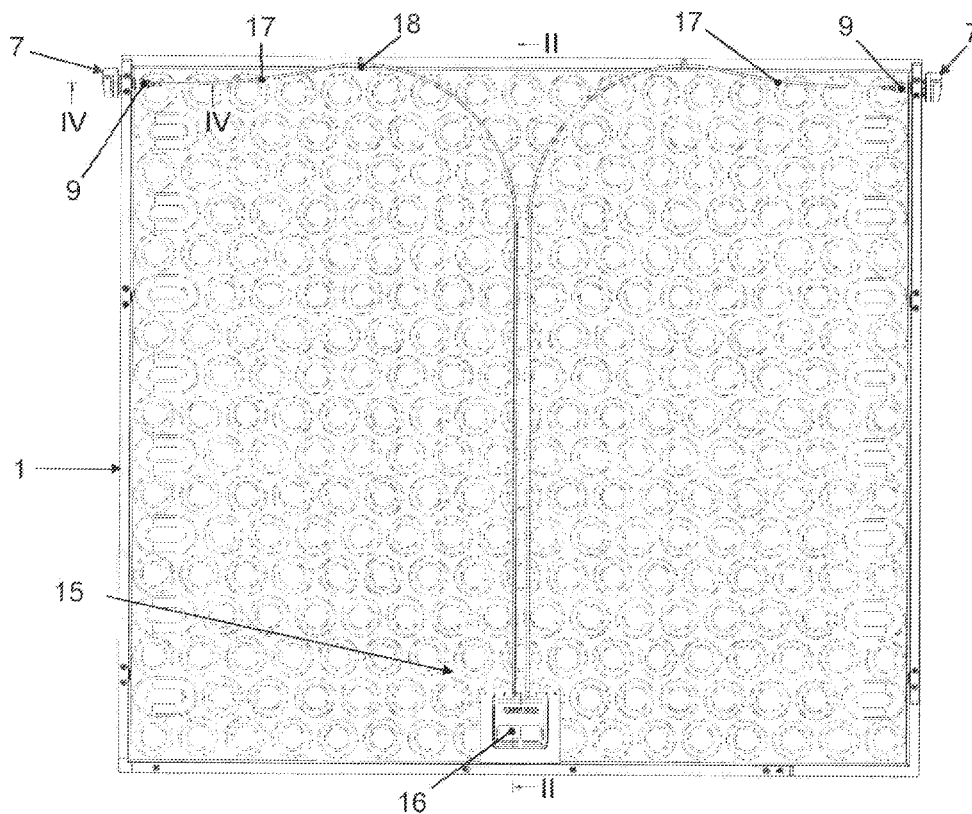




US 20170291092A1

(19) **United States**(12) **Patent Application Publication**
Kettler(10) **Pub. No.: US 2017/0291092 A1**(43) **Pub. Date: Oct. 12, 2017**(54) **TABLE TENNIS TABLE**(52) **U.S. Cl.**CPC **A63B 71/04** (2013.01)(71) Applicant: **Kettler International, Inc.**, Virginia
Beach, VA (US)(57) **ABSTRACT**(72) Inventor: **Joachim Kettler**, Ense (DE)(21) Appl. No.: **15/096,188**(22) Filed: **Apr. 11, 2016****Publication Classification**(51) **Int. Cl.****A63B 71/04** (2006.01)

A table tennis table having a locking mechanism and a release mechanism is disclosed. The locking mechanism has a release handle located on the underside of a playing surface board adjacent to a central portion of the playing end. The release handle is connected to locking pins with Bowden cables. The locking pins are biased into recesses in an under frame to lock the table tennis table in the horizontal playing position or the vertical storage position.



