TITLE OF INVENTION

Adjustable and Articulated Mount

FIELD OF INVENTION

The present invention relates to an adjustable, articulated and lockable mount.

DESCRIPTION OF RELATED ART

The current state of the art provides for common mounts to provide support for the setting up and display of articles such as signboards, display sheets and the like. However, common mounts are usually not adjustable, articulated nor are they usually lockable. Common mounts, as such, do not allow the easy and convenient adjustment of these signboards, display sheets and the like which is often necessary for an effective or aesthetically pleasing display.

Further, there is a need for an apparatus or mount that fastens steadily to a common pole (or the like) that would serve to elevate the signboard for effective display.

Further, there is a need for an apparatus that fastens to a pole such that, upon fastening, the adjusting and manipulation of the orientation and axis of the signboard is easy, rapid and convenient.

Further, there is a need for an apparatus that allows for the easy, rapid and convenient rotational adjustment of the signboard along several planes whether such is before or subsequent to the fixture of the mount to the common pole.

Further, there is a need for said apparatus to be lockable in a specific orientation and axis subsequent to said adjustment and manipulation.

OBJECT AND SUMMARY OF THE INVENTION

The present invention was made to address and solve the issues and problems above.

An object of the present invention is to provide an adjustable, articulated and lockable mount.

A further object of the present invention is to provide a mount that would be easily and conveniently clamped onto the end of a common pole or support.

A further object of the present invention is to provide an adjustable rotary mount wherein the rotation of the mount is convenient, fast and configured in such manner as to minimise any unintentional rotation of said mount, thus adjusting the orientation of any article mounted on said rotary mount.

A further object of the present invention is to provide an adjustable rotary mount wherein the mount may be oriented in numerous planes and is not limited to merely one plane of orientation.

A further object of the present invention is to provide an adjustable rotary mount wherein the mount may be rotated in various planes and is not limited to merely one plane of rotation.

A further object of the present invention is to provide an adjustable rotary mount wherein the plane of rotation may be easily and conveniently locked or correspondingly unlocked.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the invention showing mount 20, platform 21, holes 22, trunk 24 with ridges 26, primary arm 40, primary trunk 42, secondary trunk 44, ridges 46, screw cap 76, semisphere 56 with ridges 58, secondary arm 80, semisphere 82 with ridges 83, support 90, plate 92 and trunk 94.

Fig. 2 is a cross-sectional view of the invention, showing mount 20 with platform 21, surface 39, screw 34, washer 36, through hole 28, spring 32, surface 38, depression 31 and protrusion 30. Fig. 2 further shows primary arm 40 with internal depression 48, surface 62, internal hole 50, support 54, protrusion 57, semisphere 56 and through hole 60. Fig. 2 further shows secondary arm 80 with semisphere 82, internal hole 86 and depression 96. Fig. 2 also shows screw 70 with head 35, screw cap 76, washer 72 and spring 74.

Fig. 3 is a cross-sectional view of the invention, showing secondary arm 80 with semisphere 82, support 90, internal hole 86, plate 92, trunk 94 and depression 96. Fig. 3 further shows primary arm 40 with semisphere 56, protrusion 57, surface 62 and through hole 60. Fig. 3 further shows screw 70, washer 72, screw cap 76 and spring 74.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The invention comprises primarily of a mount 20 affixed to and rotationally adjustable to a primary arm 40, which is further affixed to and relatively adjustable to a secondary arm 80.

This description first describes each primary part and corresponding features and subsequently describes how each part is affixed to each other.

With reference to Fig. 1 and Fig. 2, mount 20 comprises a flat platform 21; located on one side of platform 21 is surface 39, and located on the opposite side of platform 21 is hollow, circular trunk 24 perpendicular to the plane of platform 21. Preferably, platform 21 further has a plurality of holes 22. Platform 21 is capable of having articles mounted upon it onto surface 39, preferably by bolting means through holes 22.

With reference to Fig. 2, protrusion 30 is a hollow, circular protrusion located near to or at the vertical cross-sectional centre of trunk 24 and which is relatively smaller in its cross-sectional diameter to that of trunk 24. Both trunk 24 and protrusion 30 are hollow, thus forming depression 31. Further, at or near to the vertical cross-sectional centre of protrusion 30 is through hole 28. Protrusion 30 further has internal surface 38 located near to through hole 28.

