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(71) Applicant: **Zhize Plastic (Jinhua) Co., Ltd.**
Jinhua City, Zhejiang 322000 (CN)

(72) Inventor: **WANG, Jianhui**
Yiwu City, 322000 (CN)

(74) Representative: **Metida**
Gyneju str. 16
01109 Vilnius (LT)

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(54) **SIDE RELEASE BUCKLE**

(57) A side release buckle includes a female buckle and a male buckle that can be attached and fastened to each other. Two sides of the female buckle are provided with buttons, the female buckle includes a housing, a mounting seat, a locking block, a reset member, and an upper cover, and sides of the buttons closer to the locking block are provided with guiding blocks.

When the buttons at the two sides are pressed, the guiding blocks move inward and lift the locking block to move upward, such that the male buckle is unlocked. The side release buckle is simple in structure to facilitate production by manufacturers, is convenient to mount or disassemble, and is conveniently used by users.

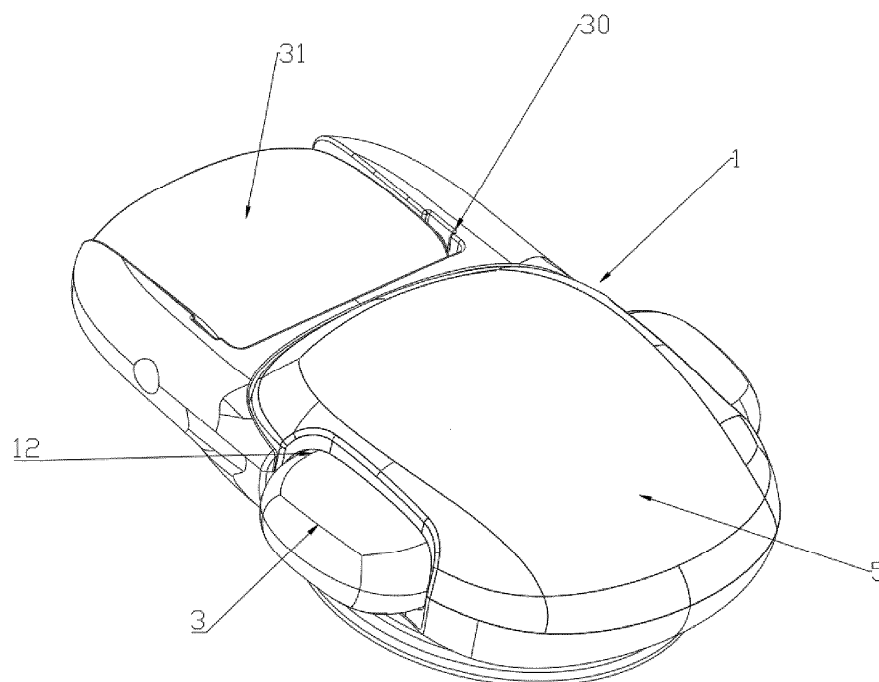


FIG. 1

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the technical field of connecting buckle members, and particularly relates to a side release buckle.

BACKGROUND

[0002] Some parts of backpacks, straps, child safety seats and baby carriers with hip seats generally need to be connected or maintained in a certain state through fasteners, and their buckles generally need to be quickly and conveniently untied. For instance, baby carriers with hip seats or straps often need to be tied and untied during use, which can be implemented through its buckle. Common buckles usually include male buckles and female buckles, and their connection is achieved through fastening of the male buckles and the female buckles.

[0003] Most of the existing side release buckles are unlocked by buttons. However, the buttons may touch a corner of a table, a wall, etc. during use, or a hand may accidentally touch the buttons. Unlocking the buttons by mistake causes poor user experience. Especially, if they are used for straps of baby carriers with hip seats, babies' safety cannot be fully guaranteed.

