Claims

1. A foldable locking mechanism (200, 300) comprising:

a first mounting seat (1);

a second mounting seat (2) pivotally connected to the first mounting seat (1);

a third mounting seat (4) pivotally connected to the second mounting seat (2);

a first locking component (3) at least partially and movably disposed between the second mounting seat (2) and the third mounting seat (4), the first locking component (3) being movable between a first releasing position and a first locking position, a relative pivotal movement of the second mounting seat (2) and the third mounting seat (4) being allowed when the first locking component (3) is located at the first releasing position, the relative pivotal movement of the second mounting seat (2) and the third mounting seat (4) being restrained when the first locking component (3) is located at the first locking position;

a driving component (1a, 2a) disposed on the first mounting seat (1) and abutting against the first locking component (3), the driving component (1a, 2a) being configured to drive the first locking component (3) to move from the first locking position to the first releasing position for allowing a folding operation of the foldable locking mechanism (200, 300); and

a fourth mounting seat (6) pivotally connected to the third mounting seat (4); and

a second locking component (5) at least partially and movably disposed between third mounting seat (4) and the fourth mounting seat (6), the second locking component (5) being movable between a second releasing position and a second locking position, a relative pivotal movement of the third mounting seat (4) and the fourth mounting seat (6) being allowed when the second locking component (5) is located at the second releasing position, the relative pivotal movement of the third mounting seat (4) and the fourth mounting seat (6) being restrained when the second locking component (5) is located at the second locking position.

2. The foldable locking mechanism (200, 300) of claim 1, wherein

the second locking component (5) abuts against the first locking component (3), and the first locking component (3) drives the second locking component (5) to move from the second locking position to the second releasing

position when the first locking component (3) moves from the first locking position to the first releasing position.

3. The foldable locking mechanism (200, 300) of claim 2, further comprising:
a fifth mounting seat (8) pivotally connected to the fourth mounting seat (6); and
a third locking component (7) at least partially and movably disposed between the fourth mounting seat (6) and the fifth mounting seat (8), the third locking component (7) being movable between a third releasing position and a third locking position, a relative pivotal movement of the fourth mounting seat (6) and the fifth mounting seat (8) being allowed when the third locking component (7) is located at the third releasing position, the relative pivotal movement of the fourth mounting seat (6) and the fifth mounting seat (8) being restrained when the third locking component (7) is located at the third locking position, the third locking component (7) abutting against the second locking component (5), and the second locking component (5) driving the third locking component (7) to move from the third locking position to the third releasing position when the second locking component (5) moves from the second locking position to the second releasing position.

4. The foldable locking mechanism (200) of claim 1, wherein the driving component (1a) comprises a pushing portion disposed on the first mounting seat (1), the first locking component comprises a pushed portion (31) extending toward the pushing portion, and the pushing portion pushes the pushed portion (31) to drive the first locking component (3) to move from the first locking position to the first releasing position when the first mounting seat (1) and the second mounting seat (2) are pivotally folded relative to each other.

5. The foldable locking mechanism (200) of claim 4, wherein the pushing portion is a pushing inclined surface disposed on the first mounting seat (1), and the pushed portion (31) is a protrusion cooperating with the pushing inclined surface.

6. The foldable locking mechanism (200) of claim 5, wherein the pushing inclined surface is helical.

7. The foldable locking mechanism (200) of claim 4, wherein a through hole (21) is formed on the second mounting seat (2) and located a position corresponding to the pushed portion (31), and the pushed portion (31) slidably passes through the through hole (21).

8. The foldable locking mechanism (200, 300) of claim 1 or 2, wherein the first locking component (3) is movable along an axial direction of a pivoting axis of the second mounting seat (2) and the third mounting seat (4).

9. The foldable locking mechanism (200, 300) of claim 1, wherein the first locking component (3) comprises a first engaging tooth (32), the second mounting seat (2) comprises a first left engaged tooth (22) cooperating with the first engaging tooth (32), the third mounting seat (4) comprises a first right engaged tooth (41) cooperating with the first engaging tooth (32), the first engaging tooth (32) engages with the first left engaged tooth (22) and the first right engaged tooth (41) when the first locking component (3) is located at the first locking position, and the first engaging tooth (32) disengages from the first left engaged tooth (22) when the first locking component (3) is located at the first releasing position.

10. The foldable locking mechanism (200, 300) of claim 1 or 2, further comprising a first resilient component (9) for driving the first locking component (3) to move toward the first locking position.

11. The foldable locking mechanism (200, 300) of claim 1 or 2, wherein the first locking component (3) comprises a first abutting portion (33) extending toward the second locking component (5), and the first abutting portion (33) passes through the third mounting seat (4) to abut against the second locking component (5).

12. The foldable locking mechanism (200, 300) of claim 11, wherein a penetrating hole (42) is formed on the third mounting seat (4) and located at a position corresponding to the first abutting portion (33).

13. The foldable locking mechanism (200, 300) of claim 1 or 2, wherein the second

locking component (5) is movable along an axial direction of a pivoting axis of the third mounting seat (4) and the fourth mounting seat (6).

