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DESCRIPTION JP3200660U

10 Center lock and tent

[0001]

14 TECHNICAL FIELD The present invention relates to outdoor equipment, and more particularly to center locks and tents.

[0002]

19 As people's lifestyles continue to improve, the use of tents has become popular. Tents typically include a collapsible tent frame and a sheet. The tent frame includes an upper frame and four or more supporting legs, and the supporting legs support the upper frame, and the supporting legs are further provided with a locking structure. The sheet is also used to cover the upper frame and block sunlight, rain and wind. Currently, the locking structure is generally a locking pin, which locks each support leg to lock the unfolded state of the tent. However, such a method has the following drawbacks.

[0003]

29 During the unfolding or folding process of the tent, the locking mechanism for each support leg is complicated because the user has to perform the locking or unlocking operation one by one when opening or contracting the tent.

32 If this is forgotten, incorrect operations such as lack of functionality or forced unlocking may occur. Furthermore, opening or deflating the tent requires the cooperation of many people to support the tent. Furthermore, in the process of unfolding and supporting the tent, the forces applied to the force points of the plurality of support legs are not uniform, which makes it difficult to support the tent at the optimal point, which affects the tent's supporting effect. Another common cause of tent damage is damage to the tent support legs. Since the tent

requires a position to fix the slider after being expanded, a hole for inserting a lock pin is provided in the slider fixing position of the support leg. However, forming holes in the support legs reduces the strength of the support legs, which generally causes damage to the slider fixing position of the support legs, shortening the service life of the tent.

[0004]

45 In view of the above-mentioned drawbacks of the prior art, the technical problem to be solved by the present invention is to provide a center lock that can support the entire tent and uniformize the force applied to the tent.

[0005]

51 To achieve the above object, the present invention provides a center lock including a center rod, a center top cap fixed to one end of the center rod, and a bottom cap separably connected to the other end of the center rod. The center bottom cap accommodates a locking member that can reciprocate in the radial direction of the center rod, and the locking member is provided with a first through hole through which the center rod can be inserted. The end portion is provided with an engaging groove and an engaging part located at the lower end of the engaging groove, and when the center lock is in the locked state, a part of the inner wall of the first through hole in the locking member is in the engaging groove of the center rod. , the upper end surface of the engaging part abuts the lower end surface of the locking member, and when the center lock is in the unlocked state, the inner wall of the first through hole in the locking member separates from the engagement groove and the locking member is engaged. can pass through the first through hole.

[0006]

66 Another technical problem to be solved by the present invention is to provide a tent with good supporting effect and uniform force application.

[0007]

71 To achieve the above object, the present invention includes at least three support legs, an outer telescopic unit connected between two adjacent support legs, and an inner telescopic unit connected to each support leg. , provides a tent in which an upper frame is constructed from the outer telescopic unit and the inner telescopic unit, the tent further including the above-mentioned center lock, and the inner ends of the plurality of inner telescopic units are connected to each other by the center lock.

[0008]

80 As mentioned above, the center lock and tent of the present invention have the following beneficial effects.

[0009]

- 85 That is, in the center lock, the center rod and the center bottom cap can be connected in a separable manner by realizing engagement or disengagement between the center rod and the locking member by moving the locking member.
- 88 Therefore, if the center lock is applied to a tent, the entire tent can be supported by connecting the center rod and the center bottom cap after the tent is expanded, making it very easy to operate.
- 91 Furthermore, since the force is uniformly applied to each support leg of the tent, the supporting effect of the entire tent is enhanced.
- 93 Further, after the tent with the center lock attached thereto is unfolded, the tent can be fixed by connecting the center rod and the center bottom cap, so there is no need to make holes for fixing the slider in the support legs.
- 96 Therefore, the strength of the tent support legs is increased, resulting in an increase in the strength of the tent structure and a longer service life of the tent.