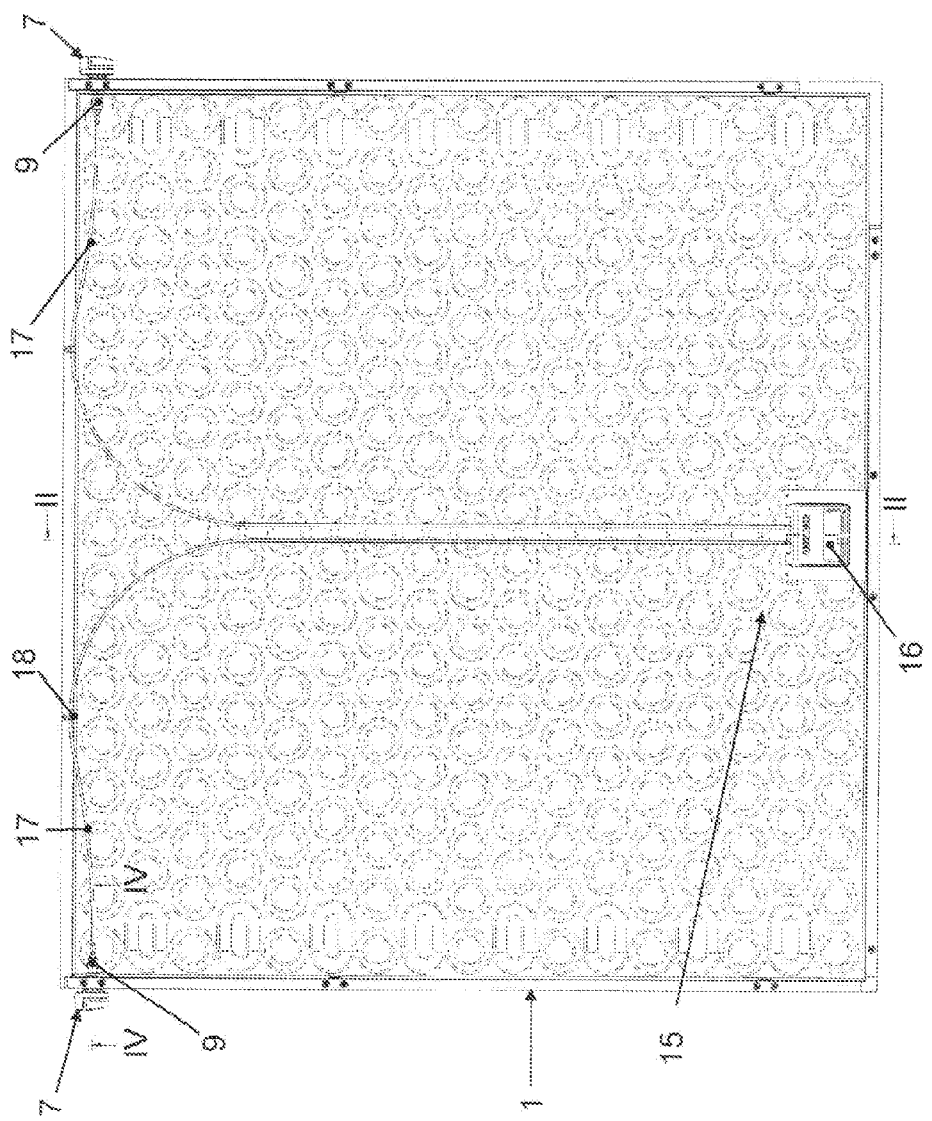


Fig. 1

Fig. 3

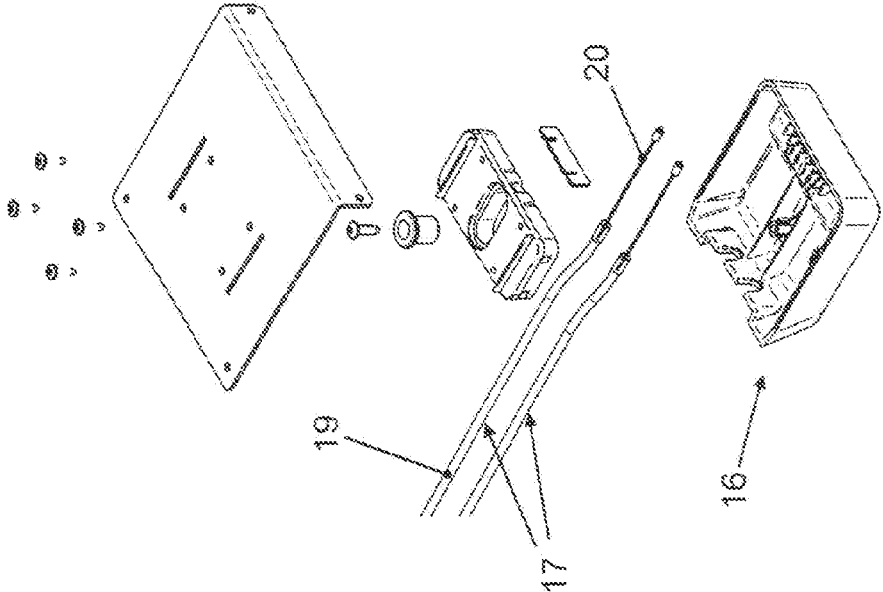
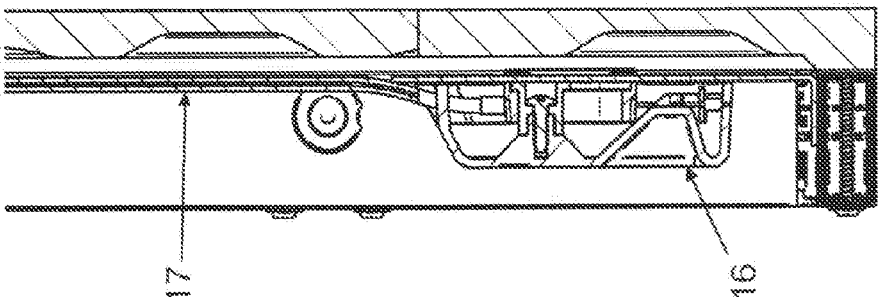
