APPARATUS FACILITATING THE COLLECTION OF MARKER CONES

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ABSTRACT
An apparatus facilitating the collection and bringing together of a plurality of sports marker cones into a stacked configuration, the apparatus comprising a pole (1) having at one end a conical plug (5) defining a shoulder (6) of diameter greater than the pole diameter and tapering away from the pole end, the other end of the pole engaging, in a telescopic sliding manner, a tubular handle (2) including a hand gripping means (4). A locking means (3) being provided between the pole (1) and handle (2) to retain same in a selected position of extension, the arrangement being such that the conical plug (5) may be pressed into and through an aperture A in a marker cone C to a position wherein the cone aperture engages around the pole (1) and is retained thereon against detachment by the plug shoulder (6), the pole being arranged to accommodate a plurality of cones in stacked relationship.
APPARATUS FACILITATING THE COLLECTION OF MARKER CONES

[0001] This invention relates to an apparatus for facilitating the collection of marker cones.

[0002] Marker cones are used for sports and games and serve to mark out and define an area, a course or a track on a sports playing area. Such cones, as an example, customarily comprise a frusto-conical disc of a soft plastic, principally to guard against personal injury, in which the apex includes an aperture. The aperture enables a plurality of cones, when stacked one on the other, to be retained on a peg or post for carriage or storage convenience. It is time consuming and laborious for a person to retrieve a plurality of cones from spaced locations on the ground and to assemble them into a stack.

[0003] It is therefore an object of this invention to provide an apparatus which facilitates the collection and bringing together of a plurality of cones into a stacked configuration. It is another object to provide a combination of the aforesaid apparatus and a plurality of marker cones.

[0004] According to this invention there is provided an apparatus for facilitating the collection and bringing together of a plurality of sports marker cones into a stacked configuration, the cones being of the kind having a centrally located aperture, the apparatus comprising a pole, an end of the pole including a retention portion having a first zone of a width greater than the adjacent pole width and greater than that of the aperture in a marker cone, whereby the retention portion may be pressed into and through the aperture in a marker cone to a position wherein the cone aperture surrounds the pole and the cone is retained thereon by abutment with the retention portion.

[0005] In some embodiments, the retention portion also includes a second zone closer to said end of the pole than the first zone and having a width less than the aperture in a marker cone.

[0006] The pole may be rigid and the retention portion may be flexible. In particular, the retention portion may be resiliently deformable, for example formed of resilient material. In this arrangement the retention portion may be forced through the aperture in the cone by downward pressure on the pole by virtue of deformation of the retention portion, or deformation of the aperture region of the cone or by virtue of deformation of both parts. The cone then slips upwardly onto the part of the pole above the retention portion and is retained against downward detachment by abutment with the wider retention portion. The cones can, of course, be subsequently removed by forcing them over the retention portion or the retention portion may be removed, being connected to the pole by a friction fit, such as a plug part engaging the inside of the tubular pole, or screw thread as example. Alternatively, the cones may be removed from the end of the pole remote from the said portion, for example by inverting the pole.

[0007] It is not essential for the retention portion to be flexible or deformable if the cones are sufficiently flexible and/or deformable to allow the retention portion to be forced through the aperture in the cones.

[0008] In an embodiment the retention portion may be formed by a tapered fixture which decreases in width (or diameter) towards the end of the pole. Other shapes are possible, for example, the retention portion may be spherical or may take the form of an arrowhead or similar shape. In some embodiments, the retention portion has a circular cross-section in order to facilitate the location of the retention portion in the aperture of the cone.

[0009] In some embodiments, a gap may be formed between the retention portion and the pole, into which the retention portion may deform to allow it to pass through an aperture of a cone. Alternatively, no such gap may be present, and the retention portion may deform, for example, by reduction in volume, or by elongation. Alternatively, a hole may be provided at the surface of the pole, into which the retention portion may be moved to allow cones to be passed along the pole and over the retention portion.