As may be seen in Fig. 1, the top circumferential surface of trunk 24 has a series of uniform ridges 26 and corresponding troughs all of which are aligned on the same plane. Preferably, each of ridges 26 is triangular in shape and each corresponding trough is correspondingly triangular in shape. The orientation of each ridge 26 and each corresponding trough points towards the cross-sectional axial centre of trunk 24.

Each of uniform ridges 26 is adapted to engage and fit into each corresponding trough of the series of uniform ridges 46 of primary arm 40. Both ridges 26 and ridges 46 are hard and rigid in material.

With reference to Fig. 1 and Fig. 2, primary arm 40 primarily comprises hollow primary trunk 42 with hollow secondary trunk 44 at one end and support 54 and semisphere 56 at a further end of primary trunk 42. Preferably, primary trunk 42 is cylindrical in shape. Internal to primary trunk 42 is depression 48 which is adapted to receive protrusion 30 of mount 20. Preferably, depression 48 is circular in cross-section. At the base of depression 48 is internal hole 50, which is preferably threaded and adapted to receive the tip of screw 34.

Secondary trunk 42 is wider in cross-sectional diameter than that of primary trunk 42 and has a circular cross-section.

The circumferential surface of the end of secondary trunk 44 has a series of uniform ridges 46 and corresponding troughs in a single vertical plane and similar to that of uniform ridges 26 of mount 20. Preferably, each of ridges 46 is triangular in shape and each corresponding trough is correspondingly triangular in shape. Each ridge 46 and each corresponding trough are aligned so as to point towards the cross-sectional axial centre of secondary trunk 44.

At the further end of primary trunk 42 is support 54, which further supports semisphere 56 near to or at a curved external surface of semisphere 56. Preferably, support 54 is semicircular in shape. With reference to Fig. 1 and Fig. 2, semisphere 56 is oriented so that its curved external surface is facing away

from the direction of semisphere 82 of secondary arm 80. Preferably, protrusion 57 is cylindrical in shape.

Further, semisphere 56 is a hollow half-sphere with a hollow internal protrusion 57 within said semisphere 56. Preferably, protrusion 57 has a circular cross-section. Protrusion 57 is adapted to fit into internal depression 96 of semisphere 82 of secondary arm 80.

The hollow cavity of protrusion 57 is adapted to receive screw 70 with spring 74 coiled around the primary shaft of screw 70. Further, at the base of protrusion 57 is through hole 60 and surface 62. Preferably, through hole 60 is located at the radial centre of the base of protrusion 57.

Similar but not necessarily identical to that of primary trunk 42, the circumferential downward-oriented flat surface of semisphere 56 has a series of uniform ridges 58 and corresponding troughs in a single horizontal plane and similar to that of uniform ridges 83 of secondary arm 80. Preferably, each of ridges 58 is triangular in shape and each corresponding trough is correspondingly triangular in shape. Each ridge 58 and each corresponding trough are aligned so as to point towards the cross-sectional axial centre of semisphere 56.

With reference to Fig. 1 and Fig. 3, secondary arm 80 primarily comprises hollow trunk 94 with one open, hollow end, and with plate 92, support 90 and semisphere 82 at a further end.

Trunk 94 is preferably circular in cross-section with its open, hollow end adapted to receive an end of a common support or the end of a common pole so that the invention may be mounted upon the end of said pole.

Referring to Fig. 1, at the other end of trunk 94 is vertical plate 92 one side of which covers the further end of trunk 94 and the other side of which is located support 90, which further supports semisphere 82 near to or at a curved external surface of semisphere 82. Preferably, support 90 is semicircular in shape. With reference to Fig. 1 and Fig. 3, semisphere 82 is oriented so that its curved external surface is facing away from the direction of semisphere 56 of primary arm 40.

Semisphere 56 is a hollow half-sphere with a depression 96 which is adapted to receive protrusion 57 of semisphere 56. Preferably, depression 96 has a circular cross-section. At the base of semisphere 82 and near to or at the cross-sectionally radial centre of depression 96 is internal hole 86 which is adapted to receive the tip of screw 70 and which preferably has a threaded interior.

Similar to that of semisphere 56, the circumferential upward-oriented flat surface of semisphere 82 has a series of uniform ridges 83 and corresponding troughs in a single horizontal plane and similar to that of uniform ridges 58 of semisphere 56 of primary arm 40. Preferably, each of ridges 83 is triangular in shape and each corresponding trough is correspondingly triangular in shape. Each ridge 83 and each corresponding trough are aligned so as to point towards the cross-sectional axial centre of semisphere 82.