[0010]

- 101 FIG. 1 is an exploded view of the center lock according to the present invention.
- 102 FIG. 2 is a diagram showing the structure of the center lock in the locked state.
- 103 FIG. 3 is a sectional view taken along line AA in FIG.
- 104 FIG. 4 is a sectional view taken along line BB in FIG.
- 105 FIG. 5 is a sectional view taken along line CC in FIG.
- 106 FIG. 6 is a diagram showing the connection between the center rod and center bottom cap of FIG. 2.
- 108 FIG. 7 is a diagram showing the structure when the center lock is released.
- 109 FIG. 8 is a sectional view taken along line DD in FIG. 7.
- 110 FIG. 9 is a sectional view taken along line EE in FIG.
- 111 FIG. 10 is a sectional view taken along line FF in FIG.
- 112 FIG. 11 is a diagram showing the connection between the center rod and center bottom cap of FIG. 7.
- 114 FIG. 12 is a sectional view taken along line GG in FIG.
- 115 FIG. 13 is a plan view of the locking member of the present invention.
- 116 FIG. 14 is a left view of FIG. 13.
- 117 FIG. 15 is a sectional view taken along line HH in FIG. 13.
- 118 FIG. 16 is a diagram showing the structure of the tent of the present invention in an open state.
- 120 FIG. 17 is a diagram showing the structure of the center lock in FIG. 16.
- 121 FIG. 18 is a diagram showing the connection of the slider, fixing part, and support leg in FIG.

16.

123 FIG. 19 is a state diagram of the unfolding or folding process of the tent.

124 FIG. 20 is a diagram showing the structure of the tent after folding.

125 FIG. 21 shows another embodiment of the tent.

126 FIG. 22 shows another embodiment of the center lock of the present invention.

127 FIG. 23 is a diagram showing the connection between the center rod and the center bottom cap in the locked state of the center lock shown in FIG. 22.

129 FIG. 24 is a sectional view taken along line II in FIG. 23.

130 FIG. 25 is a diagram showing the connection between the center rod and the center bottom cap when the center lock in FIG. 22 is released.

132 FIG. 26 is a sectional view taken along the line JJ in FIG. 25.

[0011]

136 The present invention provides a center lock and a tent equipped with the center lock.

137 As shown in FIGS. 1 and 2, the center lock includes a center rod 2, a center top cap 1 fixed to one end of the center rod 2, and a center bottom cap separably connected to the other end of the center rod 2. Contains 3.

140 As shown in FIG. 1, the center top cap 1 is fixedly connected to one end of the center rod 2 by a screw 11. As shown in FIG.

142 Further, the center bottom cap 3 and the other end of the center rod 2 have the following separable connection structure.

144 That is, as shown in FIGS. 2 to 12, the center bottom cap 3 accommodates a locking member 4 that can reciprocate in the radial direction of the center rod 2. A first through hole 41 through which the rod 2 can be inserted is provided.

147 Furthermore, an engagement groove 21 and an engagement portion 22 located at the lower end of the engagement groove 21 are provided at the end of the center rod 2 .

149 When the center lock is in the locked state, as shown in FIG. The end surface contacts the lower end surface of the locking member 4.

151 As a result, the engaging portion 22 will not come out of the first through hole 41, and the center rod 2 and center bottom cap 3 will be in a state of being connected to each other.

153 When the center lock is in the released state, the locking member 4 moves in the radial direction of the center rod 2, as shown in FIG. The engaging portion 22 is now able to pass through the first through hole 41.

156 Thereby, the center rod 2 can also be moved from the center bottom cap 3, and the center rod 2 and the center bottom cap 3 are separated.

[0012]

161 Moreover, since the center lock is mainly attached to the tent, it provides good support to the tent.

163 It goes without saying that the center lock can be attached to other devices as well.

164 As shown in FIG. 16, the tent equipped with the center lock includes at least three support legs 6, an outer telescopic unit 7 connected between two adjacent support legs 6, and each support leg 6. It includes an inner telescoping unit 8 connected to.

167 The outer telescopic unit 7 and the inner telescopic unit 8 constitute an upper frame of the tent, and the upper frame and the plurality of support legs 6 constitute a tent frame of the tent.

170 The upper frame is covered with a sheet, and the inner ends of the plurality of inner telescoping units 8 in the tent are connected to each other by the center lock.

172 In this embodiment, since there are four supporting legs 6, there are four outer telescopic units 7 and four inner telescopic units 8, respectively.

174 Further, for convenience of operation, the center top cap 1 is located at the upper end of the center rod 2, and the center bottom cap 3 is located at the lower end of the center rod 2, so that the center bottom cap 3 can be easily moved upward or downward. There is.