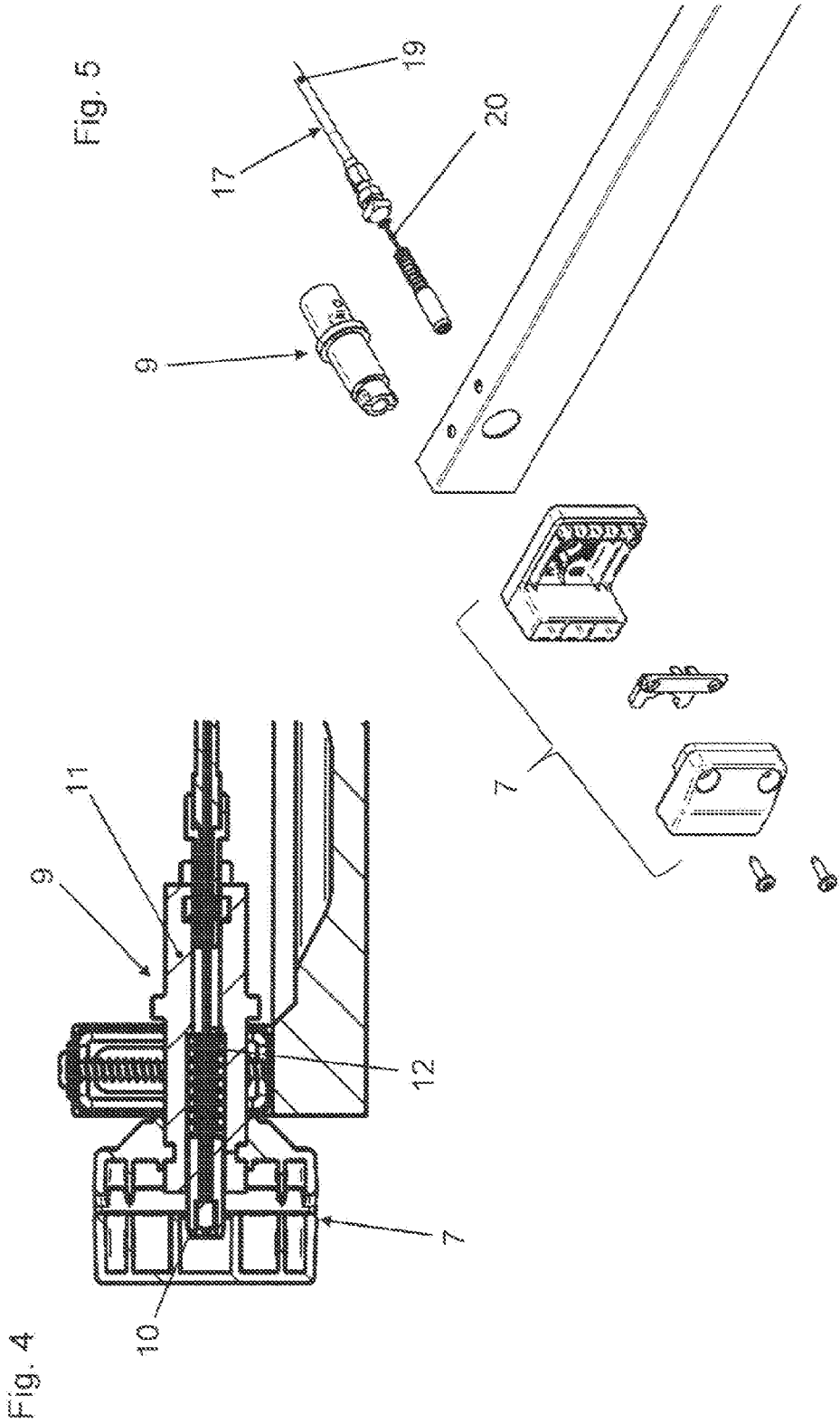
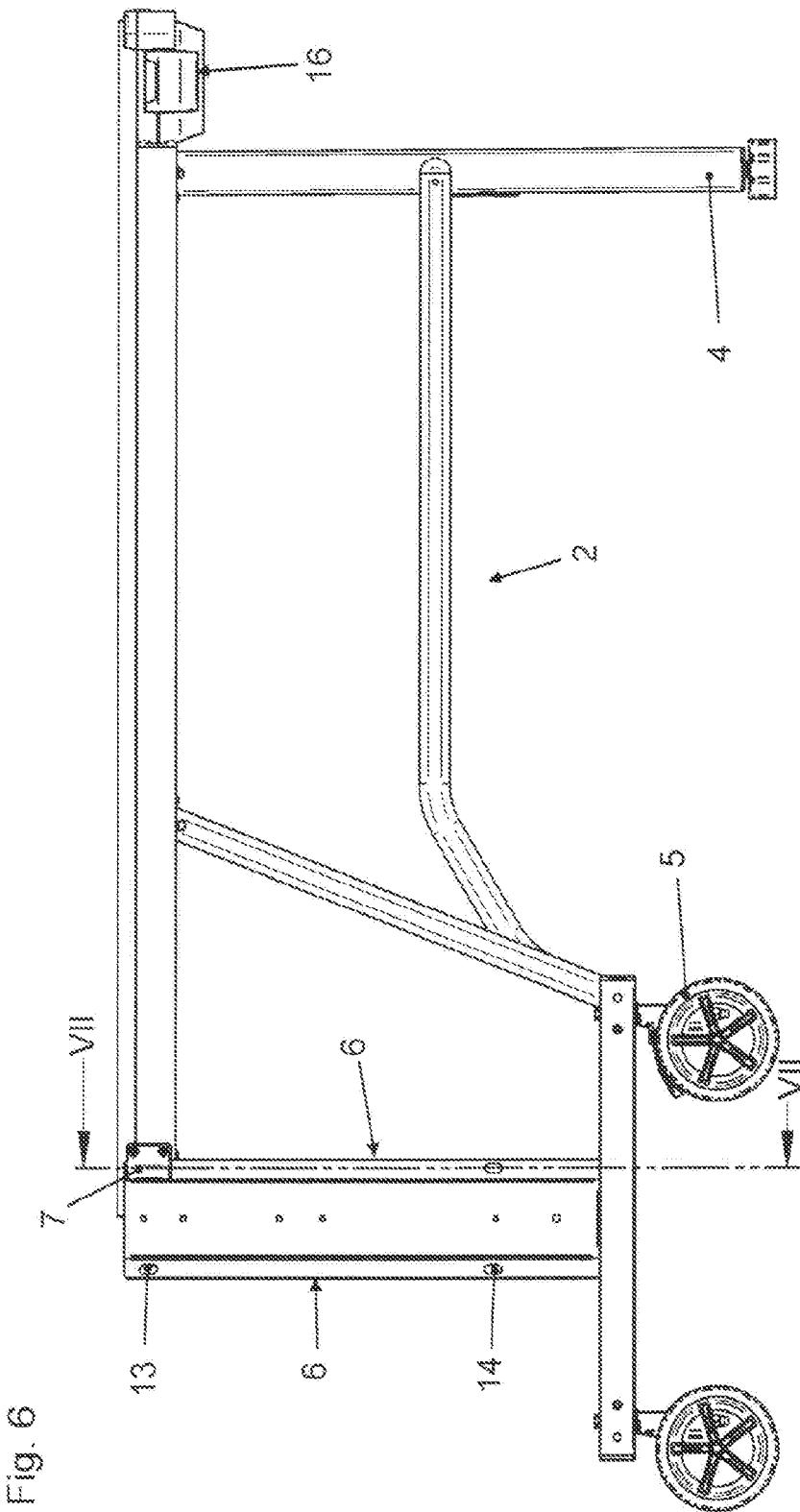
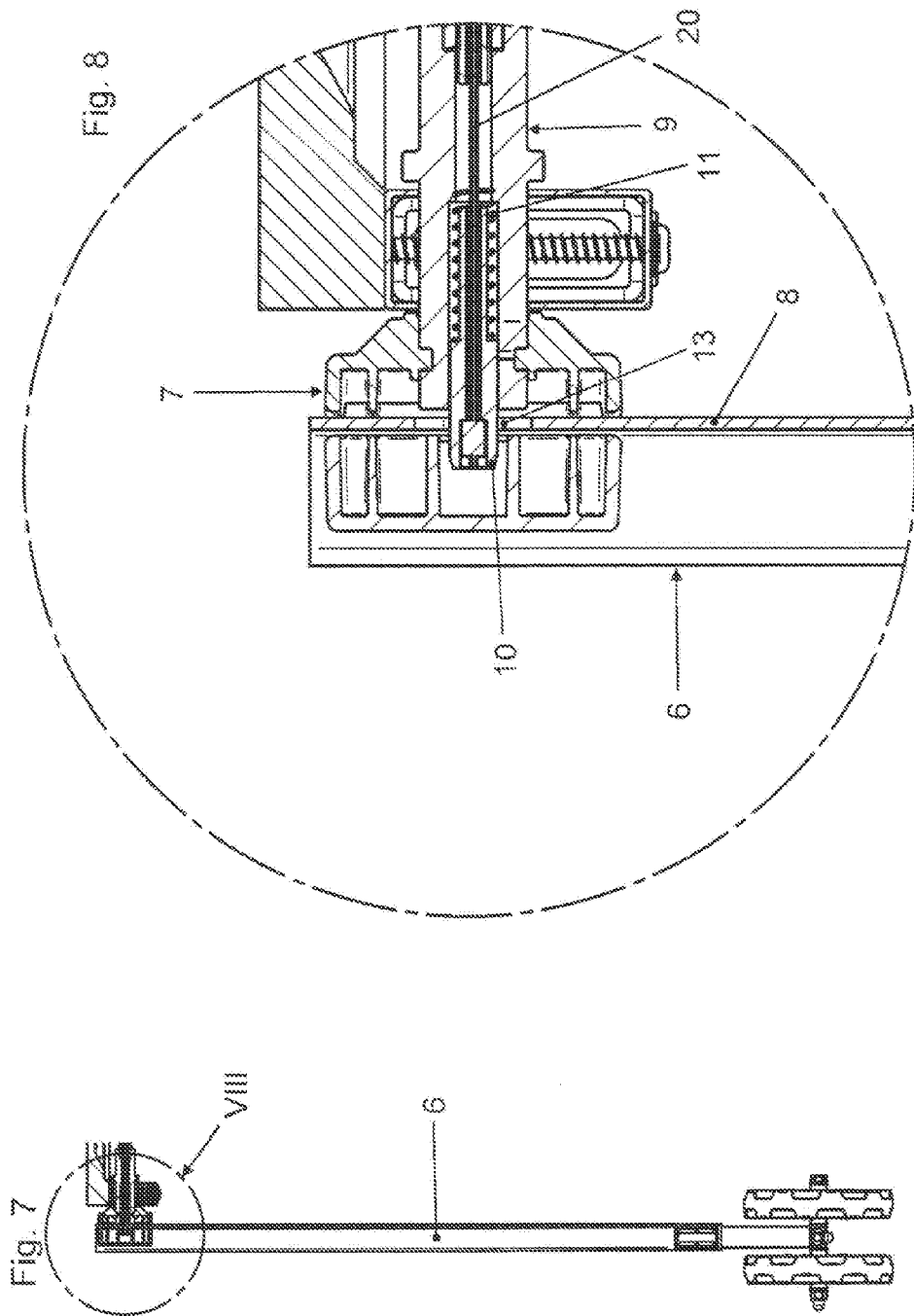