[0010] The retention portion may comprise a flexible conical or frusto-conical plug. The retention portion may taper outwardly in a direction away from the end of the pole. The retention portion may have a stepped shoulder for abutment against the retained cones.

[0011] In one embodiment, the retention portion may comprise at least one retention member resiliently biased away from the pole. The retention member(s) may have a first end connected to the pole in the region of the end of the pole and a second end moveable towards the pole or into a hole in the surface of the pole, against the bias, when the retention portion passes through the cone aperture. The second end of the retention members may engage the stacked cones to retain them on the pole. Thus, the retention member(s) may spring back once the retention portion has passed through the aperture and thereby retain the cones on the pole. Desirably, a plurality of retention members are distributed about the periphery of the pole. The biasing of the retention members may be achieved by the inherent resilience of the retention members or by a spring, for example.

[0012] The pole may be formed from two or more telescopically engaging parts with a locking means provided to secure the telescopic parts in a selected position of extension or collapse. The end of the pole remote from the flexible portion can have a handle. Conveniently the pole or handle includes hanging means, for example a hook or loop, whereby the whole assembly of apparatus and stacked cones may be conveniently hung-up for storage.

[0013] In an embodiment, the flexible portion is removable from the pole, the apparatus including a plurality of flexible portions having differing diameters.

[0014] In accordance with this invention there is also provided an apparatus facilitating the collection and bringing together of a plurality of sports marker cones into a stacked configuration, the apparatus comprising a pole having at one end a conical plug defining a shoulder of diameter greater than the pole diameter and tapering outwardly away from the pole end, the other end of the pole engaging, in a telescopic sliding manner, a tubular handle including a hand gripping means, locking means being provided between the pole and handle to retain same in a selected position of extension, the arrangement being such that the conical plug may be pressed into and through an aperture in a marker cone to a position wherein the cone aperture engages around the pole and is retained thereon against detachment by the plug shoulder, the pole being arranged to accommodate a plurality of cones in stacked relationship.

[0015] The apparatus according to this invention avoids the onerous task of personnel having to stoop to pick-up and collect cones which may be laid-out over a large area such as a sports playing field. The apparatus not only avoids this but also enables the cones to be collected in a stack for storage.
[0016] The invention extends to the combination of the above-described apparatus and at least one marker cone, preferably a plurality of marker cones.

[0017] An embodiment of the invention will now be described by way of example only and with reference to the accompanying drawings, in which:

[0018] FIG. 1 shows a first embodiment of the invention in side elevation and a cone;

[0019] FIG. 2 shows the embodiment of FIG. 1 engaged with several cones after collection;

[0020] FIG. 3 shows a second embodiment of the invention, including a front, back, left, right, top and bottom view;

[0021] FIGS. 4A and 4B show perspective views of the second embodiment of the invention;

[0022] FIG. 5 is a perspective view of the second embodiment of the invention, when engaged with several cones after collection;

[0023] FIG. 6 is a perspective view of a mechanism for retaining cones in an embodiment of the invention; and

[0024] FIGS. 7A-C are cross sectional views of the mechanism shown in FIG. 6.

[0025] Referring to FIG. 1 of the drawings, the apparatus in accordance with a first embodiment of this invention comprises a tubular pole 1 into one end of which a smaller diameter tubular handle 2 fits in a telescopic manner. A collar 3 is provided affording a sliding telescopic fit and including a clamping lock (not shown) activated by a twisting motion of the collar 3 in order to secure the pole 1 and handle 2 together at a selected degree of extension. The handle includes a hand grip 4. More than two telescoping parts may be provided. The hand grip 4 may include an eye or other means for hanging the apparatus for storage.

[0026] The other end of the pole 1 extends from the collar 3 includes a tapered fixture being preferably conical and comprising a flexible plug 5 which, at the juncture with the other end of the pole 1, defines a shouldered step 6. The plug is dimensioned whereby it may initially partially enter into the aperture A at the apex of a hollow marker cone C and thereafter, with the application of downward force, may penetrate the aperture to a final position where the step 6 engages the inside lip of the aperture A. This is achieved either partially by deformation of the plug 5 and partially by deformation of the aperture A in the cone C, or totally by deformation of the plug. The cone will now be located on the pole 1 and freely movably longitudinally on the pole such that a second and subsequent cone may be engaged in a similar way. Thus a plurality of cones may be collected forming a stack on the pole 1. The pole thus forms a convenient storage means as well as facilitating collection.