[0013]

180 In the folded state of the tent as shown in FIG. 20, the center top cap 1 and center bottom cap 3 of the center lock are separated from each other.

182 When deploying the tent, as shown in FIG. 19, the four support legs 6 are first deployed outward around the center lock, and the outer telescopic unit 7 and the inner telescopic unit 8 are gradually extended outward. let

185 After the tent is deployed, when the center bottom cap 3 is moved in the direction of the center rod 2, that is, when the center bottom cap 3 is moved upward, the center rod 2 is inserted into the center bottom cap 3, and the center rod 2 is engaged with the center bottom cap 3. The matching groove 21 and a part of the inner wall of the first through hole 41 engage with each other.

190 As a result, a portion of the upper end surface of the engaging portion 22 comes into contact with a portion of the lower end surface of the locking member 4, thereby preventing the engaging portion 22 from falling out of the first through hole 41.

193 As a result, movement of the center rod 2 from the center bottom cap 3 is restricted, and connection between the center bottom cap 3 and the center rod 2 is realized.

195 When the expanded state of the tent is fixed and maintained by the connection between the center bottom cap 3 and the center rod 2 and the entire tent is locked, the inner telescoping unit 8 will not expand or contract by itself unless an external force is applied.

198 Therefore, the outer telescopic unit 7 does not expand or contract by itself, and the stability of the unfolded state of the tent is very good.

200 Since the plurality of inner telescopic units 8 are uniformly arranged around the outer periphery of the center lock, force is uniformly applied to each inner telescopic unit 8.

202 Therefore, each support leg 6 uniformly supports the gravity of the upper frame, increasing the supporting effect of the entire tent.

204 In addition, after deploying the tent equipped with the center lock, the tent can be fixed by connecting the center rod and center bottom cap, compared to the conventional mechanical

locking method that fixes the slider with a lock pin. Therefore, in the present application, there is no need to lock the slider to the support leg.

- 208 Therefore, since there is no need to provide holes for fixing the slider in the support legs of the tent, the strength of the tent support legs is strengthened, and as a result, the strength of the tent structure is increased, and the service life of the tent is extended.
- 211 When folding the tent, the locking member 4 is moved to disengage the inner wall of the first through hole 41 in the locking member 4 from the engagement groove 21.
- 213 At this time, since the engaging portion 22 can pass through the first through hole 41, the center rod 2 can also be moved from the center bottom cap 3, and the center rod 2 and the center bottom cap 3 are separated.
- 216 Subsequently, a force is applied to pull the center bottom cap 3 away from the center rod 2.
- 217 That is, when the center bottom cap 3 is pulled downward, the inner telescopic unit 8 contracts in a direction approaching the center lock as shown in FIG. 19.
- 219 Then, as shown in FIG. 20, the outer telescopic unit 7 eventually contracts gradually, and the plurality of support legs 6 converge in a direction approaching the center lock.
- 221 As described above, the tent with the center lock according to the present invention is very easy to operate when unfolding or folding.
- 223 In addition, the tent has a good supporting effect after deployment and is strong, so its service life is extended.
- 225 Moreover, the structure of the center lock is simple, easy to manufacture, and low cost.

[0014]

- 229 Furthermore, as shown in FIGS. 16 to 18, each support leg 6 is covered with a slide sleeve 9 that is movable in the length direction of the support leg 6.
- 231 A fixing part 10 is fixed to the upper end of the support leg 6, and the outer telescopic unit 7 includes three X-shaped rod members hinged to each other.
- 233 Each X-shaped rod member includes a first eaves pipe 71 and a second eaves pipe 72 that are hinge-connected to each other, and the hinge connection point of the first eaves pipe 71 and the second eaves pipe 72 is the first eaves pipe 71 or the second eaves pipe 72. It is located at or near the center point of the eaves pipe 72.
- 237 The inner telescoping unit 8 includes a first sloped roof pipe 81 and a second sloped roof pipe 82 that are hingedly connected to each other by a connecting piece having a U-shaped cross section.
- 240 A first link 83 is hingedly connected to the center point or near the center point of the first sloped roof pipe 81, and a second link 84 is hingedly connected to the center point or near the center point of the second sloped roof pipe 82.
- 243 The inner ends of the four first sloped roof pipes 81 are all hinged to the center-lock center top cap 1, and the inner ends of the four first links 83 are all hinge-connected to the center-lock center bottom cap 3. is hinged to the
- 246 The fixing part 10 at the upper end of the support leg 6 is hinged to the outer ends of the two first eave pipes 71 and the outer end of the second sloped roof pipe 82 in the X-shaped rod

member, and is connected to the slide sleeve 9 of the support leg 6. are hinged to the outer ends of the two second eaves pipes 72 and the outer end of one second link 84 in the X-shaped rod member.

