~~VEHICLE, FOR EXAMPLE OF THE SCOOTER TYPE, WITH FOLDING SYSTEM.~~

VEHICLE, FOR EXAMPLE OF THE SCOOTER TYPE, WITH A COLLAPSING SYSTEM

The invention relates to a vehicle with a folding system, and is applicable to the field of foldable scooter-type vehicles.

The folding system, for such a vehicle, of course makes it possible to reduce its bulk for storage thereof, but also to carry it easily.

Scooter-type vehicles are known, such as the vehicle described in US 6 270 097, comprising a chassis connected to a pivot steering assembly around a pivot axis, so that the vehicle can assume a first usage configuration, making it possible to move the vehicle and its user, and in a second, folded configuration in which the chassis is brought against the pivot steering assembly.

Folding is therefore an essential function that is obtained by allowing the chassis to pivot relative to the steering assembly.

This pivoting must of course be prohibited in the usage configuration, in particular to prevent folding during movement.

In devices like that described in US 6 270 097, the pivoting can be locked or unlocked mechanically by a relatively complex system, as for example described in figures 2 to 6 of that document.

More generally, solutions are known aiming to block the pivoting, which are based on the use of a locking or unlocking lever with a tightening lever to reduce the play, a spring latch with a position indexing finger, or a gripping wheel to block pivoting.

The problem posed by all of these solutions is that they are not intuitive and easy to implement, in particular because they require several actions by the user generally involving several parts of the body: the user must, for instance, lower himself, unlock the system by hand, fold the vehicle, lock the system, stand up, etc.

Moreover, most of the time these solutions require finding the "neutral" position of the locking system so as to be able to actuate it. This requires eliminating the stresses exerted on the locking system, such as the weight of the steering assembly or the weight of the chassis.

CLAIMS

1. A vehicle, for example of the scooter type, comprising a chassis (1) able to directly or indirectly support a user and a steering assembly (2, 3, 4) comprising at least one steering column (2), said vehicle being able to assume a usage configuration in which the chassis (1) forms a first non-zero angle with the steering column (2) and a folded configuration in which the chassis (1) forms a second angle smaller than the first angle with the steering column (2), said chassis (1) being connected to the steering assembly (2, 3, 4) pivoting around at least one pivot axis (6),
characterized in that the chassis (1) has a support part (1a) intended to directly or indirectly support the user, which extends towards the steering assembly (2, 3, 4) in a front portion (1b) which extends beyond the pivot axis and the steering column, so that pressure on the front portion (1b) makes it possible to go from the usage configuration to the folded configuration by pivoting around the pivot axis (6), in that the vehicle comprises also a locking device able to block the pivoting of the chassis relative to the steering assembly around the pivot axis in the usage configuration, said locking device comprising an unlocking means (7) able to cooperate with the steering assembly (2, 3, 4) to lock or unlock the pivoting, the unlocking means (7) being arranged at the front portion of the support part.
2. The vehicle according to claim **1**, characterized in that the front portion (1b) forms a non-zero and non-flat angle with the support part (1a), preferably an angle between 110° and 140°.
3. The vehicle according to claim **1**, characterized in that the front portion (1b) is substantially aligned with the support part (1a).
4. The vehicle according to any one of claims **1 to 3**, characterized in that the chassis (1) is connected to the steering assembly (2, 3, 4) via a connecting

element (5) having a first end (5a) connected to the steering column (2) and a second end (5b) pivotably connected to the chassis (1) around the pivot axis (6).

5. The vehicle according to claim **4**, characterized in that in the usage configuration, the front portion (1b) is arranged substantially parallel to the connecting element (5).

6. The vehicle according to any one of claims **4** and **5**, characterized in that in the folded configuration, the front portion (1b) forms a non-zero angle with the connecting element (5), preferably an angle between 60° and 100°, or between 85° and 95°.

7. The vehicle according to any one of claims **1 to 6**, characterized in that the locking device (7) is arranged to automatically allow blocking of the pivoting, when the usage configuration is reached and/or when the folded configuration is reached.

8. The vehicle according to any one of claims **1 to 7** and to claim **4**, characterized in that the unlocking means (7) cooperates with the steering assembly (2, 3, 4) via the connecting element (5).

9. The vehicle according to any one of claims **1 to 8**, characterized in that the unlocking means comprises at least one actuator, such as a push button, preferably arranged in the upper portion of the steering assembly (2, 3, 4).