SUMMARY

[0004] In order to overcome the defects in the prior art, the present disclosure provides a magnetic buckle member, which is simple in structure, strong in adsorption force, and unlimited in buckling angle. To solve the above technical problems, the present disclosure provides the technical solution as follows:

A side release buckle includes a female buckle and a male buckle that are capable of being fastened to each other. Two sides of the female buckle are provided with buttons. The female buckle includes a housing, a mounting seat fixedly arranged in the housing, a locking block movably arranged on the mounting seat, a reset member configured to support the buttons at the two sides, and an upper cover buckled on the housing.

[0005] Sides of the buttons closer to the locking block are provided with guiding blocks. The guiding blocks are in contact with the locking block. The guiding blocks move synchronously with the buttons. The locking block is driven by the guiding blocks to move to implement unlocking.

[0006] A limiting part is arranged between the locking block and the housing. A rebound member is arranged between the locking block and the upper cover.

[0007] Further, the limiting part includes a plurality of limiting columns protruding from the housing or the mounting seat, and limiting holes formed on the locking block to match the limiting columns.

[0008] The limiting columns penetrate the limiting holes. The limiting columns protrude above the locking block.

[0009] Further, the rebound member includes a spring post on the locking block and a return spring sleeved onto the spring post. The locking block is reset after movement by the return spring.

[0010] Further, the guiding blocks are provided with inclined guiding surfaces. Two ends of the locking block are in contact with the guiding surfaces. The guiding blocks are provided with first positioning recesses. The housing is internally provided with first positioning blocks. The locking block is provided with a guiding recess. When the guiding blocks move, the first positioning recesses move transversely on the first positioning blocks, and the guiding recess moves longitudinally on the first positioning blocks.

[0011] Further, the reset member includes an elastic reset member. Centers of upper and lower ends of the housing are provided with second positioning blocks. The reset member is provided with second positioning recesses. The second positioning blocks are snapped into the second positioning recesses.

[0012] Further, two sides of the housing are provided with button chambers. The buttons are movably assembled in the button chambers. Outer end portions of the buttons are exposed outside the button chambers. Two sides of the buttons are provided with protruding stop blocks. The stop blocks abut against an inner wall of the housing.

[0013] Further, one end of the housing is provided with a webbing mounting portion. The webbing mounting portion is provided with a cover plate that is openable and closable.

[0014] Further, a lower surface of the housing is provided with a sliding recess in communication with the mounting seat. The female buckle is slidably mounted on the male buckle.

[0015] Further, the male buckle includes a body, a base at a center of the body, a connecting column extending upward from a center of the base, and a fixing block at a center of the connecting column. An inner wall of the sliding recess is provided with a limiting step. The connecting column is provided with an annular recess configured to match the limiting step. The limiting step moves along the annular recess during assembly.

[0016] Further, the locking block is provided with a fixing hole configured to match the fixing block. The fixing block slides to a position below the fixing hole and is snapped into the fixing hole to achieve fixation.

[0017] Compared with the prior art, the present disclosure has the beneficial effects:

The female buckle of the present disclosure includes the housing, the locking block mounted in the housing and capable of moving vertically, the reset member configured to support the buttons at the two sides, and the upper cover buckled on the housing and used for sealing. When the male buckle and the female buckle

are fastened to each other, the male buckle is snapped into the female buckle and fastened to the locking block so as to implement fixation. The sides of the buttons closer to the locking block are provided with the guiding blocks. The guiding blocks are in contact with the locking block. The guiding blocks move synchronously with the buttons. When the buttons at the two sides are pressed, the guiding blocks move inward and lift the locking block to move upward, such that the male buckle is unlocked. The side release buckle is simple in structure to facilitate production by manufacturers, is convenient to mount or disassemble, and is conveniently used by users.

[0018] In daily use, touching the button at one side by mistake may cause falling of the male buckle and the female buckle. With the structure, when the button on any side is pressed, only one side of the locking block may be lifted, and the male buckle and the female buckle cannot be unlocked. Thus, falling due to touching by mistake by a user can be avoided in daily use, and product use stability and better user experience can be ensured. The side release buckle is used for baby slings, which can greatly ensure babies' safety.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

FIG. 1 is a first perspective view of the present disclosure.

FIG. 2 is a cutaway view of the present disclosure.

FIG. 3 is an exploded view of the present disclosure.

