A rotating writing surface attached to a steering wheel by a rotating means and off center weight such that the writing surface remains in the plumb position.
WRITING SURFACE ROTATABLY ATTACHED TO A STEERING WHEEL

BACKGROUND OF THE INVENTION

[0001] Writing on a typical clipboard attached to a steering wheel while steering has inherent problems due the fact that the clipboard rotates with the steering wheel.

[0002] Golf cart clipboards are a typical example of a clipboard rigidly fixed to a steering wheel. The difficulties associated with a golf cart clipboard that rotates with the steering wheel are players need score quickly to advance to the next avoiding delay and possible injury from incoming balls from players that follow. Since the clipboard needs to be in the vertical orientation in order for a player to score easily it is necessary to make sure the steering wheel is rotated in such a way that the clipboard is in the vertical position. This allows for viewing and scoring on the scorecard immediately which is desired.

[0003] Players traveling to the next hole often need to refer to the clipboard with the score card located on it in order to evaluate their score, look for yardage and view the layout of the golf course. Since the golf cart rarely travels in a straight-line and scoring on the current clipboard that is rotating on the same plane as the steering wheel, it is difficult or impossible and often dangerous to try and look at the score card while the golf cart is in motion. Even the passenger, who is not driving, would find looking at the golf score card attached to a fixed clipboard impossible to read while the golf cart is in motion.

[0004] Further, the scorecard often becomes bent after flipping back and forth in the wind as the clipboard rotates with the steering wheel. This rotation of the clipboard and the scorecard attached to it results the scorecard being prone to dislodging itself from the clip on the clipboard.

[0005] Another problem of existing golf cart clipboards is the golf pencil used for scoring is placed in a horizontal aperture within the golf cart clipboard itself. However, the aperture is only horizontal as long as the golf cart wheels are positioned straight ahead. Once the driver rotates the golf cart's steering wheel the pencil holder rotates with it. As the aperture rotates to a position where it is facing straight down or less than horizontal it is very common for the golf pencil to fall out. This makes it difficult and frustrating to keep score. Since most golfers are aware of the tendency for the golf pencil to fall out they often bring several pencils with them in case one falls out causing many pencils to be wasted and an added expense to the golf course owners. Pencils and scorecards are easily lost, ran over or depending on the weather, damaged due to the rotation of the clipboard causing inaccurate scoring and frustration.

SUMMARY OF THE INVENTION

[0006] Directed to remediing the problems in and limitations of the prior art, and meets the foregoing needs, disclosed herein are improved methods and assemblies for rotatable clipboards attached to a steering wheel.

[0007] The rotatable clipboard could be available on new cart as an integrated part of the steering wheel or retrofitted to existing golf cart's steering wheels by attaching it. The rotatable clipboard could be easily removed and attached with proper detailed instructions.

[0008] The method for creating a rotatable clipboard attached to a steering wheel is by attaching the clipboard to a steering wheel with a bearing. The clipboard is preferably made by injection molding a plastic clipboard with the appropriate dimensions and then attaching a clip mechanism to hold the material to be written or viewed. Standard clips for the clipboard are constructed with a tension mechanism to hold the material for viewing or writing on the clipboard. The tension mechanism allows the paper to be releasable held onto the clipboard. Releasing the material from the clip is accomplished by applying pressure to the clip to release the material from the clip on the clipboard.

[0009] A rotatable clipboard would be thin enough as not to hinder steering and safety. The design would be flat and rigid. The clipboard could be made from metal and/or plastic materials fabricated using standard molding design practices incorporating ribs for durability and rigidity.

[0010] In order for the clipboard to rotate independently of the steering wheel an inexpensive sealed bearing is attached between the clipboard and the steering wheel. A bolt and nut are then used to secure the bearing between the clipboard and steering wheel base plant by placing the bolt through a aperture in the center of the clipboard, through the center of the bearing located between the clipboard steering wheel base plate and finally through a aperture in the center of the steering wheel base plate. A nut is then attached and tightened to the bolt in order to secure the clipboard, bearing and base plate together.

[0011] Further, a weight is secured to the bottom of the clipboard in order to orient the rotatable clipboard in a plumb or vertical position at all times. As a result, the clipboard maintains a vertical or plumb position independent of the position of the steering wheel.

[0012] Further, the rotatable surface of the present invention can also be utilized as a writing surface or for any other conceivable function that would prove to be convenient to a user.

[0013] Embodiments of the present invention include 6 inch diameter clipboards attached with a rotating means to a golf cart steering wheel for writing on detailed 24 page golf scoring booklet.

[0014] Embodiments of the present invention also include methods for attaching a board to a steering wheel with a rotating mechanism.

[0015] Other objects, features, and advantages of the invention will become apparent from a consideration of the following detailed description and the accompanying figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 depicts a steering wheel with a clipboard attached to the steering wheel.