10. The vehicle according to any one of claims **1 to 9**, characterized in that the unlocking means comprises a remote control.

11. The vehicle according to any one of claims **1 to 10** and to claim **4**, characterized in that the unlocking means comprises a pedal (7) arranged at the front portion (1b) of the support part and can be actuated by the user's foot so that an action of the user's foot on the pedal causes the chassis first to unlock, then to pivot.

12. The vehicle according to any one of claims **1 to 11**, characterized in that the front portion (1b) of the chassis (1) constitutes, in the folded configuration, a support element on a support surface for the vehicle.

13. The vehicle according to any one of claims **1 to 12**, characterized in that the steering column (2) supports, by one of its two ends, at least one moving part

(4), such as a wheel (4) or rolling skate, able to be in contact with a support surface and to allow the vehicle to move on said support surface when said vehicle is set in motion.

14. The vehicle according to any one of claims **1 to 13**, characterized in that the chassis (1) supports, preferably by its end opposite the front portion (1b), at least one moving part (9), such as a wheel (9) or rolling skate, able to be in contact with a support surface and to allow the vehicle to move on said support surface when said vehicle is set in motion.

Claims

1. A vehicle, for example of the scooter type, comprising a chassis able to directly or indirectly support a user and a steering assembly comprising at least one steering column, said vehicle being able to assume a usage configuration in which the chassis forms a first non-zero angle with the steering column and a folded configuration in which the chassis forms a second angle smaller than the first angle with the steering column, said chassis being connected to the steering assembly pivoting around at least one pivot axis,

   wherein the chassis has a support part intended to directly or indirectly support the user, which extends towards the steering assembly in a front portion which extends beyond the pivot axis and the steering column, so that pressure on the front portion makes it possible to go from the usage configuration to the folded configuration by pivoting around the pivot axis, the vehicle comprising also a locking device able to block the pivoting of the chassis relative to the steering assembly around the pivot axis in the usage configuration, said locking device comprising an unlocking means able to cooperate with the steering assembly to lock or unlock the pivoting, the unlocking means being arranged at the front portion of the support part.

2. The vehicle according to claim **1**, wherein the front portion forms a non-zero and non-flat angle with the support part, preferably an angle between 110° and 140°.

3. The vehicle according to claim **1**, wherein the front portion is substantially aligned with the support part.

4. The vehicle according to any one of claims **1 to 3**, wherein the chassis is connected to the steering assembly via a connecting element having a first end connected to the steering column and a second end pivotably connected to the chassis around the pivot axis.

5. The vehicle according to claim **4**, wherein in the usage configuration, the front portion is arranged substantially parallel to the connecting element.

6. The vehicle according to any one of claims **4** and **5**, wherein in the folded configuration, the front portion forms a non-zero angle with the connecting element, preferably an angle between 60° and 100°, or between 85° and 95°.
7. The vehicle according to any one of claims **1 to 6**, wherein the locking device is arranged to automatically allow blocking of the pivoting, when the usage configuration is reached and/or when the folded configuration is reached.
8. The vehicle according to any one of claims **1 to 7** and to claim **4**, wherein the unlocking means cooperates with the steering assembly via the connecting element.
9. The vehicle according to any one of claims **1 to 8**, wherein the unlocking means comprises at least one actuator, such as a push button, preferably arranged in the upper portion of the steering assembly.
10. The vehicle according to any one of claims **1 to 9**, wherein the unlocking means comprises a remote control.
11. The vehicle according to any one of claims **1 to 10** and to claim **4**, wherein the unlocking means comprises a pedal arranged at the front portion of the support part and can be actuated by the user's foot so that an action of the user's foot on the pedal causes the chassis first to unlock, then to pivot.
12. The vehicle according to any one of claims **1 to 11**, wherein the front portion of the chassis constitutes, in the folded configuration, a support element on a support surface for the vehicle.
13. The vehicle according to any one of claims **1 to 12**, wherein the steering column supports, by one of its two ends, at least one moving part, such as a wheel or rolling skate, able to be in contact with a support surface and to allow the vehicle to move on said support surface when said vehicle is set in motion.
14. The vehicle according to any one of claims **1 to 13**, wherein the chassis supports, preferably by its end opposite the front portion, at least one moving part, such as a wheel or rolling skate, able to be in contact with a support surface and to allow the vehicle to move on said support surface when said vehicle is set in motion.