FIG. 4 is a second perspective view of the present disclosure.

[0020] Reference numerals: 1. housing; 2. locking block; 3. button; 4. reset member; 5. upper cover; 6. mounting seat; 7. guiding block; 8. limiting part; 9. limiting column; 10. limiting hole; 11. rebound member; 12. button chamber; 13. guiding surface; 14. second positioning block; 15. second positioning recess; 16. stop block; 17. sliding recess; 18. body; 19. base; 20. connecting column; 21. fixing block; 22. limiting step; 23. annular recess; 24. fixing hole; 25. spring post; 26. spring hole; 27. first positioning block; 28. first positioning recess; 29. guiding recess; 30. webbing mounting portion; and 31, cover plate.

DETAILED DESCRIPTION OF EMBODIMENTS

[0021] Technical solutions in examples of the present disclosure will be clearly and completely described below with reference to the accompanying drawings in the examples of the present disclosure. Obviously, the examples described are merely some examples rather than all examples of the present disclosure. Based on the examples of the present disclosure, all the other

examples obtained by those of ordinary skill in the art without any creative effort fall within the protection scope of the present disclosure.

[0022] As shown in FIG. 1 to FIG. 4, a side release buckle includes a female buckle and a male buckle that are capable of being fastened to each other. The male buckle is used for being mounted on a backpack, a baby sling and a child seat. The female buckle is buckled vertically in a sliding manner. Two sides of the female buckle are provided with buttons 3. The female buckle includes a housing 1, a mounting seat 6 fixedly arranged in the housing 1, a locking block 2 mounted on a mounting seat 10 and capable of moving vertically, a reset member 4 configured to support the buttons 3 at the two sides, and an upper cover 5 buckled on the housing 1 for sealing. When the male buckle and the female buckle are fastened to each other, the male buckle is snapped into the female buckle and fastened to the locking block 2 so as to implement fixation.

[0023] Sides of the buttons 3 closer to the locking block 2 are provided with guiding blocks 7. The guiding blocks 7 are in contact with the locking block 2. The guiding blocks 7 move synchronously with the buttons 3. When the buttons 3 at the two sides are pressed, the guiding blocks 7 move inward and drive the locking block 2 to move upward, such that the male buckle is unlocked. The hook buckle is simple in structure to facilitate production by manufacturers, is convenient to mount or disassemble, and is conveniently used by users. In daily use, touching the button 3 at one side by mistake may cause falling of the male buckle and the female buckle. With the structure, when the button 3 on any side is pressed, only one side of the locking block 2 may be lifted, and the male buckle and the female buckle cannot be unlocked. Thus, falling due to touching by mistake by a user can be avoided in daily use, and product use stability and better user experience can be ensured. The side release buckle is used for baby slings, which can greatly ensure babies' safety.

[0024] A limiting part 8 is arranged between the locking block 2 and the housing 1. The limiting part 8 includes a plurality of limiting columns 9 protruding from the housing 1 or the mounting seat 6, and limiting holes 10 formed on the locking block 2 to match the limiting columns 9. The limiting columns 9 penetrate the limiting holes 10. The limiting columns 9 protrude above the locking block 2. The limiting part 8 is used for limiting a position of the locking block 2 to prevent the locking block 2 from shaking in the housing 1. Meanwhile, the limiting part 8 is further used for limiting a moving direction of the locking block 2. The locking block 2 moves vertically along a trajectory of the limiting columns 9, such that the locking block is kept moving perpendicularly and is prevented from deviation during vertical movement.

[0025] A rebound member 11 is arranged between the locking block 2 and the upper cover 5. The rebound

member 11 includes a reset spring. The locking block 2 is unlocked through upward moving, and then is reset by the return spring. In a normal state, the locking block 2 is pressed by the return spring all the time, such that the locking block is tightly placed on the mounting seat 6. In the design, one rebound members 11 is arranged at a center, which is not limited herein, or a plurality of rebound members 11 may be arranged according to an actual resilience condition.