[0027] FIG. 2 shows the apparatus with three cones stacked on the pole 1.

[0028] In a practical construction the pole 1 may have a diameter of 50 mm and the overall length of the pole 1 may be about 500 mm closed. In combination with the telescopic handle 2 the apparatus may be extended to about 1000 mm. The maximum diameter of the plug 5 will be about 60 mm for most commercially available cones but may vary to engage with cones having other diameter apertures. The plug 5 may be interchangeable with plugs of other dimensions and may conveniently have an upper boss part which fits the bore of the pole 1 providing ease of interchange or a screw thread connection may be used here.

[0029] The plug 5 shown has a conical configuration but may be formed also as a plurality of flutes or fingers defining the step 5 and tapering away from the end of the pole. The plug can be formed by a number of stacked discs either juxtaposed or spaced.

[0030] Referring to FIG. 3, an apparatus in accordance with a second embodiment of the invention is shown. The apparatus has a tubular pole 101 into one end of which a smaller diameter tubular handle 102 fits in a telescopic manner. The handle has a curved section at its end 104, which may be used as a hand grip. A groove 108 is provided in the outer surface of the part of the handle that fits into the pole 101. The groove 108 extends longitudinally along the length of the handle. The groove may include one or more parts that are aligned at an angle to the longitudinally extending part of the groove, to allow the length of the apparatus to be held at a particular value, i.e. to provide a locking means for fixing the length of the apparatus. For example, in FIG. 3, a top end of the groove has a curved section which then extends at right angles to the longitudinal middle part of the groove. The groove 108 is fitted with a protrusion provided on the inner surface of the tubular pole part 101. This provides stability and restricts unwanted movement when the handle 102 is being moved relative to the pole 101. In alternative embodiments, a groove may be provided on the pole part, and a corresponding protrusion may be provided on the handle 102. In some embodiments, a plurality of protrusions may be provided, and the groove may be shaped in a corresponding manner to improve the stability further. In some embodiments, a plurality of separate grooves may be provided, each with a corresponding protrusion.

[0031] More than two telescoping parts may be provided. The handle may include an eye or other means for hanging the apparatus for storage.

[0032] The other end of the pole 101 includes two holes, in which this embodiment are approximately rectangular shaped. A retention part including two tapered retention members 105 is mounted inside the pole, such that a retention member 105 protrudes from each of the rectangular shaped holes. In alternative embodiments, a different number of holes and retention members 105 may be used. The retention part is biased by a spring 109, which is positioned between the two retention members 105, pushing them apart from each other, and thus resiliently biasing them away from central axis of the pole. The retention members 105 each define a shoulder step. Each retention member 105 may be pushed inside the pole 101 by a marker cone when the bottom of the pole is pushed through the aperture of the marker cone. When the marker cone has been pushed past the retention members 105, the spring 109 pushes the retention members 105 back through the rectangular holes in the pole 101, thus forming a shouldered step to retain the marker cone on the pole. The cone will now be movably longitudinally along the pole such that a second and subsequent cone may be engaged in a similar way. Thus a plurality of cones may be collected forming a stack on the pole 101. The pole thus forms a convenient storage means as well as facilitating collection.

[0033] FIGS. 4A and 4B show different perspective views corresponding to the embodiment of FIG. 3.

[0034] FIG. 5 shows a perspective view of the apparatus shown in FIG. 3, with approximately 30 marker cones retained by the retention members 105 on the end of the pole.