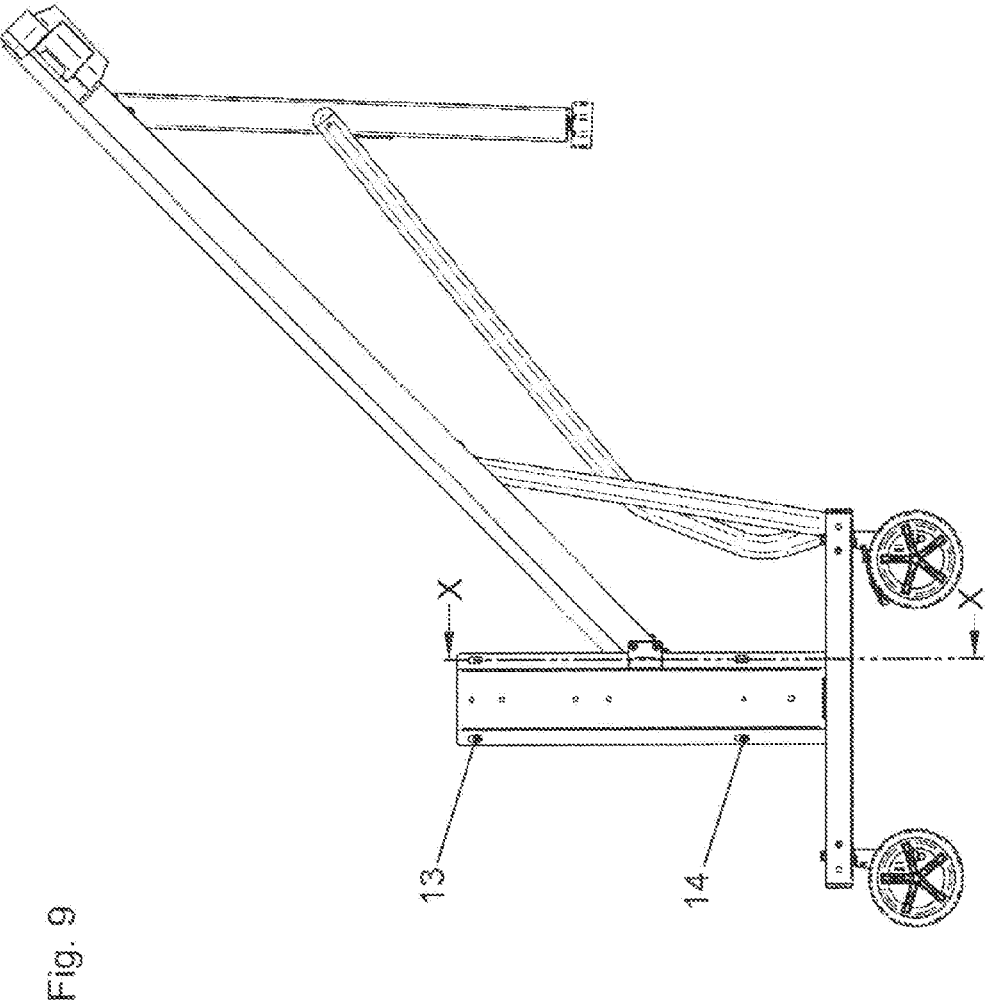
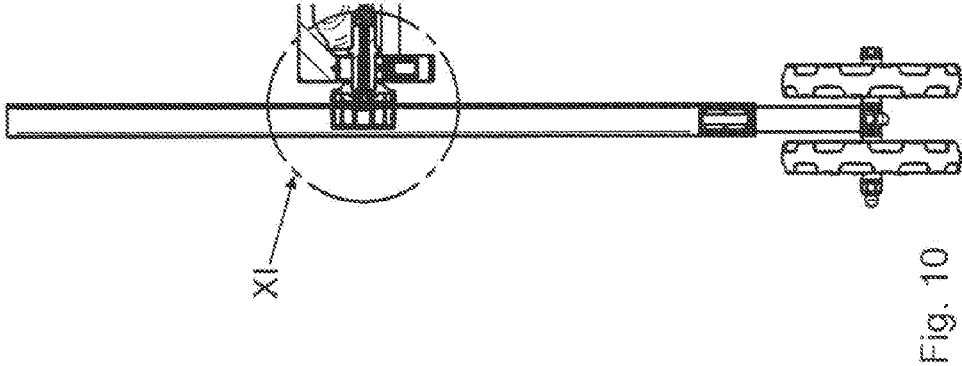
Fig. 2