[0026] The locking block 2 is provided with a protruding spring post 25. A bottom of the upper cover 5 is provided with a spring hole 26. The spring post 25 and the spring hole 26 match the rebound member 11. One end of the rebound member 11 sleeves the spring post 25, and the other end of the rebound member is snapped into the spring hole 26, such that a limiting effect is achieved, and the rebound member 11 is prevented from deviating or even falling off.

[0027] Two sides of the housing 1 are provided with button chambers 12. The buttons 3 are movably assembled in button chambers 6, and outer end portions of the buttons 3 are exposed outside the button chambers 12, so as to be used for unlocking through pressing.

[0028] The guiding blocks 7 are provided with inclined guiding surfaces 13. Two ends of the locking block 2 are in contact with the guiding surfaces 13. When the guiding blocks 7 move inward, the locking block 2 gradually moves upward along the guiding surfaces 13.

[0029] The guiding blocks 7 are provided with first positioning recesses 28. The housing 1 is internally provided with first positioning blocks 27. The two sides of the locking block 2 are provided with guiding recesses 29. The first positioning blocks 27 are located at two sides of the mounting seat 6, and the first positioning blocks 27 are engaged with the first positioning recesses 28 and the guiding recesses 29 simultaneously. The first positioning recesses 28 are driven by the guiding blocks 7 to move transversely on the first positioning blocks 27. Stability of the buttons 3 during movement is enhanced. The guiding recesses 29 move longitudinally on the first positioning blocks 27, and moving stability of the locking block 2 is improved.

[0030] The reset member 4 includes an elastic reset member. The buttons 3 are pressed to press the reset member 4 to be deformed. The buttons 3 are released to reset the reset member 4 through resilience. The reset member 4 is wound around an outer edge of the locking block 2. The reset member 4 and the buttons 3 are integrated to avoid unnecessary assembly and increase connection strength. Centers of upper and lower ends of the housing 1 are provided with second positioning blocks 14. Centers of upper and lower ends of the reset member 4 are provided with second positioning recesses 15 configured to match the second positioning blocks 14. During mounting, the second positioning blocks 14 are snapped into the second position-

ing recesses 15 to limit the reset member 4, such that moving stability of the reset member 4 is improved, and the reset member 4 is prevented from dislocation after being pressed and deformed repeatedly.

[0031] Two sides of the buttons 3 are provided with protruding stop blocks 16. The stop blocks 16 abut against inner walls of the button chambers 12, so as to prevent the buttons 3 from falling from the button chambers 12.

[0032] A lower surface of the housing 1 is provided with a sliding recess 6 in communication with the mounting seat 6. The female buckle is slidably mounted on the male buckle.

[0033] The male buckle includes a body 18, a base 19 protruding from a center of the body 18, a connecting column 20 extending upward from a center of the base 19, and a fixing block 21 at a center of the connecting column 20. An inner wall of the sliding recess 17 is provided with a limiting step 22 arranged in a U-shaped manner. The connecting column 20 is provided with an annular recess 23 configured to match the limiting steps. During assembling, the annular recess 23 is aligned with the limiting step 22, and mounting is performed in a sliding manner. The male buckle includes a circular male buckle, and may be mounted in a sliding manner at any angle without alignment, which is convenient to use.

[0034] The locking block 2 is provided with a fixing hole 24 configured to match the fixing block 21. During mounting, the buttons 3 at the two sides are pressed to enable the locking block 2 to move upward, and then the female buckle is assembled in a sliding manner. During assembly, the limiting step 22 slides along the annular recess 23 until the fixing block 21 slides directly to a position below the fixing hole 24. In this case, a U-shaped contour of the limiting step 22 abuts against the annular recess 23, and the fixing block cannot further slide inward. Finally, the buttons 3 are released, and the locking block 2 is reset by resilience and moves downward, such that the fixing block 21 is snapped into the fixing hole 24 to achieve fixation. The principle is simple, and clamping is stable.

[0035] One end of the housing 1 is provided with a webbing mounting portion 30. A webbing strap on a backpack or a baby sling is adjustably inserted into the webbing mounting portion 30. The webbing mounting portion 30 is provided with a cover plate 31 that is openable and closable. The cover plate 31 rotates to be opened and closed through shaft connection, which clamps the webbing strap after closed, to prevent the webbing strap from loosening.

