Claims

1. A folding wheel, comprising:

a wheel body ~~(1)~~ comprising two wheel plates that are capable of being spliced with each other, wherein a notched area ~~(2)~~ is formed therebetween when the two spliced wheel plates are spliced with each other;

a first connecting element ~~(4)~~ disposed in the notched area ~~(2)~~;

a first slide rail mechanism, at least part of which is arranged on the first connecting element ~~(4)~~, and remaining parts of which are arranged on respective wheel plates, wherein the first slide rail mechanism comprises a first rail groove ~~(31)~~ and a first rotating shaft ~~(32)~~ embedded in the first rail groove ~~(31)~~, the two wheel plates are capable of being spliced with or separated from each other along the first rail groove ~~(31)~~ via the first rotating shaft ~~(32)~~ and ~~being~~ are capable of flipping relative to the first connecting element ~~(4)~~ via the first rotating shaft ~~(32)~~; and

a securing mechanism configurable to secure the two wheel plates in a mutually spliced state.

2. The folding wheel according to claim 1, wherein:

the two wheel plates comprise a left wheel plate ~~(11)~~ and a right wheel plate ~~(12)~~;

the first rail groove ~~(31)~~ comprises a first left rail portion ~~(311)~~ provided on the left wheel plate ~~(11)~~ and a first right rail portion ~~(312)~~ provided on the right wheel plate ~~(12)~~;

two first rotating shaft ~~(32)~~ are formed: a first left rotating shaft ~~(321)~~ and a first right rotating shaft ~~(322)~~, which are disposed at two ends of the first connecting element ~~(4)~~ on the same side, respectively; the first left rotating shaft ~~(321)~~ is embedded in the first left rail portion ~~(311)~~, such that the left wheel plate ~~(11)~~ is movable along the first left rail portion ~~(311)~~; and the first right rotating shaft ~~(322)~~ is embedded in the first right rail portion ~~(312)~~, such that the right wheel plate ~~(12)~~ is movable along the first right rail portion ~~(312)~~.

3. The folding wheel according to claim 2, wherein:

a first leading strip ~~(71)~~ is provided between the first left rotating shaft ~~(321)~~ and the first right rotating shaft ~~(322)~~; and

when the left wheel plate ~~(11)~~ and the right wheel plate ~~(12)~~ are approaching to each other along the first rail groove ~~(31)~~, the first leading strip ~~(71)~~ is plug assembledyed in the first rail groove ~~(31)~~ so as to facilitate guiding the two wheel plates to be spliced; and

when the left wheel plate ~~(11)~~ and the right wheel plate ~~(12)~~ are moving away from each other along the first rail groove ~~(31)~~, the first leading strip ~~(71)~~ is disengaged from the first rail groove ~~(31)~~ such that the wheel plates are flipped via the first rotating shaft ~~(32)~~.

4. The folding wheel according to claim 3, wherein:

a first stop structure is provided on the first rail groove ~~(31)~~, the first stop structure comprising: a first left stop block ~~(61)~~ disposed in the first left rail portion ~~(311)~~, configured to obstruct relative movement of the first left rotating shaft ~~(321)~~; and a first right stop block ~~(62)~~ disposed in the first right rail portion ~~(312)~~, configured to obstruct relative movement of the first right rotating shaft ~~(322)~~;

wherein when the two wheel plates are spliced, two ends of the first leading strip ~~(71)~~ abut against the first left stop block ~~(61)~~ and the first right stop block ~~(62)~~, respectively.

5. The folding wheel according to claim 1, wherein a notch ~~(21)~~ is formed on each of the two wheel plates, the respective notches ~~(21)~~ communicate to form the notched area ~~(2)~~ when the two wheel plates are spliced with each other, such that after the wheel plates are flipped relative to the first connecting element ~~(4)~~ via the first rotating shaft ~~(32)~~, the first connecting element ~~(4)~~ is snapped into the notches ~~(21)~~ along the first rail groove ~~(31)~~ via the first rotating shaft ~~(32)~~.;

6. The folding wheel according to claim 1, wherein the folding wheel further comprises:

a second slide rail mechanism, at least part of which is disposed on the first connecting element ~~(4)~~, and remaining parts of which are disposed on the respective wheel plates, wherein the second slide rail mechanism comprises a second rail groove ~~(33)~~ and a second rotating shaft ~~(34)~~ embedded in the second rail groove ~~(33)~~, the second rail groove ~~(33)~~ being disposed opposite the first rail groove ~~(314)~~, the second rotating shaft (34) and the first rotating shaft ~~(32)~~ being coaxially arranged.

7. The folding wheel according to any one of claims 1 to 6, wherein the securing mechanism comprises:

a plate body ~~(9)~~ including two fixed plates that are capable of being spliced with each other, wherein a second splicing semi-hole ~~(94)~~ is provided for each fixed plate at the side spliced with the other fixed plate, such that when the two fixed plates are spliced with each other, an accommodating space ~~(93)~~ is formed therebetween; and the two second splicing semi-holes ~~(94)~~ communicate with each other to form the second splicing hole ~~(95)~~;

a second connecting element ~~(8)~~ disposed in the accommodating space ~~(93)~~; and

a third slide rail mechanism, wherein the third slide rail mechanism is at least partially disposed on the second connecting element ~~(8)~~, while remaining parts thereof are disposed on respective fixed plates; the third slide rail mechanism comprises a third rail groove ~~(35)~~ and a third rotating shaft ~~(36)~~ embedded in the third rail groove ~~(35)~~.