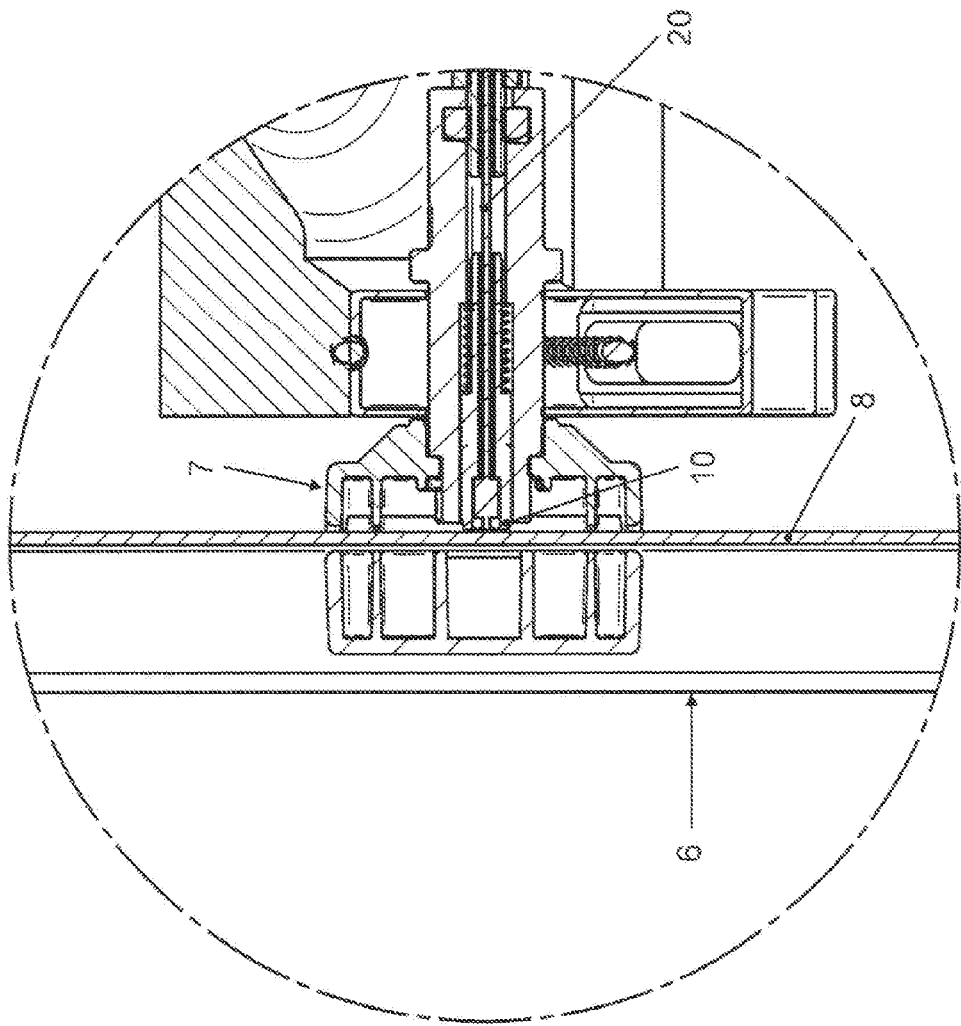
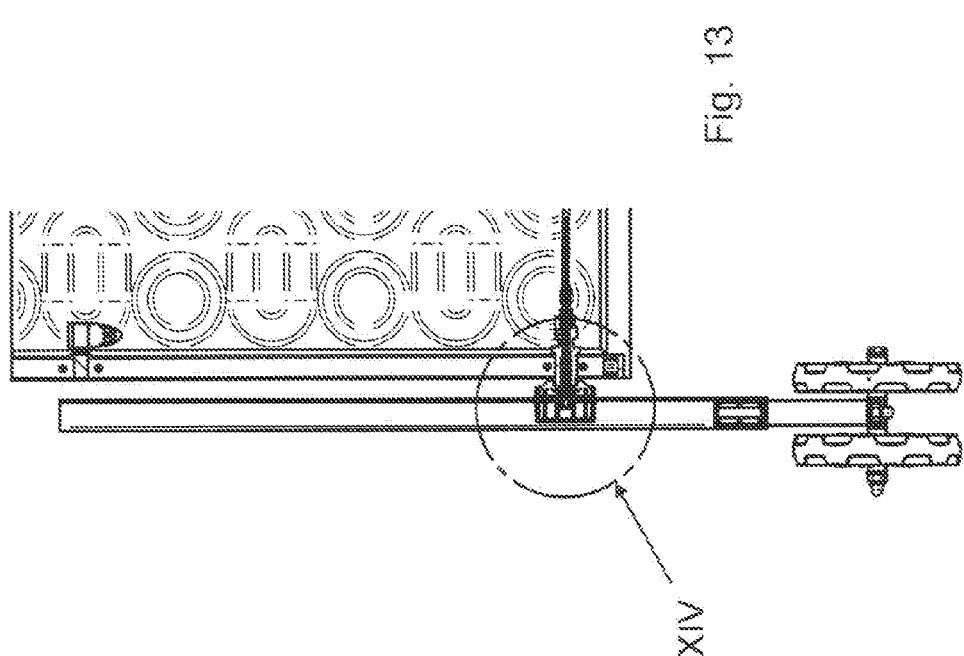
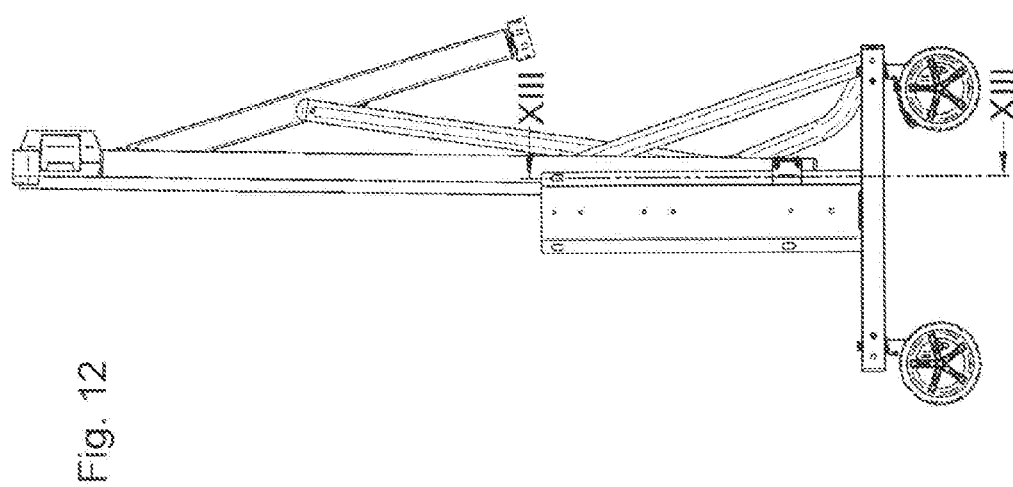