251 In this embodiment, the first sloped roof pipe 81 and the first link 83, and the second sloped roof pipe 82 and the second link 84 all constitute a Y-shaped member.

253 That is, the inner telescopic unit 8 is composed of a plurality of Y-shaped members.

254 In another embodiment, the inner telescoping unit 8 may be composed of a plurality of X-shaped members as shown in FIG. 21.

256 At this time, each X-shaped member of the inner telescoping unit 8 includes a third sloped roof pipe 85 and a fourth sloped roof pipe 86 that are hingedly connected to each other.

258 Among the X-shaped members located at the innermost side of the inner telescopic unit 8, the inner end of the third sloping roof pipe 85 is hinge-connected to the center-lock center top cap 1, and the inner end of the fourth sloping roof pipe 86 is center-locking. is hingedly connected to the center bottom cap 3 of.

262 Among the X-shaped members located at the outermost side of the inner telescopic unit 8, the outer end of the third sloped roof pipe 85 is hingedly connected to the slide sleeve 9, and the outer end of the fourth sloped roof pipe 86 is hingedly connected to the fixed part 10. be done.

[0015]

269 When the upper frame of the tent adopts the above structure, in the process of moving the center bottom cap 3 of the center lock upward to unfold the tent, the inner telescoping unit 8 extends outward as the center bottom cap 3 moves upward. .

272 In addition, as the slide sleeve 9 moves upward along the length of the support legs 6, the outer telescopic unit 7 and the four support legs 6 are fully expanded, allowing the center bottom cap 3 and the center It gradually extends until the lower end of the rod 2 is connected.

276 Conversely, in the process of pulling the center bottom cap 3 downward after separating the center bottom cap 3 and the lower end of the center rod 2, the inner telescopic unit 8 contracts inward as the center bottom cap 3 moves downward.

279 Furthermore, as the slide sleeve 9 moves downward along the length of the support legs 6, the outer telescopic unit 7 and the four support legs 6 gradually converge until the entire tent is completely folded. .

[0016]

285 Further, as shown in FIGS. 1, 6, and 11, the center bottom cap 3 includes a bottom cap base 31 and a bottom cap lid 32, which are fixedly connected to each other by a plurality of screws.

288 An accommodation space 311 is provided at the connection point between the bottom cap stand 31 and the bottom cap lid 32 in the center bottom cap 3, and an opening 312

communicating with the accommodation space 311 is provided in the outer wall of the center bottom cap 3. .

- 292 The locking member 4 extends through the accommodation space 311 and the opening 312, is located between the bottom cap stand 31 and the bottom cap lid 32, and is supported by the bottom cap lid 32.
- 295 The housing space 311 may be entirely provided in the bottom cap stand 31, may be entirely provided in the bottom cap lid 32, or may be provided in both the bottom cap stand 31 and the bottom cap lid 32. .
- 298 Since the bottom cap base 31 and the bottom cap lid 32 are removably connected with screws, it is convenient to attach the center bottom cap 3 and the locking member 4.
- 300 Further, the bottom cap stand 31 of the center bottom cap 3 and the center top cap 1 are both provided with eight connection pieces 318, and the eight connection pieces 318 form four sets of connection pieces provided at 90 ° intervals. The group is composed of
- 303 That is, each connection piece group includes two connection pieces 318, and an accommodation groove is formed between these two connection pieces 318.
- 305 The inner ends of the four first sloped roof pipes 81 are respectively arranged in the four housing grooves in the center top cap 1, and are hingedly connected to the connecting piece 318 by bolts.
- 308 A nut is connected to the thread at the end of the bolt.
- 309 The inner ends of the four first links 83 are respectively disposed within the four housing grooves in the bottom cap 31, and are hingedly connected to the connecting piece 318 by bolts.
- 312 A nut is connected to the thread at the end of the bolt.