[0036] For those skilled in the art, it is apparent that the present disclosure is not limited to details of illustrative examples, and the present disclosure can be implemented in other specific forms without departing from the spirit or basic features of the present disclosure. Thus, no matter from which point of view, the examples should all be regarded as illustrative and non-

limiting. The scope of the present disclosure is defined by the appended claims rather than the above description, and therefore it is intended that all changes that fall within the meaning and scope of equivalency of the claims are embraced in the present disclosure, and any reference numbers in the claims should not be regarded as limiting the claims involved.

Claims

1. A side release buckle, **characterized by** comprising a female buckle and a male buckle that are capable of being fastened to each other, wherein two sides of the female buckle are provided with buttons, the female buckle comprises a housing, a mounting seat fixedly arranged in the housing, a locking block movably arranged on the mounting seat, a reset member configured to support the buttons at the two sides, and an upper cover buckled on the housing;

sides of the buttons closer to the locking block are provided with guiding blocks; and the guiding blocks are in contact with the locking block, the guiding blocks move synchronously with the buttons, and the locking block is driven by the guiding blocks to move to implement unlocking; and
a limiting part is arranged between the locking block and the housing, and a rebound member is arranged between the locking block and the upper cover.

2. The side release buckle according to claim 1, **characterized in that** the limiting part comprises a plurality of limiting columns protruding from the housing or the mounting seat, and limiting holes formed on the locking block to match the limiting columns, the limiting columns penetrate the limiting holes, and the limiting columns protrude above the locking block.
3. The side release buckle according to claim 1, **characterized in that** the rebound member comprises a spring post on the locking block and a return spring sleeved onto the spring post, and the locking block after movement is reset by the return spring.
4. The side release buckle according to claim 1, **characterized in that** the guiding blocks are provided with inclined guiding surfaces, and two ends of the locking block are in contact with the guiding surfaces; the guiding blocks are provided with first positioning recesses, the housing is internally provided with first positioning blocks, the locking block is provided with a guiding recess, and when the

guiding blocks move, the first positioning recesses move transversely on the first positioning blocks; and the guiding recess moves longitudinally on the first positioning blocks.

5. The side release buckle according to claim 1, **characterized in that** the reset member comprises an elastic reset member, centers of upper and lower ends of the housing are provided with second positioning blocks, the reset member is provided with second positioning recesses, and the second positioning blocks are snapped into the second positioning recesses.
6. The side release buckle according to claim 1, **characterized in that** two sides of the housing are provided with button chambers, the buttons are movably assembled in the button chambers, and outer end portions of the buttons are exposed outside the button chambers; and two sides of the buttons are provided with protruding stop blocks, and the stop blocks abut against inner walls of the button chambers.
7. The side release buckle according to claim 1, **characterized in that** one end of the housing is provided with a webbing mounting portion, and the webbing mounting portion is provided with a cover plate that is openable and closable.
8. The side release buckle according to claim 1, **characterized in that** a lower surface of the housing is provided with a sliding recess in communication with the mounting seat, and the female buckle is slidably mounted on the male buckle.
9. The side release buckle according to claim 8, **characterized in that** the male buckle comprises a body, a base at a center of the body, a connecting column extending upward from a center of the base, and a fixing block at a center of the connecting column, an inner wall of the sliding recess is provided with a limiting step, the connecting column is provided with an annular recess configured to match the limiting step, and the limiting step moves along the annular recess during assembly.
10. The side release buckle according to claim 9, **characterized in that** the locking block is provided with a fixing hole configured to match the fixing block, and the fixing block slides to a position below the fixing hole and is snapped into the fixing hole to achieve fixation.