Fig. 11



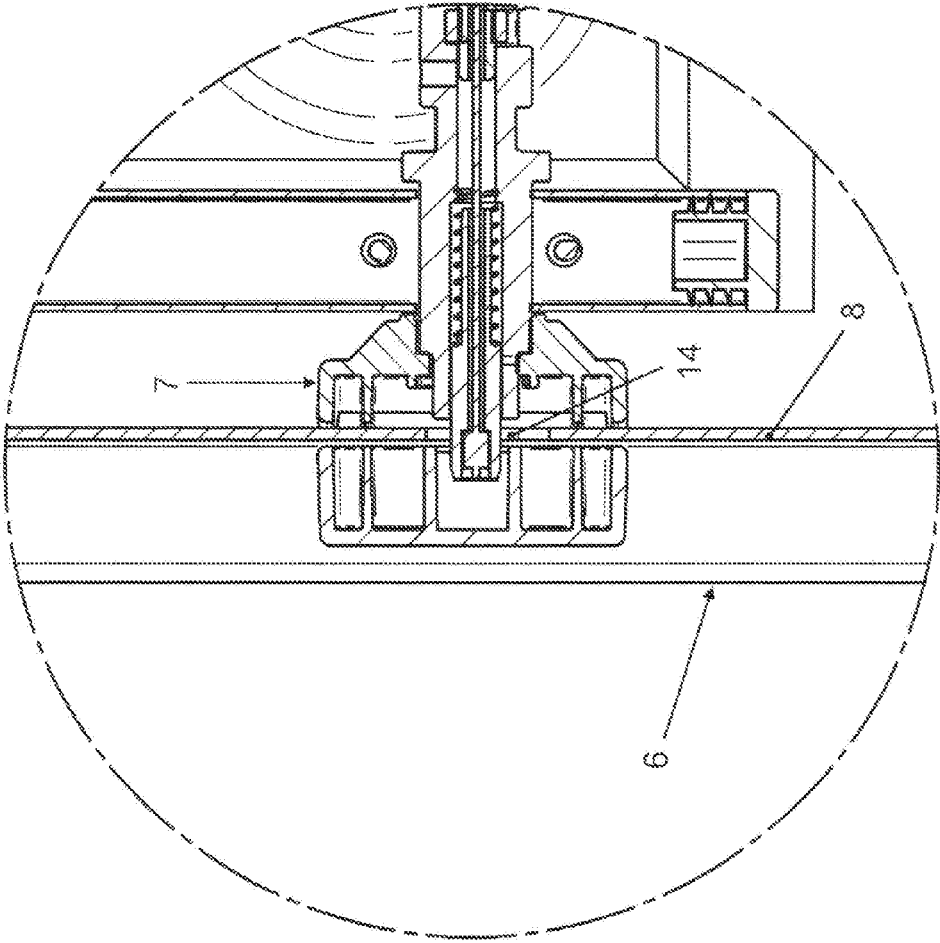


Fig. 14

TABLE TENNIS TABLE**RELATED APPLICATION**

[0001] This application claims priority under 35 U.S.C §119 to German Gebrauchsmusterschrift No. DE 20 2015 100 535 U1 filed on Feb. 4, 2015 and is incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to a table tennis table with a locking mechanism.

BACKGROUND OF THE INVENTION

[0003] A table tennis table of the aforementioned type is known from EP 1332695 B1. The table tennis described therein comprises two pivotable playing surface boards and a base for supporting the playing surface boards. The playing surface boards are conducted in the middle of the table tennis on the vertical struts vertically. At the bottom of each of the playing surface boards, a handle and an outgoing of this handle rack are provided. The rack is connected via gears with two outwardly extending rods which can set on the vertical struts the playing surface boards in a horizontal position and a vertical game stowed. By pulling the handle, the two outwardly extending rods can be moved inwards so that by the definition of the relevant playing surface board is released so that they transferred from a vertical storage position to the horizontal playing position and from the horizontal playing position to the vertical storage position.

[0004] A disadvantage here is the complicated configuration of the power transmission from the handle turns on the arranged on the vertical struts securing means. There is a need for a table tennis table of the aforementioned type having a simple means for unlocking of the securing means.

SUMMARY

[0005] Embodiments of a table tennis table comprises two playing surface boards that can be transferred from a vertical storage position into a horizontal play position and from the horizontal play position to the vertical storage position. The table tennis table comprises a locking mechanism comprising at least one Bowden cable connected on the underside of each of the playing surface boards. The locking mechanism may lock the playing surface boards in the vertical storage position. In another embodiment, the locking mechanism may lock the playing surface boards in both the vertical storage position and the horizontal play position.

[0006] The table tennis tables have a guide portion that are slidably connected to a lower frame of the table tennis table. The guide portions slide along a portion of the lower frame supporting a central portion of the table tennis table as the playing surface boards move from the horizontal play position to the vertical storage position.

[0007] In further embodiments of the table tennis table, each of the playing surface boards have an apron on an outer edge on an undersurface of the playing surface boards. Typically, the playing surface boards have a playing end apron and two side aprons. The playing end apron is on the opposite side of the playing surface board relative to the net. The side aprons are on the sides perpendicular to the playing surface end.

[0008] In embodiments of the table tennis table, the side aprons have a through hole. The guide portion is rotatably

connected within the through hole such that the guide portion may rotate relative to the side apron as the playing surface boards move from the horizontal play position to the vertical storage position. The apron may have a cylindrical sleeve extending through the through hole.

[0009] The lower frame supports at least a central portion of the playing surface boards above the floor at the horizontal position and the entire playing surface boards in the vertical storage position. In some embodiments, the lower frame comprises an L-shaped frame portion having a first aperture and a second aperture defined in the L-shaped frame portion.

[0010] The guide portion is pivotally connected to one of the side aprons by the through hole. The through hole may be defined in the apron or attached to the apron. The guide portion defines an L-shaped groove that is slidably received within the L-shaped frame portion. The guide portion further comprises the sleeve or an extension that extends through the through hole in the apron. The locking mechanism comprises a locking pin that is slidably connected in a guide hole defined by the guide portion. The locking pin is also connected to an inner wire of the Bowden cable. The inner wire may bias the locking pin out of either first aperture or the second aperture.

[0011] A Bowden cable comprises an outer sheath and an inner wire. The inner wire may be moved relative to the fixedly attached outer sheath. In embodiments of the table tennis table, the inner wire has a release end and a handle end. The release end may extend through the channel in the sleeve or extension and is connected to a locking pin. Therefore, the release wire extends through or under the apron. The outer sheath may be fixedly attached to a handle support and/or the sleeve or extension.

[0012] The locking mechanism may further comprise a biasing member that biases the wire and the locking pin into the L-shaped groove of the guide and into one of the apertures in the L-shaped frame portion when the aperture is aligned with the locking pin. With the locking pin in an aperture the playing surface boards and guide portions are locked in place relative to the lower frame and the playing surface boards may not be moved from the horizontal play position to the vertical storage position.

[0013] In still further embodiments, a release handle is slidably connected to a handle mount to allow the release handle slide relative to the playing surface boards. The handle mount may be fixedly connected to the under surface of the playing surface board adjacent to the playing end apron with the release handle slidably connected to the handle mount. The outer sheath may be fixedly connected to the handle mount and the handle end of the inner wire is connected to the release handle. The inner wire may move relative to the outer sheath by sliding the release handle. In such embodiments, the guide portion pivots about a rotational axis within the channel of the extension or sleeve with the inner wire within the channel. To keep the table tennis playing surface boards in the locked positions, the locking pin is biased within either the first aperture when the playing surface board is in the vertical storage position or biased within the second aperture with the playing surface board is in the horizontal play position.