[0035] FIG. 6 shows a perspective view of a mechanism for retaining the cones on the pole. The retention members 105 are each wedge shaped, and protrude from the holes at the bottom of the pole 101, with the wide part of the flange
protruding uppermost. The part of each retention member 105 that is inside the pole includes a flange that provides a larger cross section than the size of the hole, to prevent the retention members 105 from completely exiting through the hole. The inner part of each retention member 105 has a hole for engaging a spring 109. The retention members are positioned directly opposite one another, with these holes aligned, so that a single spring may bias both retention members 105. In alternative embodiments, more than one spring may be used, or alternative biasing means may be used.

[0036] In this embodiment, the two retention members are attached together by a curved support 110, which is fixed to the thinner part of each tapered surface. The curvature of this support 110 follows the curvature of the rounded bottom end of the pole. Two spacers 111 are provided on the support 110, to prevent the curved part of the support from directly contacting the bottom part of the pole 101.

[0037] FIGS. 7A-C show cross sectional views of the operation of this mechanism when engaging and retaining a marker cone. FIG. 7A is a cross sectional view corresponding to FIG. 6. FIG. 7B is a cross sectional view showing the situation when the mechanism engages a marker cone 120. Each of the retention members 105 is pushed inward towards the central axis of the pole, by the inner edge part of the marker cone. The spring 109 is compressed in this process.

[0038] FIG. 7C shows the situation when the marker cone 120 is pushed completely past the retention members 105, and retained on the pole 101. The spring 109, which was compressed, pushes the retention members 105 back through the holes at the base of the pole, until the flange on the inner part of each retention member 105 is pressed against the inside edge of the pole. The retention members 105 thus form a stop, to prevent the marker cone 120 from sliding back off the pole 101.

[0039] In summary, therefore, this invention preferably provides an apparatus facilitating the collection and bringing together of a plurality of sports marker cones into a stacked configuration, the apparatus comprising a pole 1 having at one end a conical plug 5 defining a shoulder 6 of diameter greater than the pole diameter and tapering away from the pole end, the other end of the pole engaging, in a telescopic sliding manner, a tubular handle 2 including a hand gripping means 4. A locking means 3 may be provided between the pole 1 and handle 2 to retain same in a selected position of extension, the arrangement being such that the conical plug 5 may be pressed into and through an aperture A in a marker cone C to a position wherein the cone aperture engages around the pole 1 and is retained thereon against detachment by the plug shoulder 6, the pole being arranged to accommodate a plurality of cones in stacked relationship.

1. An apparatus for collection and bringing together of a plurality of sports marker cones into a stacked configuration, the cones being of the kind having a centrally located aperture, the apparatus comprising a pole, an end of the pole including a retention portion having a first zone of a width greater than the adjacent pole width and greater than that of the aperture in a marker cone, whereby the retention portion may be pressed into and through the aperture in a marker cone to a position wherein the cone aperture surrounds the pole and the cone is retained thereon by abutment with the retention portion.

2. The apparatus as claimed in claim 1, wherein the retention portion comprises a second zone closer to said end of the pole than the first zone and having a width less than the aperture in a marker cone.

3. The apparatus as claimed in claim 1 wherein the retention portion further comprises a second zone closer to said end of the pole than the first zone and having a width less than the aperture in a marker cone.

4. The apparatus as claimed in claim 1, wherein the retention portion comprises a tapered fixture which decreases in width towards the end of the pole.

5. The apparatus as claimed in claim 1, wherein the retention portion has a circular cross-section.

6. The apparatus as claimed in claim 1, wherein the retention portion comprises a flexible conical or frusto-conical plug.

7. The apparatus as claimed in claim 1, wherein the retention portion has a stepped shoulder for abutment against the retained cones.

8. The apparatus as claimed in claim 1, wherein the pole comprises two or more tubular telescopically engaging parts.

9. The apparatus as claimed in claim 1, further comprising hanging means located at the opposite end of the pole to said retention portion.

10. The apparatus claim 1, wherein the pole holds a plurality of marker cones.

11. An apparatus facilitating the collection and bringing together of a plurality of sports marker cones into a stacked configuration comprising a means for collecting and holding a plurality of marker cones in a stacked manner.

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