[0017]

- 316 In the present application, the locking member 4 has two embodiments.
- 317 Example 1 of the locking member 4 is shown in FIGS. 1 to 15, and Example 2 of the locking member 4 is shown in FIGS. 21 to 26.
- 319 Specifically, in Example 1 of the locking member 4, the locking member 4 is an integrated member, that is, has an integral structure.
- 321 At this time, as shown in FIGS. 6 and 11, an elastic member compressible in the radial direction of the center rod 2 is provided in the accommodation space 311, and both ends of the elastic member are connected to the locking member 4 and the accommodation space 311. Each is in contact with the inner wall of the
- 325 A drop-off prevention part 313 is protruded from the bottom cap stand 31, and a groove 42 for accommodating the drop-off prevention part 313 is formed in the locking member 4.
- 327 When the center lock is in the locked state, by biasing the locking member 4 in the radial direction of the center rod 2 by the elastic force of the elastic member itself, a part of the inner wall of the first through hole 41 is positioned within the engagement groove 21. let
- 330 That is, a portion of the inner wall of the first through hole 41 is engaged with the engagement groove 21 to prevent the center rod 2 from disengaging from the first through

hole 41 in the axial direction.

- 333 Further, by bringing a part of the side surface of the falling-off prevention part 313 into contact with a part of the inner wall of the groove 42, detachment of the locking member 4 from the accommodation space 311 is regulated.
- 336 Preferably, as shown in FIGS. 1, 13 and 14, the elastic member is a spring 5, and a guide support portion 43 is provided at one end of the locking member 4 on the side far from the opening 312.
- 339 The cross section of the guide support part 43 is cross-shaped, so that the locking member 4 has good stability in the process of moving inward, and the entire structure has good stability in the locked state of the center lock. The spring 5 is covered by the guide support part 43.

[0018]

- 345 Preferably, as shown in FIG. 13, the first through hole 41 includes an engaging hole portion 411 and a through hole portion 412 arranged in parallel.
- 347 The diameter of the engagement hole 411 is not less than the diameter of the engagement groove 21.
- 349 That is, the diameter of the engagement hole 411 is the same as or slightly larger than the diameter of the engagement groove 21.
- 351 Further, the diameter of the through hole portion 412 is larger than the diameter of the engaging portion 22.
- 353 Therefore, in the locked state of the center lock, as shown in FIG. The through hole portion 412 of the hole 41 is arranged eccentrically.
- 355 That is, although the axis of the center rod 2 is parallel to the axis of the through hole 412, they do not overlap.
- 357 When it is necessary to unlock the center lock, the user applies force to the locking member pressing part 44 and pushes it, so that the center rod 2 and the first through hole 41 in the locking member 4 are connected to each other, as shown in FIG. The locking member pressing portion 44 is moved inward so as to compress the elastic member until it is arranged concentrically with the hole portion 412.
- 362 That is, when the axis of the center rod 2 and the axis of the through hole 412 overlap, the inner wall of the engaging hole 411 moves from the engaging groove 21, and the engaging portion 22 at the lower end of the center rod 2 moves away from the through hole 412. It becomes possible to move.

[0019]

- 369 In the second embodiment of the locking member 4, the locking member 4 has a separate structure and includes an elastic wire 45 and a lock release pushing piece 46, as shown in FIGS. 22 to 26.
- 372 The elastic wire 45 has a U-shape and includes an elastic wire main body 451 and two elastic deformable parts 452 provided at both ends of the elastic wire main body 451, respectively.

374 Since the two elastically deformable parts 452 are X-shaped, a slit 453 for forming the first through hole 41 is provided at the center of the two elastically deformable parts 452 .

376 The slit 453 is the opening portion where the interval between the elastically deformable parts 452 is the smallest, and the end of the elastically deformable part 452 forms the insertion opening 454.

379 The inner end of the lock release pusher piece 46 is located within the insertion opening 454.

380 In a natural state, the diameter of the slit 453 is smaller than or equal to the diameter of the engagement groove 21.