[0014] In the described embodiments, the release handle comprises a pulling surface to apply a force with the playing surface board in the horizontal playing position. The player may reach a hand under the playing surface board to reach

the handle grasp the pulling surface to release the locking mechanism. The release handle also comprises a pushing surface to apply a force with the playing surface board in the vertical storage position. The pushing surface is required to allow the release handle to be connected adjacent to the playing end apron. This is a safety feature as small children cannot release the locking member and allow the playing surface boards to move from the vertical storage position to the horizontal playing position by a child too young to handle the weight of the playing surface board. However, an adequately sized person can push the release handle toward the playing end apron to easily and safely move the table tennis table to the playing position. The force applied to the release handle is transferred by the inner wire to move the locking pin out of the L-shaped groove and the aperture in the L-shaped member of the underframe, thus unlocking the table tennis table.

[0015] The table tennis table may comprise a second cable comprising a second inner wire connected to a second locking pin and to the release handle. The other components of the locking mechanism may be repeated on the opposite side of the table tennis table to allow more securely locking both sides of the playing surface boards.

[0016] The biasing member may be a spring and the spring is within the channel of the extension or sleeve of the guide portion. The inner wire may extend through the spring.

[0017] A Bowden cable provides a simple means for a power transmission, which is inexpensive and requires little maintenance.

[0018] It can be provided that the actuating means comprise at least one handle which can be operated by the user for unlocking the locking pins by hand from a remote location. It can be connected to both the at least one handle on one playing end and with the securing means or locking pin of at least one Bowden cable at the central support portion adjacent to the lower frame. In a specific embodiment, the at least one handle, moveably or slidably connected to the playing surface board, may be connected to two inner wires. The two wires and cables are arranged spatially separated from each other under the playing surface boards. In a particular embodiment, the release pin ends of the two cables extend to opposite sides of the playing surface board, securing means are connected. The two cables mounted on two laterally arranged securing means on the handle.

[0019] The securing means may comprise at least one locking pin that can protrude into the guide portion and into an aperture in the lower frame to lock the table tennis table in the horizontal playing position or the vertical storage position. In particular, the locking mechanism may include at least one spring, the locking pin can be moved against the biasing force.

[0020] It is possible that the at least one handle at one of the playing surface boards, in particular on the under surface of the playing surface board, preferably arranged on their side facing away from the center of the table tennis side, for example in the middle of the playing end. At this position, the handle can be easily grasped by a user who wants to move the playing surface board.

[0021] In particular, the table tennis may include two handles, one of which is arranged similarly on each one of the playing surface boards. In this way, the user can unlock the playing board, at either end, respectively.

[0022] Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

[0023] In describing the invention, it will be understood that a number of components, parts, techniques and steps are disclosed. Each of these has individual benefit and each can also be used in conjunction with one or more, or in some cases, all of the other disclosed embodiments and techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specification and claims should be read with the understanding that such combinations are entirely within the scope of the invention and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] Further features and advantages of the present invention will become apparent from the following description of preferred embodiments with reference to the accompanying drawings.

[0025] FIG. 1 is a bottom view of a playing surface board table tennis invention;

[0026] FIG. 2 shows a section according to the arrows II-II in FIG. 1;

[0027] FIG. 3 shows assembly drawing of some of the parts shown in FIG. 2;

[0028] FIG. 4 is a section according to the arrows IV-IV in FIG. 1;

[0029] FIG. 5 shows assembly drawing of some of the parts shown in FIG. 4

[0030] FIG. 6 is a side view of a vertical strut of the table tennis table shown in FIG. 1 and a playing surface board in game position;

[0031] FIG. 7 shows a section according to the arrows VII-VII in FIG. 6;

[0032] FIG. 8 is a detail according to arrow VIII in FIG. 7;

[0033] FIG. 9 is a view corresponding to FIG. 6 with the playing surface board in a position between the horizontal play position and the vertical storage position.

[0034] FIG. 10 is a section according to the arrows X-X in FIG. 9;

[0035] FIG. 11 shows a detail according to arrow XI in FIG. 10;

[0036] FIG. 12 is a view corresponding to FIG. 6 with the playing surface board in vertical storage position;

[0037] FIG. 13 shows a section according to the arrows XIII-XIII in FIG. 12, and

[0038] FIG. 14 shows a detail according to the arrow XIV in FIG. 13.

[0039] In the figures the same parts or functionally identical parts are provided with identical reference numerals.

DESCRIPTION OF EMBODIMENTS

[0040] An embodiment of the table tennis table illustrated in table tennis invention comprises two playing surface

boards 1, one playing surface board is shown in FIG. 1 (showing the underside of an embodiment of the playing surface board), FIG. 6 (showing an embodiment of a playing surface board in the horizontal playing position), FIG. 9 (showing an embodiment of a playing surface board between the horizontal playing position and the vertical storage position) and FIG. 12 (showing an embodiment of a playing surface board in the vertical storage position). A lower frame 2 is hingedly connected to playing surface board 1 and supports the playing end of the playing surface board in the horizontal playing position. This lower support 2 has in a central region to hold the playing surface boards 1 next to each other in the horizontal playing boards and in a substantially parallel position in the vertical storage position. In particular, in some embodiments, two oppositely disposed vertical struts 6, of which in the FIG. 6, FIG. 9 and FIG. 12 each one being shown. The base frame 2 also comprises feet 4 and rollers 5, which are not known from the prior art, and part of the present invention. The vertical struts may comprise an L-shaped portion.

[0041] On the vertical strut 3 are two guides 6 disposed, of which one of the playing surface boards 1 are slidably connected. The guides may be the L-shaped portion. Each of the guides 6 is formed in the embodiment shown as extending from the central portion of the struts as U-shaped guide rail with L-shaped guide portions. On the guide 6, a guide portion 7 is held, which is rotatably connected with one of the playing surface boards 1 (see FIG. 6 and FIG. 8). Here, a guide portion 7 is provided on each of the two sides of the playing surface board 1 (see FIG. 1), each of the guide members 7 cooperates with one of the vertical struts 3 by means of an L-shaped channel.

[0042] In particular, FIG. 8, FIG. 11 and FIG. 14 show that the guide portion 7 rests on both L-shaped portions of one of the U-legs 8 of the guide 6 so that the guide portion 7 can be moved in the vertical direction along the U-legs 8.

[0043] The table tennis further comprises securing means 9, which in the illustrated embodiment, a locking pin 10 and a guide sleeve 11 comprise, in the locking pin 10 can be moved against the force of a spring 12 to the right in FIG. 4 and FIG. 5. The guide sleeve 11 (see FIG. 8 1, FIG. 4 and Fig.) is attached to the underside of the playing surface board 1, that the pin 10 can protrude outward in the guide portion 7.

[0044] The U-leg 8 which is designed as U-shaped guide rail guide 6 has a respective hole 13, 14 (see FIG. 6) through which the locking pin 10 on the one hand in the play position (in an upper and a lower region, see FIG. 8) and on the other hand, in the storage position (see FIG. 14) may protrude. If the locking pin 10 in one of the holes 13, 14 engages the guide member 7 is prevented from moving in the vertical direction along the U-leg. 8 The securing means 9 thus preventing in this position of the locking pin that the playing surface board 1 is moved out of the play position or from the stowed position.