[0017] FIG. 2 is an elevated view showing a fixed clipboard attached to the steering wheel in a rotated position.

[0018] FIG. 3 is an elevated view of a rotatable clipboard in the vertical position relative to a steering wheel which has been rotated approximately 45 degrees.
Fig. 4 is an exploded view of the pieces of a rotatable clip-board base plate and steering wheel.

Fig. 5 is a detailed cross section of the rotating means for attaching a rotatable clip-board to a steering wheel.

Fig. 6 is a perspective view of a golf cart.

Detailed Description of Preferred Embodiments

The present invention describes a rotatable clip-board 9 that is secured to the steering wheel 11 as shown in Fig. 3 which allows the scorecard to maintain a fixed position relative to the golf cart 38. Conventional clip-boards 1 shown in Fig. 1 and Fig. 2 are fixed to the steering wheel 3 through a series or clips, screws or bolts and remain in the preferred vertical position only as long as the steering wheel 3 remains in the vertical, or upright position. This is a result of the the clip-board 1 maintaining a fixed position relative to the steering wheel 3. As shown in Fig. 2, once the steering wheel 3 begins to rotate and is no longer vertical, the clip-board position 1 is now in a non-vertical position as shown in Fig. 2 since it is fixed in position relative to the steering wheel 3 which is in the non-vertical position.

A non limiting example of the preferred embodiment of the rotatable clip-board is a flat circular plastic injection moulded polypropylene clip-board 9 as shown in Fig. 3. The clip-board further contains an attachment means 12 for temporarily attaching articles to the clip-board. The attachment means preferably can bind a plurality of sheets in order to secure a score card containing a plurality of sheets.

Fig. 4 shows an exploded view of the preferred means of attaching a rotatable clip-board 19 by means of a bolt 17 through the center aperture 20 of a clip-board 19 and then through an aperture in the bearing 18 which is located between the clip-board 19 and the base plate 16 and then secured together by a nut 22 screwed onto the screw 17 securing the clip-board 19, bearing 18 and base plate 16 together.

Other nonlimiting means of attaching the clip-board to the base plate are a plurality of bearings, bolts and nuts, pressure sensitive adhesives, hot melt adhesives and epoxy resins. Further the clip-board may be attached by a simple metal rod between the steering wheel base plate and the clip-board. The clip-board may further contain a nylon sleeve in order to facilitate rotation of the clip-board independent of the steering wheel base plate. In addition, the clip-board can be releasably attached to the base plate of the steering wheel using removable adhesive, Velcro, screws or clips.

In the preferred embodiment the clip-board has sealed ball bearing 18 to rotatably attach the clip-board to the steering wheel base plate as shown in the Fig. 5 detailed cross sectional view of the bearing mechanism. The sealed bearing 18 preferably has the dimensions of ¼ inch inside diameter, ½ inch outside diameter and ¾ inch height. A sealed bearing with these characteristics is commercially available from many sources. One source for these bearings on the West coast is US Bearings located in Vancouver Wash. The bearing 18 is located between the base plate 19 and the preferred embodiment of the bearing position relative to the base plate 16 and the clip-board 19 so that the inner portion of the bearing 33 rests on ledges 30 and the outer part of the bearing rests on the ledges 31 of the base plate 16. This allows the inner part 33 of the bearing attached to the clip-board 19 to rotate independently from the outer part 34 of the bearing attached to the base plate 16. A ½ inch thread by 1.5 inch long hex head bolt 25 goes through the aperture 20 located in the center of the clip-board 19, through the center of the bearing aperture 37 and through the base plate aperture 32. The ½ inch thread hex head nut 29 attaches the bolt 25 securing the clip-board 19, bearing 18 and the base plate 16 securely together. A washer 36 with an inner diameter of ¾ inch and outer diameter of ¾ of an inch is located between the nut 29 and the bearing inner surface 30 such that the nut 36 securely transfers the nut force only to the inner surface of the bearing 33. This allows the inner surface 33 and outer surface 34 to rotate independently. Further, it is necessary to screw the nut 29 tight against the bearing surface with sufficient tension to hold the clip-board 27 tightly against the steering wheel base plate 28 with the bearing located between allowing the two surfaces to rotate independently of each other. A four ounce steel weight 35 of the dimensions 2 inches long by ½ inch wide by ½ inch thick is attached at the bottom center of the clip-board 19 by a thermoplastic adhesive in order to keep the clip-board in the preferred plumb position. Other nonlimiting examples of weights include plastic, lead, nickel, copper and glass. In addition, the weight may be co-molded directly into the clip-board or the clip-board itself may contain extra plastic at the bottom to create an off-center effect. Further the clip-board itself can be attached off-center to the steering wheel in order to maintain a plumb position. Additional non limiting examples of attaching the weight 35 are pressure sensitive adhesives, Velcro, heat staking, rivets, screws and epoxies.

