~~BICYCLE FOLDING STRUCTURE AND BICYCLE FOLDING METHOD~~ BICYCLE FOLDING STRUCTURE

CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefits from Chinese Patent Application No. 201811194723.4, titled as “FOLDABLE BICYCLE AND METHOD FOR FOLDING THE SAME”, the subject matter of which is incorporated herein by reference.

Field of the Invention

The present invention relates to a foldable bicycle and a method for folding the same which has a pair of folding joints for rotating obliquely relative to each other so as to achieve efficacy of reducing volume by folding a front wheel and a rear wheel along an oblique junction to the corresponding side-by-side position.

Description of Related Art

The Taiwan Patent Publication No. TW I385101 (B), issued on 11th Feb. 2013, has disclosed a folding bicycle frame and a folding bicycle. The folding technique includes folding the front frame towards the rear frame by the first pivot axis and rotating the rear-wheel support assembly by the second pivot axis relative to the rear frame to adjust the relative

WHAT IS CLAIMED IS:

1. A foldable bicycle, comprising:

a main frame having a first connecting rod and a second connecting rod;

a first folding joint between the first connecting rod and the second connecting rod and having a first outer shell connected to a rear end of the first connecting rod, a second outer shell connected to a front end of the second connecting rod for further connecting the first outer shell, an engaging unit accommodated in a space defined by the first outer shell and the second outer shell being joined together, at least one elastic member disposed between the engaging unit and the second outer shell, a press button having a pushing lever for inserting from an outside of the first outer shell to an interior of the first outer shell to contact the engaging unit, and a cam locking member for positioning the first outer shell, the engaging unit and the second outer shell all coaxial to another in a first axial direction and for controlling tightness between the first outer shell and the second outer shell, wherein the first outer shell is formed by a first lateral wall and a first annular wall surrounding a periphery of the first lateral wall and having a first height and a second height, and the second outer shell is formed by a second lateral wall and a second annular wall surrounding a periphery of the second lateral wall and having a first height and a second height, and wherein the first height of the first annular wall correspondingly connects with the second

height of the second annular wall, and the second height of the first annular wall correspondingly connects with the first height of the second annular wall, so as further to form an oblique junction between the first and second annular walls;

a front wheel rack connected to a front end of the first connecting rod;

a front wheel connected to the front wheel rack and arranged in a second axial direction parallel to an axis of the front wheel;

a rear wheel connected to a rear end of the second connecting rod and arranged in the second axial direction parallel to an axis of the rear wheel, wherein the second axial direction is obliquely oriented relative to the first axial direction at an included angle; and

wherein the engaging unit is disposed on the oblique junction to engage with the first outer shell and the second outer shell to lock the first folding joint; when the press button is pressed, its pushing lever pushes the engaging unit to move towards the second outer shell until it is detached from the first outer shell; after the first folding joint is unlocked, the first folding joint can be rotated in the first axial direction as the axis for folding; during the folding process, the first outer shell and the second outer shell are rotated along the oblique junction, and the main frame is folded until the front wheel and the rear wheel are arranged side by side.

2. The foldable bicycle as claimed in claim 1, wherein an external surface of the first outer shell is provided with a capacity tank for accommodating the press button and a perforation disposed in the capacity tank for insertion of the pushing lever of the press button.

3. The foldable bicycle as claimed in claim 2, wherein a second folding joint is provided on a top end of the front wheel rack and a handlebar stem is further connected with the second folding joint, so the handlebar stem is bent downwardly to lean against a lateral side of the front wheel rack as the second folding joint stays in an unlocking state.

4. The foldable bicycle as claimed in claim 1, wherein a second folding joint is provided on a top end of the front wheel rack and a handlebar stem is further connected with the second folding joint, so the handlebar stem is bent downwardly to lean against a lateral side of the front wheel rack as the second folding joint stays in an unlocking state.

~~5. A method for folding a foldable bicycle as claimed in claim 1, comprising the steps of:~~

~~unlocking a first folding joint fitted on a main frame between a front wheel and a rear wheel;~~

~~rotating the first folding joint in a first axial direction to form an included angle between the first axial direction and a second axial direction obliquely oriented relative to the first axial direction, wherein~~

~~the second axial direction is parallel to axes of the front and rear wheels; and~~

~~folding the main frame by the first folding joint to make the front and rear wheels parallel to each other.~~

~~6. The method for folding a foldable bicycle as claimed in claim 5, further comprises the step of downwardly bending a handlebar stem about an axis of a folding shaft part of a second folding joint by unlocking the second folding joint fitted between a front wheel rack and the handlebar stem, wherein the handlebar stem is connected with the second folding joint pivoted on a top end of the front wheel rack.~~

~~7. The method for folding a foldable bicycle as claimed in claim 6, further comprises the step of rotating the front wheel rack about an axis of a connection between a front end of the main frame and the front wheel rack in a clockwise or counterclockwise direction to allow the front wheel rack directing forward to backward before the step of folding the main frame.~~

8. ~~The method for folding a foldable bicycle as claimed in claim 5, further comprises the step of rotating the front wheel rack about an axis of a connection between a front end of the main frame and the front wheel rack in a clockwise or counterclockwise direction to allow the front wheel rack directing forward to backward before the step of folding the main frame.~~