Mount 20 attaches to primary arm 40 wherein protrusion 30 fits in internal depression 48, and wherein ridges 26 of mount 20 engages the corresponding troughs of the series of ridges 46 of primary arm 40, and wherein through hole 28 is aligned with internal hole 50.

The shaft of screw 34 is located through depression 31, through hole 28 and internal hole 50, and the tip of screw 34 engages and is threaded into internal hole 50, affixing screw 34 firmly to primary arm 40.

Spring 32 is firmly coiled around the shaft of screw 34; one end of spring 32 pushes against head 35 of screw 34 and the remaining end of spring 32 pushes against internal surface 38 which is at the base of depression 31. Preferably, there is a washer 36 between the first end of spring 32 and head 35.

Spring 32 is adapted to be sufficiently taut in such manner as to constantly push mount 20 in a relative direction towards primary arm 40. Where an outward force is applied to mount 20 and subsequently released, the effect of spring 32 would cause mount 20 to snap back in place.

Both ridges 26 and ridges 46 are hard and rigid in material and are adapted to fit firmly against each other. The combinatory effect of spring 32 providing a constant force on mount 20 in a direction relative towards primary arm 40 and of ridges 26 and ridges 46 being firmly pressed against each other ensures that no rotation of mount 20 occurs in relation to primary arm 40 unless sufficient rotational force or torque is applied to either mount 20 or primary arm 40 in relation to each other.

With reference to Fig. 1, when mount 20 is rotated, the combinatory effect of ridges 26 rotated in relation to ridges 46 and spring 32 applying a constant force on mount 20 in the direction of primary arm 40 causes mount 20 to move towards and away from primary arm 40 in accordance with the ridges and troughs of ridges 26 and ridges 46. When the rotational force is no longer

applied, mount 20 snaps into a rest position in accordance with the ridges and troughs of ridges 26 and ridges 46, and mount 20 maintains a stable orientation until a further rotational force is applied by a user of the invention.

Correspondingly, any article (such as a display board) mounted on surface 39 of mount 20 can be conveniently rotated in relation to the invention and the article maintains a stable orientation until a rotational force is applied to mount 20 in relation to primary arm 40.

This enables a user of the invention to conveniently twist and snap any article mounted onto mount 20 (including, but not limited to a display board) to any lateral rotational orientation limited to within the single plane of rotation.

Primary arm 40 is attached to secondary arm 80 by the engagement of semisphere 56 with semisphere 82. Semisphere 82 of secondary arm 80 is attached to semisphere 56 of primary arm 40 wherein circular protrusion 57 fits in internal depression 96, and wherein ridges 58 of semisphere 56 engages the corresponding troughs of the series of ridges 83 of semisphere 82, and wherein through hole 60 is aligned with internal hole 86.

The shaft of screw 70 is located through the internal hollow cavity of protrusion 57, through hole 60 and internal hole 86, and the tip of screw 70 engages and is threaded into internal hole 86, affixing screw 70 to primary arm 40 and to semisphere 56. Screw 70, however, is adjustable as will be described in a further section of this description.

Spring 74 is firmly coiled around the shaft of screw 70; one end of spring 74 pushes against the underside of screwcap 76 of screw 70 and the remaining

end of spring 74 pushes against internal surface 62 which is at the base of the internal hollow cavity of protrusion 57. Preferably, there is a washer 72 between the first end of spring 74 and the underside of screwcap 76.

Spring 74 is adapted to be sufficiently taut in such manner as to constantly pull primary arm 40 in a direction relative towards secondary arm 80. Where a downward force is applied to secondary arm 80 in relation to primary arm 40 and subsequently released, the effect of spring 74 would cause primary arm 40 to snap back in place.

Both ridges 58 and ridges 83 are hard and rigid in material and are adapted to fit firmly against each other. The combinatory effect of spring 74 providing a constant force on primary arm 40 in a direction relative towards secondary arm 80 and of ridges 58 and ridges 83 being firmly pressed against each other ensures that no rotation of primary arm 40 occurs in relation to secondary arm 80 unless sufficient rotational force or torque is applied to either secondary arm 80 or primary arm 40 in relation to each other.