8. The folding wheel according to claim 7, further comprising:

a pivoting axis, which passes through respective central portion of the first connecting element ~~(4)~~ and the second connecting element ~~(8)~~, such that the first connecting element ~~(4)~~ is rotatable relative to the second connecting element ~~(8)~~ along the pivoting axis; wherein

when the plate body ~~(9)~~ rotates with the second connecting element ~~(8)~~ till a first preset position, the two fixed plates are capable of being spliced with or separated from each other along the third rail groove ~~(35)~~ via the third rotating shaft ~~(36)~~, and the two fixed plates are capable of flipping relative to the second connection element ~~(8)~~ via the third rotating shaft ~~(36)~~.

9. The folding wheel according to claim 7, wherein:

the first rotating shaft ~~(32)~~ is slidably provided on the first connecting element ~~(4)~~, wherein rotating of the fixed plates towards the first rotating shaft ~~(32)~~ along the third rotating shaft ~~(36)~~ pushes the first rotating shaft ~~(32)~~ to slide on the first connecting element ~~(4)~~; and

the third rotating shaft ~~(36)~~ is slidably provided on the second connecting element ~~(8)~~, wherein rotating of the wheel plates towards the third rotating shaft ~~(36)~~ along the first rotating shaft ~~(32)~~ pushes the third rotating shaft ~~(36)~~ to slide on the second connecting element ~~(8)~~.

10. The folding wheel according to claim 7, wherein:

the securing mechanism further includes a plug assembly ~~(10)~~, and a first fixing hole ~~(13)~~ is further provided on the wheel body ~~(1)~~;

wherein when the plate body ~~(9)~~ rotates with the second connecting element ~~(8)~~ till a second preset position, the first fixing hole ~~(13)~~ is coincident with the second splicing hole ~~(95)~~ such that the plug assembly ~~(10)~~ passes through the fixing hole ~~(13)~~ and the second splicing~~it~~ hole ~~(95)~~ to secure both the wheel body ~~(1)~~ and the plate body ~~(9)~~ to a spliced state.

11. The folding wheel according to claim 10, wherein:

a first splicing semi-hole ~~(14)~~ is provided on each of the wheel plates at the sides spliced with the other wheel plate, such that when the two wheel plates are spliced with each other, the

two first splicing semi-holes ~~(14)~~ communicate with each other to form a first splicing hole ~~(15)~~; and

a second fixing hole ~~(96)~~ is provided on the plate body ~~(9)~~, wherein when the plate body ~~(9)~~ rotates with the second connecting element ~~(8)~~ till the second preset position, the plug assembly ~~(10)~~ passes through the first splicing hole ~~(15)~~ and the second fixing hole ~~(96)~~ to fix the plate body ~~(9)~~ to the wheel plates.

12. The folding wheel according to claim 11, wherein:

two first splicing holes ~~(15)~~ and two first fixing holes ~~(13)~~ are provided, respectively, wherein a link line between the two first splicing holes ~~(15)~~ and a link line between the two first fixing holes ~~(13)~~ assume a preset angle with respect to each other;

two second splicing holes ~~(95)~~ and two second fixing holes ~~(96)~~ are provided, respectively, wherein a link line between the two second splicing holes ~~(95)~~ and a link line between the two second fixing holes ~~(96)~~ assume a preset angle with respect to each other; and

the plate body ~~(9)~~ at the first preset position rotates with the second connecting element ~~(8)~~ by a preset angle till reaching the second preset position.

13. The folding wheel according to claim 10, wherein:

the plug assembly ~~(10)~~ comprises: a turn-button fastener ~~(101)~~, a connecting plug ~~(102)~~, a spring ~~(103)~~, a connecting element ~~(104)~~, a first turn-button casing ~~(105)~~, and a second turn-button casing ~~(106)~~;

wherein the connecting plug ~~(102)~~ is secured to the turn-button fastener ~~(101)~~ via the connecting element ~~(104)~~, and the spring ~~(103)~~ is disposed between the connecting plug ~~(102)~~ and the turn-button fastener ~~(101)~~;

the first turn-button casing ~~(105)~~ is secured to the first fixing hole ~~(13)~~, the second turn-button casing ~~(106)~~ is secured on the second splicing hole ~~(95)~~;

a hole with a shape matched with the connecting plug ~~(102)~~ is provided in each of the first turn-button casing ~~(105)~~ and the second turn-button casing ~~(106)~~;

the connecting plug ~~(102)~~ passes sequentially through the holes in the first turn-button casing ~~(105)~~ and the second turn-button casing ~~(106)~~ till being disposed at the side of the second turn-button casing ~~(106)~~ opposite the first turn-button casing ~~(105)~~;

the turn-button fastener ~~(101)~~ is disposed at the side of the first turn-button casing ~~(105)~~ opposite the second turn-button casing ~~(106)~~; and

the spring ~~(103)~~ abuts against the first turn-button casing ~~(105)~~.

14. A portable appliance, comprising the folding wheel according to any one of claims 1 to 13.

15. The portable appliance according to claim 14, wherein the portable appliance refers to a bicycle, the folding wheel refers to the folding wheel according to any one of claims 7 to 12, and a wheel axle of the bicycle is connected with the pivoting axis of the folding wheel.