382 When inserting the center rod 2 into the center bottom cap 3, the engaging portion 22 pushes the slit 453 wider until the engaging groove 21 of the center rod 2 fits into the inner wall of the slit 453 of the elastic wire 45.

385 Then, as shown in FIGS. 23 and 24, the slit 453 converges due to the elastic restoring force of the elastic wire 45 itself, and the inner wall of the slit 453 is engaged in the engagement groove 21 of the center rod 2, so that the center The positions of the bottom cap 3 and center top cap 1 are locked.

389 When unlocking is necessary, the lock release pushing piece 46 is pushed inward to spread the insertion opening 454 of the elastic wire 45 until the diameter of the slit 453 becomes larger than the diameter of the engaging portion 22 .

392 As a result, as shown in FIGS. 25 and 26, the engaging portion 22 can pass through the slit 453, the center top cap 1 and the center bottom cap 3 are separated, and the tent is retracted. .

[0020]

398 Preferably, as shown in FIGS. 23 and 25, a fall prevention part 313 is provided protrudingly on the bottom cap stand 31, and a groove 42 for accommodating the fall prevention part 313 is formed in the lock release push piece 46.

401 By engaging the falling-off prevention part 313 with the groove 42, it is possible to prevent the lock release pushing piece 46 from coming off from the accommodation space 311, and to prevent excessive pressing by the lock releasing pushing piece 46 when releasing the lock. becomes.

405 The lock release pushing piece 46 is provided with two guide surfaces 461 that come into contact with the ends of the elastic deformation section 452, and the guide surface 461 expands toward one end on the side far from the elastic wire 45. is inclined to.

408 That is, the inner end of the lock release push piece 46 is trapezoidal so that the insertion opening 454 of the elastic wire 45 and the slit 453 can be accurately pushed apart when the lock release push piece 46 is pushed inward. There is.

[0021]

414 Preferably, at least a portion of the locking member 4 is disposed outside the center bottom cap 3 to form the locking member pressing portion 44 so that the locking member 4 can be

easily moved.

[0022]

420 Further, as shown in FIG. 6, the bottom cap stand 31 is provided with a second through hole 314 through which the center rod 2 is inserted.

422 The axis of the second through hole 314 overlaps with the axis of the center rod 2.

423 Further, the bottom cap lid 32 is provided with a housing hole 321 that accommodates the engaging portion 22 and is adapted to the outer wall of the engaging portion 22 .

425 The second through hole 314, the first through hole 41, and the accommodation hole 321 communicate with each other.

427 In the locked state of the center lock, the lower end of the center rod 2 is passed through the second through hole 314 of the bottom cap base 31 and the first through hole 41 of the locking member 4 in order, and the engaging portion 22 is connected to the bottom cap lid. It is accommodated in the 32 accommodation holes 321.

431 Since the shape of the inner wall of the accommodation hole 321 matches the shape of the outer wall of the engagement part 22, the inner wall of the accommodation hole 321 is in close contact with the outer wall of the engagement part 22.

434 Therefore, since the engaging portion 22 of the center rod 2 is prevented from swinging or shifting due to external force, good lock reliability in the center lock is enhanced.

[0023]

439 As described above, the center lock consisting of the bottom cap stand 31, the bottom cap lid 32, the spring 5, the locking member 4, the center rod 2, the center top cap 1, etc., allows the user to hold the center bottom cap 3 when locking. The distance between the center bottom cap 3 and the center top cap 1 is gradually narrowed by pushing the center bottom cap 3 upward.

444 When no external force is applied to the locking member 4, the locking member 4 receives only the elastic force of the spring 5, and due to the elastic force of the spring 5, a portion of the inner wall of the groove 42 in the locking member 4 and the bottom cap base A part of the outer wall of the falling-off prevention part 313 at 31 comes into contact with the outer wall.

449 Therefore, even if the locking member 4 receives the elastic force of the spring 5, it remains accommodated in the accommodation space 311, and does not separate from the accommodation space 311 to the outside.

452 Further, the through hole portion 412 of the first through hole 41 in the locking member 4 and the second through hole 314 of the bottom cap stand 31 are arranged eccentrically.

454 The user continues to move the center bottom cap 3 upward until the lower end of the center rod 2 enters the second through hole 314 of the bottom cap stand 31.