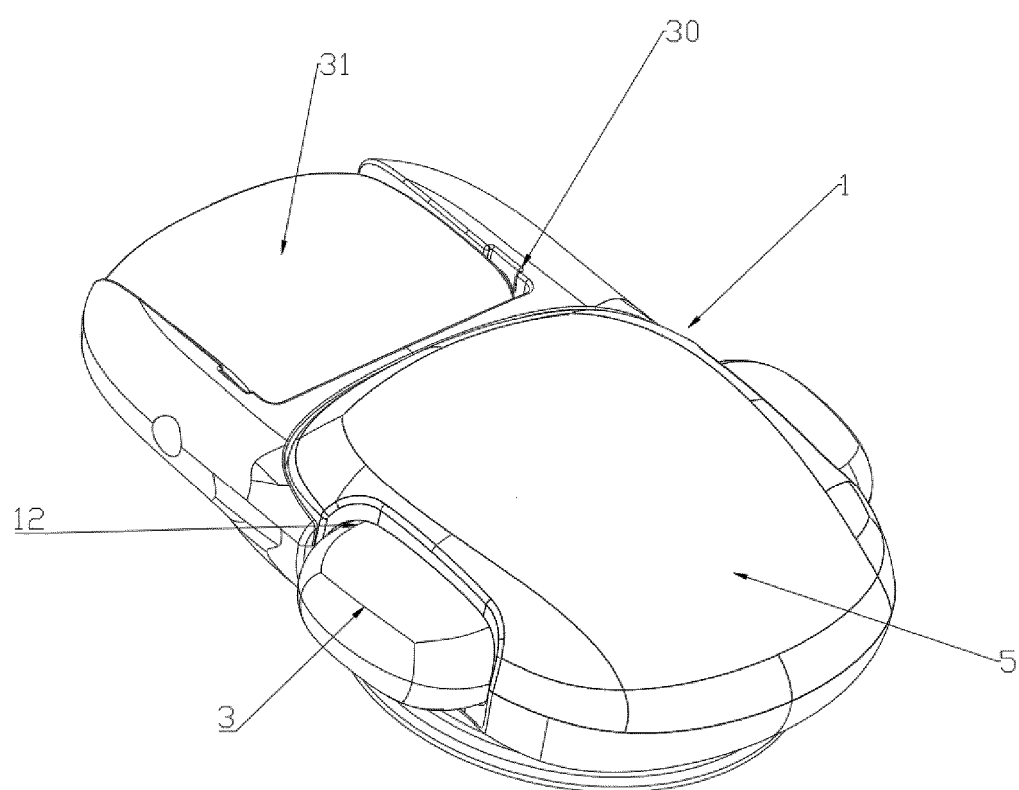


FIG. 1

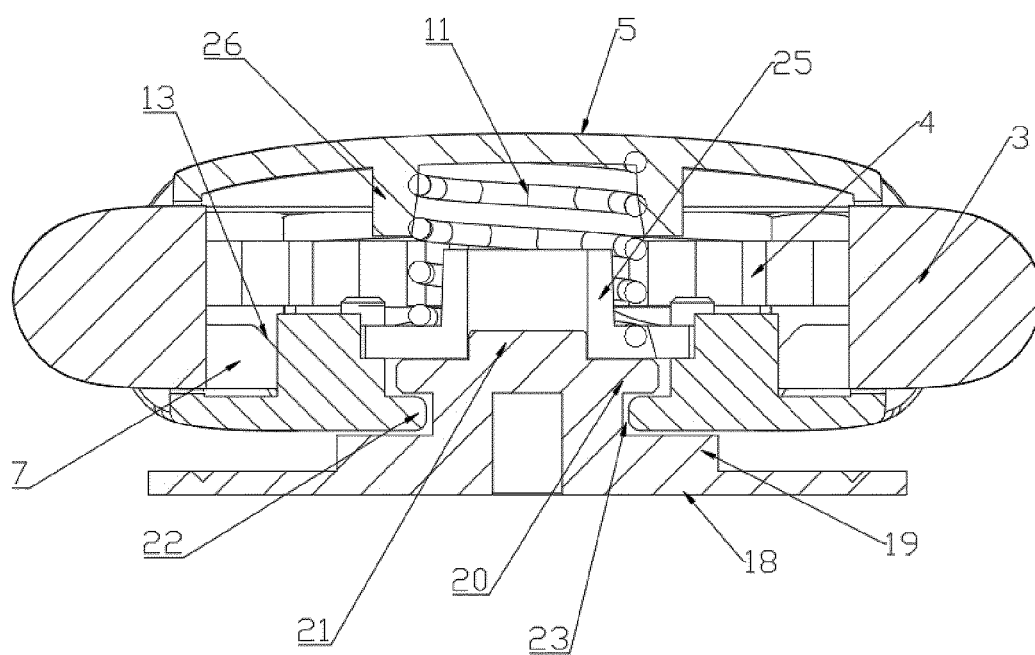


FIG. 2

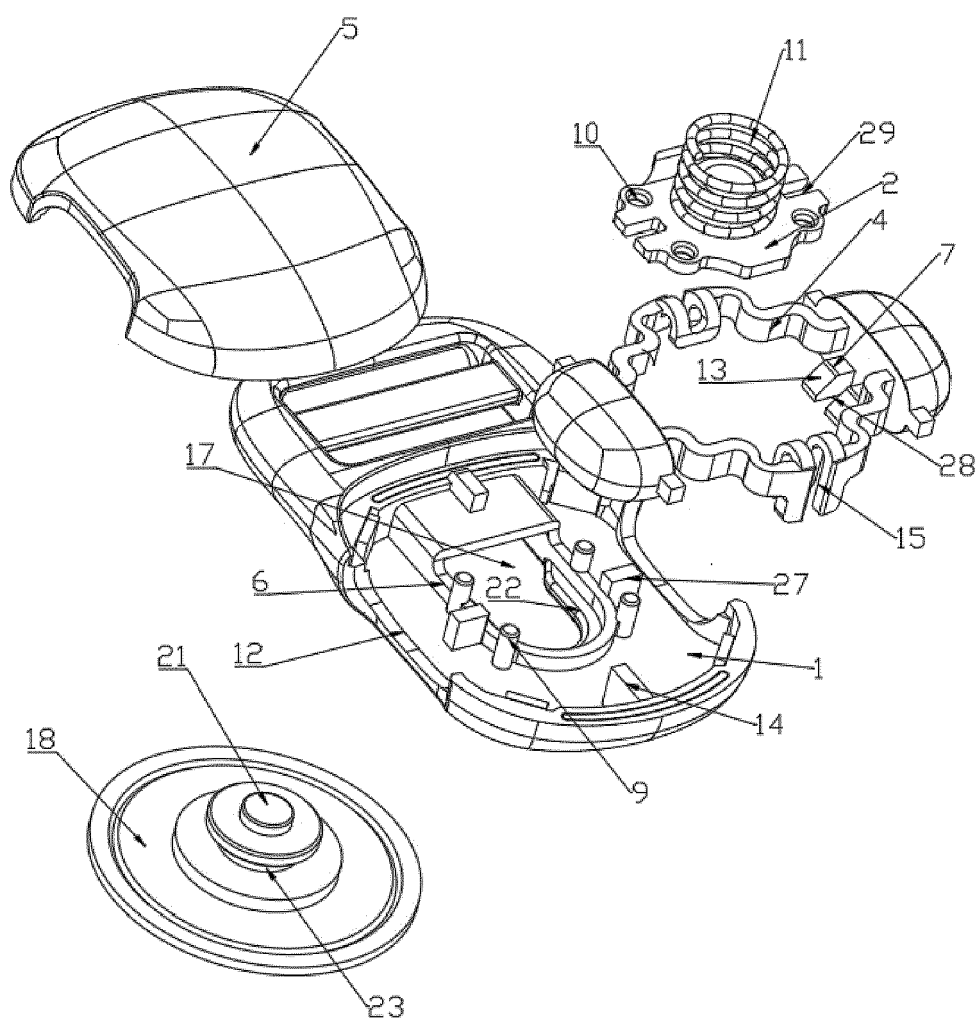


FIG. 3

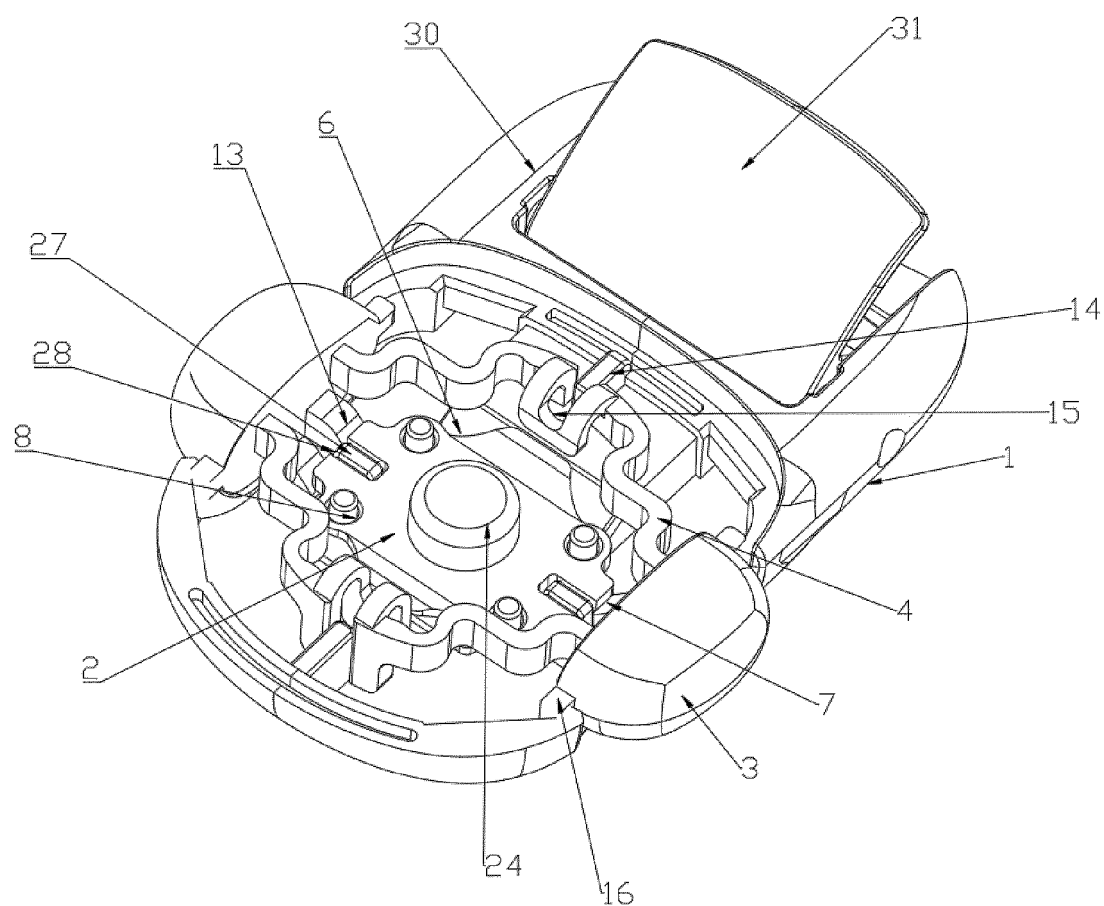


FIG. 4



EUROPEAN SEARCH REPORT

Application Number

EP 25 19 9519

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2022/047045 A1 (LI QIUZONG [CN]) 17 February 2022 (2022-02-17) * paragraph [0082]; figures 1-8 * -----	1-10	INV. A44B11/25 A44B11/26
			TECHNICAL FIELDS SEARCHED (IPC)
			A44B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		6 February 2026	van Voorst, Frank
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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06-02-2026

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2022047045 A1	17-02-2022	EP 3858182 A1	04-08-2021
		ES 2936685 T3	21-03-2023
		JP 7144889 B2	30-09-2022
		JP 2022508877 A	19-01-2022
		KR 20210080457 A	30-06-2021
		US 2022047045 A1	17-02-2022
		WO 2020173410 A1	03-09-2020

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