provides posture indicating and inducing apparatus for informing the wearer of a need for posture correction and thus enabling and inducing the wearer to change and maintain his body position to a proper posture which will be beneficial to the health and personal appearance of such person. It will be understood, of course, that any hat embodying the posture indicating means of this invention can be worn as a conventional hat without making use of the posture indicating function by simply removing the rollable member.

Although the posture indicating apparatus of this invention has been illustrated and described herein to a somewhat detailed extent it will be understood, of course, that the invention is not to be regarded as being limited correspondingly in scope but includes all changes and modifications coming within the terms of the claims hereof.

Having described my invention, I claim:

1. A posture indicator comprising a hat or the like adapted to be worn on the human head including wall means defining a raceway lying in a generally horizontal plane; a rollable member in said raceway; station means on said wall means providing a rest position for said rollable member and from which said rollable member is movable in response to tilting of said raceway; and signal producing means associated with said raceway for producing signals in response to rolling of said rollable member therein.

2. A posture indicator according to claim 1 wherein said raceway provides space for movement of said rollable member along an endless curved path; and said wall means comprises a curved wall portion extending along at least one side of said raceway.

3. A posture indicator according to claim 1 wherein said hat includes a crown portion and said raceway is located on said crown portion.

4. Posture apparatus comprising a hat having a crown portion provided with a recess; a support wall extending transversely of said recess and having a dished shape providing a concave raceway; a rollable member in said raceway; retaining means substantially centrally of said wall for releasably retaining said member in a rest position and from which said member is disengageable in response to tilting of said support wall; and signaling means associated with said raceway for producing signals in response to rolling of said member therein.

5. Posture apparatus according to claim 4 wherein said rollable member is of spheroidal shape and said retaining means comprises a detent recess in said support wall for receiving a portion of said member when the latter is in said rest position.

6. Posture apparatus according to claim 4 and comprising other wall means for confining said rollable member in said raceway including a curved upright wall extending around the periphery of said support wall.

7. Posture apparatus according to claim 4 and comprising other wall means for confining said rollable member in said raceway including cover means extending over said raceway and upright annular wall means extending around the raceway between said support wall and said cover means.

8. Posture apparatus according to claim 4 wherein said signaling means comprises spaced radiating elements on said support wall and engageable by said rollable member.

9. Posture apparatus according to claim 5 wherein said signaling means comprises spaced ribs on said support wall and radiating from said detent recess.

10. Posture apparatus according to claim 6 wherein said signaling means comprises spaced ribs on said upright wall and engageable by said rollable member.

11. Posture apparatus according to claim 5 and comprising other wall means for confining said rollable member in said raceway including a curved upright wall extending around the periphery of said support wall; said signaling means comprising spaced radiating elements on said support wall and spaced ribs on said upright wall.

12. A posture indicating device comprising hollow means including a wall having a concave cross-sectional shape transversely of said hollow means and forming the bottom of a raceway lying substantially in a horizontal plane; detent means on said wall at an intermediate point of said raceway; and a ball having a rest position in engagement with said detent means but being otherwise free; said ball being disengageable from said detent means and rollable in said raceway in response to tilting of the latter out of said horizontal plane.

13. A posture indicating device according to claim 12 and comprising signal producing means associated with said raceway for producing signals in response to rolling of said ball therein.

14. A posture indicating device comprising a dished member of shallow depth having a concave bottom wall sloping toward a low point and a detent recess in said bottom wall; the concavity of said bottom wall providing a raceway extending around and sloping toward said detent recess; a rollable member having a rest position with a portion thereof engaged in said detent recess but being otherwise loose from said dished member; said rollable member being disengageable from said detent recess and rollable in said raceway in response to predetermined tilting of said dished member; and signal producing means as-

sociated with said raceway and engageable by said rollable member during rolling of the latter therein.

15. In a human body posture indicating device a container comprising connected bottom and cover members and having a raceway chamber lying in a substantially horizontal plane; said bottom member comprising a dished wall forming the bottom wall of said raceway chamber and sloping toward a low point; holding means at said low point; and a ball in said chamber and having a rest position in engagement with said holding means during a correct body posture position; said ball being disengageable from said holding means and rollable in said chamber in response to body movements in incorrect posture positions.

16. In a human body posture indicating device a container comprising connected bottom and cover members and having a raceway chamber lying in a substantially horizontal plane; said bottom member comprising a dished wall forming the bottom wall of said raceway chamber and sloping toward a low point; holding means at said low point; a ball in said chamber and having a rest position in engagement with said holding means during a correct body posture position; said ball being disengageable from said holding means and rollable in said chamber in response to body movements in incorrect posture positions; and signaling means on said container for producing signals in response to rolling of said ball in said chamber.

17. Human body posture indicating device according to claim 15 wherein said bottom and cover members comprise molded plastic members.

18. Human body posture indicating device according to claim 16 wherein said bottom and cover members comprise molded plastic members; said signaling means comprising irregularities molded on at least one of said members.

No references cited.