14. The foldable locking mechanism (200, 300) of claim 2, wherein the second locking component (5) comprises a second engaging tooth (51), the third mounting seat (4) comprises a second left engaged tooth (43) cooperating with the second engaging tooth (51), the fourth mounting seat (6) comprises a second right engaged tooth (61) cooperating with the second engaging tooth (51), the second engaging tooth (51) engages with the second left engaged tooth (43) and the second right engaged tooth (61) when the second locking component (5) is located at the second locking position, and the second engaging tooth (51) disengages from the second left engaged tooth (43) when the second locking component (5) is located at the second releasing position.

15. The foldable locking mechanism (200, 300) of claim 1 or 2, further comprising a second resilient component (10) for driving the second locking component (5) to move toward the second locking position.

16. The foldable locking mechanism (200, 300) of claim 3, wherein the second locking component (5) comprises a second abutting portion (52) extending toward the third locking component (7), and the second abutting portion (52) passes through the fourth mounting seat (6) to abut against the third locking component (7).

17. The foldable locking mechanism (200, 300) of claim 16, wherein a penetrating hole (62) is formed on the fourth mounting seat (6) and located at a position corresponding to the second abutting portion (52).

18. The foldable locking mechanism (200, 300) of claim 3, wherein the third locking component (7) is movable along an axial direction of a pivoting axis of the fourth mounting seat (6) and the fifth mounting seat (8).

19. The foldable locking mechanism (200, 300) of claim 3, wherein the third locking component (7) comprises a third engaging tooth (71), the fourth mounting seat

(6) comprises a third engaging tooth (63) cooperating with the third engaging tooth (71), the fifth mounting seat (8) comprises a third right engaged tooth (81) cooperating with the third engaging tooth (71), the third engaging tooth (71) engages with the third engaging tooth (63) and the third right engaged tooth (81) when the third locking component (7) is located at the third locking position, and the third engaging tooth (71) disengages from the third engaging tooth (63) when the third locking component (7) is located at the third releasing position.

20. The foldable locking mechanism (200, 300) of claim 3, further comprising a third resilient component (11) for driving the third locking component (7) to move toward the third locking position.

21. The foldable locking mechanism (200, 300) of claim 1, further comprising a limiting assembly (18) for limiting a relative pivotal angle of the first mounting seat (1) and the second mounting seat (2).

22. The foldable locking mechanism (200, 300) of claim 21, wherein the limiting assembly (18) comprises a limiting component (181) installed on the second mounting seat (2) and protruding toward the first mounting seat (1), a limiting slot (1b) is formed on the first mounting seat (1) and located at a position corresponding to the limiting component (181), and the limiting component (181) slidably stretches into the limiting slot (1b).

23. The foldable locking mechanism (200, 300) of claim 22, wherein the limiting assembly (18) further comprises a fourth resilient component (182), the limiting component (181) is installed on the second mounting seat (2) by the fourth resilient component (182), and the fourth resilient component (182) is for driving the limiting component (181) to resiliently abut against the limiting slot (1b).

24. The foldable locking mechanism (200, 300) of claim 22, wherein the limiting component (181) is a circular column.

25. The foldable locking mechanism (200, 300) of claim 22, wherein a passing hole (23) is formed on the second mounting seat (2) and located at a position

corresponding to the limiting component (181), and the limiting component (181) slidably passes through the passing hole (23).

26. The foldable locking mechanism (300) of claim 1, wherein the driving component (2a) comprises:
a pushing component (19) pivotally connected to the first mounting seat (1); and
a driven component (20) movably disposed between the pushing component (19) and the first locking component (3) and movable between an extending position and a retracting position, and the pushing component (19) pivoting to drive the driven component (20) to move from the retracting position to the extending position to push the first locking component (3) from the first locking position to the first releasing position for allowing the folding operation of the foldable locking mechanism (300).

27. The foldable locking mechanism (300) of claim 26, wherein the driving component (2a) further comprises a linking component (201) connected to the pushing component (19) and for driving the pushing component (19) to pivot.

28. The foldable locking mechanism (300) of claim 26, wherein the pushing component (19) comprises an adjoining portion (191) extending toward the driven component (20), the driven component (20) comprises an adjoined portion (20a), and the adjoining portion (191) is configured to push the adjoined portion (20a) to drive the driven component (20) to move from the retracting position to the extending position.

29. The foldable locking mechanism (300) of claim 28, wherein the adjoining portion (191) is an adjoining protrusion, the adjoined portion (20a) is an adjoined protrusion, the adjoining protrusion and the adjoined protrusion are misaligned from each other when the driven component (20) is located at the retracting position, and the adjoining protrusion and the adjoined protrusion are aligned with and abutted against each other when the driven component (20) is located at the extending position.

30. The foldable locking mechanism (300) of claim 26, wherein the driven component

(20) comprises a pushing abutting portion (20b), the first locking component (3) comprises a pushed portion (31) extending toward the pushing abutting portion (20b), and the pushing abutting portion (20b) pushes the pushed portion (31) to drive the first locking component (3) to move from the first locking position to the first releasing position when the driven component (20) moves from the retracting position to the extending position.

31. The foldable locking mechanism (300) of claim 26, wherein the driven component (20) is movable along an axial direction of a pivoting axis of the first mounting seat (1) and the second mounting seat (2).