Fig. 6 shows a typical golf cart 39 in which the preferred embodiment of the rotating clip-board would be attached to the steering wheel 38.

In an alternative embodiment the bearing is up to 3 inches wide and up to 1 inch in height with an inner diameter of up to 2 inches. Further the rotatable clip-board may contain a plurality of bearings. In addition the bearing may also be of the open type, a bushing, a cylinder, viscoelastic couplings or magnetic bearing. Further, the clip-board rotation device can be part of the steering wheel or the clip-board.

In an alternative embodiment the rotatable clip-board has a means for restricting the motion of the clip-board relative to the steering wheel. Allowing the rotatable clip-board to rotate with the steering wheel if desired. A non limiting example of a restricting means is a pin placed in an aperture in the clip-board and into a corresponding aperture in the steering wheel to restrict the motion of the clip-board.

In an alternative embodiment the rotating clip-board incorporates electronic devices such as calculators, PDA, GPS, computers, printers, cell phones and golf scoring devices. Further the clip-board can incorporate means to hold golf tees, golf gloves, cup holders, stickers, notepads, tools, pens, maps and advertisements.

In another alternative embodiment the clip-board surface may include anti-slip coatings to improve the adhesion of the scorecard to the clip-board surface. Non limiting examples of non-slip coatings are adhesives, textured, and particle embedding.
[0032] In another embodiment of the invention is a method for attaching a writing surface to a steering wheel with a rotating mechanism. Nonlimiting examples of a rotating mechanism are bearings, rods, and shafts. Nonlimiting examples of writing surfaces are clipboards, plastic surfaces, wood surfaces and electronic devices.

[0033] In alternative embodiment, the clipboard would also accommodate writing instruments (pens or course’s standard issued short pencils) for recording information. Specific attachments means include apertures, clips, magnets. The rotatable clipboard preferentially has a aperture for placing the pencil such that it is slightly larger than the diameter of the pencil and positioned at a 45 degree angle to ensure the pencil does not fall out. One limitation of the current clipboards is their horizontal apertures for holding the golf pencils. As one rotates the steering wheel of the today’s golf cart the clipboard rotates with it. This causes the horizontal pencil holder to rotate with the golf cart steering wheel. Thus as the pencil rotates to a non-horizontal position the golf pencils easily fall out of the clipboard. The present invention solves this problem by maintaining a vertical position with respect to the golf cart that correspondingly maintains the pencil holder to a vertical position with respect to the golf cart.

[0034] With respect to the above description then, it is to be realised that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0035] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

1 claim:
1. A method of adhering a writing surface to a steering wheel by a rotatable attachment means, wherein the adhered writing surface rotates independently of the steering wheel and remains in the plumb position.
2. The improvement in claim 1, wherein said writing surface is a clipboard.
3. The improvement in claim 1, wherein said writing surface contains a calculator.
4. The improvement in claim 1, wherein said writing surface contains an electronic scoring means.
5. The improvement in claim 1, wherein said rotatable attachment means is a sealed bearing.

6. The improvement in claim 1, wherein said writing surface is weighted to maintain a plumb orientation.
7. A surface rotatably attached to a steering wheel such that said surface is weighted to maintain a plumb orientation.
8. The improvement to claim 7, wherein said surface is a clipboard.
9. The improvement to claim 7, wherein said surface is rotatably attached to said steering wheel by a bearing.
10. The improvement to claim 7, wherein said surface is rotatably attached to said steering wheel by a plurality of bearings.
11. The improvement to claim 7, wherein said surface is weighted on the bottom half by a metallic weight.
12. The improvement to claim 7, wherein said rotatable surface temporarily fixed in position relative to the steering wheel.
13. The improvement to claim 7, wherein said surface is comprised of polypropylene.
14. The improvement to claim 7, wherein said surface is attached to said steering wheel by a pressure sensitive adhesive.
15. The improvement to claim 7, wherein said surface is attached to said steering wheel by removing the existing non-rotating clipboard and re-attaching said rotating surface using the existing attachment means located on the steering wheel.
16. The improvement to claim 7, wherein said surface is releasable attached to said steering wheel.
17. A plastic off center weighted clipboard rotatably attached by a bearing to a golf cart steering wheel.
18. The improvement to claim 17, wherein said bearing is a stainless steel sealed bearing.
19. The improvement to claim 17, wherein said plastic is polypropylene.
20. A method of maintaining a surface attached to a steering wheel in the plumb position.
21. The improvement to claim 20, wherein said surface is a clipboard.
22. The improvement to claim 20, wherein said steering wheel is a golf cart steering wheel.
23. A rotating assembly, comprising:
a plastic writing surface;
a paper sheet retention mechanism;
a steering wheel;
an attachment means for attaching said writing surface to said steering wheel;
an attachment means for attaching a writing instrument to said clipboard;
a rotating mechanism for allowing said writing surface to rotate independently of said steering wheel; and
an off-center weight.

* * * * *