With reference to Fig. 1, when primary arm 40 is rotated, the combinatory effect of ridges 58 rotated in relation to ridges 83 and spring 74 applying a constant force on primary arm 40 in the direction of secondary arm 80 causes primary arm 40 to move towards and away from secondary arm 80 in accordance with the ridges and troughs of ridges 58 and ridges 83. When the rotational force is no longer applied, primary arm 40 snaps into a rest position in accordance with the ridges and troughs of ridges 58 and ridges 83, and primary arm 40 maintains

a stable orientation until a further rotational force is applied by a user of the invention.

Correspondingly, when the invention is looked at as a whole, the vertical plane and display orientation of any article (such as a display board) mounted on surface 39 of mount 20 can be conveniently changed in accordance with the adjustments of semisphere 56 in relation to semisphere 82; further, the invention allows the rotation of the article within said plane.

This enables a user of the invention to conveniently rotate in a twist and snap manner any article mounted onto mount 20 (including, but not limited to a display board) within a plane and to further change such plane of rotation.

With reference to Fig. 1 and Fig. 3, semiphere 56 may be locked against semisphere 82 by the tightening of screw 70 into internal hole 86 to such extend as to prevent any relative movement of semisphere 56 away from semisphere 82 and wherein the ridges 58 are firmly pressed and fitted against the troughs formed by ridges 83.

CLAIMS

1. An apparatus comprising a mount with a trunk, a primary arm with a first end and with a semisphere on a second end, and a secondary arm with a semisphere on a first end, and wherein the trunk is attached to first end of the primary arm and is rotationally adjustable to said primary arm, and wherein the semi-sphere of the primary arm is attached to the semisphere of the secondary arm and is rotationally adjustable to said secondary arm.

2. The apparatus as claimed in claim 1 wherein the mount further comprises a protrusion at the end of the trunk and the first end of the primary arm has a depression receiving said protrusion and the trunk is attached to the primary arm by means of a first screw through the cross-sectional centre of the trunk and the cross-sectional centre of the first end of the primary arm and wherein the screw is fixed in relation to the primary arm.

3. The apparatus as claimed in claim 2 wherein the protrusion of the trunk is hollow and wherein the apparatus further comprises a first spring coiled around the first screw and wherein the first spring pushes against the head of the screw and the hollow interior of the protrusion of the trunk.

4. The apparatus as claimed in claim 3 wherein the trunk further comprises a first set of uniform ridges and troughs aligned on a single plane at its top circumferential surface fitting with and against a second set of uniform ridges and troughs aligned on a single plane at the circumferential surface of the first end of the primary arm, and wherein the

first set of ridges and troughs points towards the cross-sectional axial centre of the trunk and the second set of ridges and troughs points towards the cross-sectional axial centre of the first end of the primary arm.

5. The apparatus as claimed in claim 2 wherein the protrusion of the trunk is circular in cross-section and the depression at the first end of the primary arm is circular.

6. The apparatus as claimed in claim 1 wherein the semisphere of the primary arm further comprises an internal protrusion within said semisphere of the primary arm fitted into an internal depression of the semisphere of secondary arm.

7. The apparatus as claimed in claim 6 wherein the internal protrusion of the semisphere of the primary arm is hollow and has a first hole at the centre of its internal base vertically aligned with a second hole at the curved top of the semisphere of the primary arm.

8. The apparatus of claim 7 further comprising a second screw through said holes of the semisphere of the primary arm and the tip of the second screw is attached to the centre of the internal curved base of the semisphere of secondary arm.

9. The apparatus of claim 8 wherein the second screw is tightened and the semisphere of the primary arm is clamped against the semisphere of the secondary arm.

10. The apparatus of claim 8 wherein the apparatus further comprises a second spring coiled around the second screw and wherein the second spring pushes against the head of the screw and the internal base of the internal protrusion of semisphere of the primary arm.

11. The apparatus as claimed in claim 8 wherein the semisphere of the primary arm further comprises a third set of uniform ridges and troughs aligned on a single plane at its top flat circumferential surface, the semisphere of the secondary arm further comprises a fourth set of uniform ridges and troughs aligned on a single plane at its top flat circumferential surface, and wherein the third set of ridges and troughs fits with and against the fourth set of ridges and troughs, and wherein the third set of ridges and troughs points towards the cross-sectional axial centre of the semispere of the primary arm, and the second set of ridges and troughs points towards the cross-sectional axial centre of the semisphere of the secondary arm.

12. The apparatus as claimed in claim 6 wherein the internal protrusion of the semisphere of the primary arm is circular in cross-section and the depression of the semisphere of the secondary arm is circular.

13. The apparatus of claim 1 wherein the mount further comprises a flat platform with a plurality of holes.