456 When the user continues to apply force to move the center bottom cap 3 upward and the engaging portion 22 at the lower end of the center rod 2 enters the upper end of the first

through hole 41 of the locking member 4, the user continues to apply force to move the center bottom cap 3 upward. A force is applied to move the locking member 4 inward against the biasing force of the spring 5.

461 As a result, the engaging portion 22 at the lower end of the center rod 2 passes through the first through hole 41 of the locking member 4 and is accommodated in the receiving hole 321 of the bottom cap lid 32.

464 Further, the locking member 4 returns to its original position due to the elastic force of the spring 5, and the engagement hole portion 411 of the first through hole 41 and the engagement groove 21 of the center rod 2 engage with each other.

467 As a result, the connection between the center rod 2 and the center bottom cap 3 is completed, and the center lock is achieved.

469 When releasing the lock, the user presses the engagement member pressing portion 44 inward to move the locking member 4 inward against the elastic force of the spring 5.

471 After the inner wall of the engagement hole 411 is disengaged from the engagement groove 21 and the center rod 2 and the through hole 412 of the first through hole 41 are aligned, pull the center bottom cap 3 to move it downward. good.

[0024]

477 Furthermore, in order to facilitate insertion of the center rod 2 into the bottom cap stand 31 and the locking member 4, as shown in FIGS. The two-hole 314 sequentially includes a first tapered part 315 whose diameter gradually decreases, a cylindrical part 316, and a second tapered part 317 whose diameter gradually increases.

481 The diameter of the cylindrical portion 316 is slightly larger than the diameter of the center rod 2.

483 Therefore, when moving the bottom cap stand 31 upward to connect it to the lower end of the center rod 2, since the opening of the first tapered part 315 at the upper end of the second through hole 314 is large, the engaging part 22 is connected to the bottom cap stand 31. Easy to insert.

487 As shown in FIG. 15, the upper end of the first through hole 41 is chamfered to form a chamfered portion 413 whose diameter gradually decreases.

489 Therefore, since the opening at the upper end of the first through hole 41 is also large and has an inclination, a guiding action that facilitates insertion of the engaging portion 22 into the locking member 4 is performed.

492 When separating the center rod 2 and center bottom cap 3, the bottom cap stand 31 is moved downward, but since the opening of the second tapered part 317 at the lower end of the second through hole 314 is large, the engaging part 22 is moved downward. It is easy to separate from the two-hole 314.

496 Preferably, the engagement groove 21 is an annular groove, and a guide portion 221 is provided at the end of the engagement portion 22.

498 The guide portion 221 has a hemispherical shape or a tapered shape whose diameter gradually decreases so that it can easily enter the first through hole 41 of the locking

member 4 and is less likely to wear out.

[0025]

504 Furthermore, as shown in FIG. 1, a plurality of material saving grooves 322 are formed in the bottom cap lid 32 in order to save raw materials and reduce costs while ensuring the strength of the center lock structure.

507 Further, the side surface of the center bottom cap 3 is formed into an arc shape so that the center bottom cap 3 can be easily grasped.

[0026]

512 As described above, the present invention effectively solves various drawbacks in the prior art and has high industrial utility value.

[0027]

517 1 Center top cap 2 Center rod 3 Center bottom cap 4 Locking member 5 Spring 6 Support leg 7 Outer telescopic unit 8 Inner telescopic unit 9 Slide sleeve 10 Fixed part 11 Screw 21 Engagement groove 22 Engagement part 31 Bottom cap stand 32 Bottom Cap lid 41 First through hole 42 Concave groove 43 Guide support part 44 Locking member pressing part 45 Elastic wire 46 Lock release pushing piece 71 First eave pipe 72 Second eave pipe 81 First sloped roof pipe 82 Second sloped roof Pipe 83 First link 84 Second link 85 Third sloped roof pipe 86 Fourth sloped roof pipe 221 Guide part 311 Accommodation space 312 Opening 313 Falling prevention part 314 Second through hole 315 First taper part 316 Cylindrical part 317 Second taper Part 318 Connection piece 321 Accommodation hole 322 Material saving groove 411 Engagement hole portion 412 Through hole portion 413 Chamfered portion 451 Elastic wire main body portion 452 Elastic deformation portion 453 Slit 454 Insertion port 461 Guide surface