[0045] Actuating means 15 are seen from the bottom view of FIG. 1, including a release handle 16 and two attached Bowden cable 17. The release handle 16 is arranged on the side facing away from the middle of the table tennis end side of the playing surface board 1 approximately in the middle of the playing surface board 1 and adjacent to the playing end (see FIG. 1 and FIG. 6). The Bowden cables 17 extending from the release handle 16 to the middle of the table tennis to about the middle of the facing end side of the

playing surface board 1 and outwardly therefrom toward the guide portions 7. The Bowden cables 17 are attached with suitable fastening means 18, such as cable clamps on the underside of the playing surface board 1.

[0046] Each of the Bowden cables 17 comprises an outer sheath 19 and an inner wire 20. The inner wire 20 of each of the Bowden cables 17 is connected to the release handle 16 and the other end of the inner wire is connected to the locking pin 10 (see FIG. 3 and FIG. 5). In this way, the locking pins 10 of the securing means 9 can be pulled out on both sides of the playing surface board 1 from one of the holes 13, 14 by movement of to the handle 16 as shown in FIG. 1 or to the right in FIG. 6.

[0047] FIG. 9 to FIG. 11 show this release position of the release handle and locking mechanism in which the guide member can be moved 7 along the L-shaped portion of the guide 6 in the vertical direction. In this way after unlocking the locking means 9, the playing surface board 1 is transferred from the vertical storage position into the horizontal position and play of the game horizontal position to the vertical storage position.

[0048] The embodiments of the described table tennis table and method are not limited to the particular embodiments, components, method steps, and materials disclosed herein as such components, process steps, and materials may vary. Moreover, the terminology employed herein is used for the purpose of describing exemplary embodiments only and the terminology is not intended to be limiting since the scope of the various embodiments of the present invention will be limited only by the appended claims and equivalents thereof.

[0049] Therefore, while embodiments of the invention are described with reference to exemplary embodiments, those skilled in the art will understand that variations and modifications can be effected within the scope of the invention as defined in the appended claims. Accordingly, the scope of the various embodiments of the present invention should not be limited to the above discussed embodiments, and should only be defined by the following claims and all equivalents.

1. A table tennis table, comprising:

two playing surface boards that can be transferred from a vertical storage position into a horizontal play position and from the horizontal play position to the vertical storage position;

a lower frame for supporting the playing surface boards; securing means, which enable a determination of each of the playing surface boards (1) on the lower part (2) in the horizontal playing position and/or the vertical stowed position, Actuating means (15) which can be operated by the user to unlock the securing means (9), characterized in that the actuating means (15) comprise at least one Bowden cable (17).

2. The table tennis table according to claim 1, characterized in that the actuating means (15) comprise at least, one handle (16) which can be operated by the user for unlocking the locking means by hand.

3. The table tennis table according to claim 2, characterized in that the at least one Bowden cable (17) is connected to both the at least one handle (16), and with the securing means (9).

4. The table tennis table according to claim 3, characterized in that the at least one handle (16) comprises two Bowden cables (17) are connected, which are arranged with

two mutually spatially separate, in particular on opposite sides of the playing surface board (1), securing means (9) are connected.

5. The table tennis table according to claim 4, characterized in that the securing means (9) comprise at least one fastening pin (10) can project so in a portion or section of the lower part (2) such that neither a or each of the playing surface boards (1) is fixed to the lower part (2) in the horizontal playing position and/or the vertical storage position.

6. The table tennis table according to claim 5, characterized in that the securing means (9) comprise at least one spring (12), against the force of the locking pin (10) from the playing surface board (1) defining position out can be moved.

7. The table tennis table according to claim 6, characterized in that on the lower part (2) guides (6) are arranged, in which the playing surface boards (1) connected to the guide portions (7) can be moved out in vertical direction.

8. The table tennis table according to claim 1, characterized in that the guides (6) holes (13, 14) are provided through which the at least one fastening pin (10) can protrude when the game surface board (1) in the play position and/or the storage position is.

9. The table tennis table according to claim 8, characterized in that the at least one Bowden cable (17) comprises a Bowden cable (19) and a Bowden cable (20), wherein either the Bowden cable sleeve (19) with the at least one handle (16) is and the at least one fastening pin (10) or Bowden cable (20) with at least one handle (16) and the at least one fastening pin (10).

10. The table tennis table according to claim 9, characterized in that the at least one handle (16) on one of the playing surface boards (1), in particular on the underside of the playing surface board (1), preferably facing away from the the center of the table tennis side is, for example, arranged in the middle of this page.

11. The table tennis table according to claim 10, characterized in that the table tennis table comprising two handles (16) of which is arranged respectively one on one of the playing surface boards (1).

12. A table tennis table, comprising:

two playing surface boards that can be transferred from a vertical storage position into a horizontal play position and from the horizontal play position to the vertical storage position, each playing surface boards having an

apron on an outer edge of a lower surface of the playing surface boards, the playing surface boards having a playing end apron and two side aprons and at least one of the side aprons having a through hole;

a lower frame for supporting the playing surface boards, the lower frame comprising an L-shaped frame portion and a first aperture and a second aperture defined in the L-shaped frame portion;

a guide portion pivotally connected to one of the side aprons, the guide portion defines an L-shaped groove received within the L-shaped frame portion and the guide portion comprises an extension that extends through the through hole in the apron;

a cable comprising an outer sheath and an inner wire, wherein the inner wire has a release end and a handle end, wherein the release end extends through the channel in the extension and is connected to a locking pin;

a biasing member that biases the wire and the locking pin into the L-shaped groove and into one of the apertures in the L-shaped frame portion when the aperture is aligned with the locking pin;

a release handle slidably connected to handle mount, wherein the handle mount is fixedly connected to the under surface of the playing surface board adjacent to the playing end apron and the outer sheath is fixedly connected to the handle mount and the handle end of the inner wire is connected to the release handle, wherein the guide portion pivots about a rotational axis within the channel of the extension, wherein the locking pin is biased within the first aperture when the playing surface board is in the vertical storage position and biased within the second aperture with the playing surface board is in the horizontal play position.

13. The table tennis table of claim 12, wherein the release handle comprises a pulling surface to apply a force with the playing surface board in the horizontal playing position and a pushing surface to apply a force with the playing surface board in the vertical storage position, wherein the force moves the locking pin out of the L-shaped groove and the aperture in the L-shaped member.

14. The table tennis table of claims 12, comprising a second cable comprising a second inner wire connected to a second locking pin and to the release handle.

15. The table tennis table of claim 12, wherein the biasing member is a spring and the spring is within the channel.

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