

CLAIMS

What is claimed is:

1. Control device for a bicycle derailleur, comprising: a support body; a cable-winding bush supported for rotation with respect to the support body; an indexer mechanism housed in the support body and suitable for controlling the angular position of the cable-winding bush; and a single manual actuation lever; wherein the indexer mechanism comprises a toothed wheel integral in rotation with the cable-winding bush and having a first plurality of slanting teeth and a second plurality of slanting teeth, a first pawl integral with a driven arm of the lever and brought into thrusting engagement on the first teeth when the lever is manually moved in a first direction beyond a predetermined rotation threshold, and a second pawl driven out of retention engagement with the second teeth by the driven arm of the lever while the lever is manually moved in the first direction up to the predetermined rotation threshold.

2. Control device according to claim 1, wherein while the lever is manually moved to the predetermined rotation threshold, the first pawl disengages from the first teeth and at the predetermined rotation threshold, the first pawl comes into interfering engagement with the first teeth.

3. Control device according to claim 1, wherein while the lever is manually moved beyond the predetermined rotation threshold, the second pawl disengages from the second teeth.

4. Control device according to claim 1, wherein while the lever rotates in a second direction opposite the first direction, the first pawl is disengaged from the first teeth and the second pawl is in retention engagement with the second teeth.

5. Control device according to claim 1, wherein when the lever is manually moved within the predetermined rotation threshold, the toothed wheel and the cable-winding bush rotate in an unwinding direction of a traction cable of the derailleur, fastened to the cable-winding bush.

6. Control device according to claim 5, wherein when the lever is manually moved up to the predetermined rotation threshold and then rotates in a second direction opposite the first direction, the toothed wheel and the cable-winding bush carry out a rotation in the unwinding direction of an amount equal to one pitch between the second teeth, and the second pawl moves from a first gap between the second teeth to an adjacent gap between the second teeth.

7. Control device according to claim 1, wherein when the lever is manually moved beyond the predetermined rotation threshold, the toothed wheel and the cable-winding bush rotate in a winding direction of a traction cable fastened to the cable-winding bush.

8. Control device according to claim 7, wherein when the lever is manually moved beyond the predetermined rotation threshold, the toothed wheel and the cable-winding bush carry out a rotation in the winding direction by an amount equal to at least one pitch between the second teeth, and the second pawl moves from a first gap between the second teeth to an adjacent or subsequent gap between the second teeth.

9. Control device according to claim 1, wherein the rotation of the lever within the predetermined threshold takes place about a pivot supported by a connecting member coaxial with the toothed wheel.

10. Control device according to claim 9, wherein the rotation of the lever beyond the predetermined threshold takes place about an axis of the toothed wheel,

integrally with the connecting member.

11. Control device according to claim 1, wherein said second pawl is formed on a driven arm of a swinging member pivoted onto the support body, and the driven arm of the lever, during its manual displacement up to the predetermined rotation threshold, controls a driving arm of the swinging member.

12. Control device according to claim 11, wherein the driven arm of the lever has a stepped profile for controlling the driving arm of the swinging member during the manual displacement of the lever up to the predetermined rotation threshold.

13. Control device according to claim 11, wherein the driven arm of the lever has a peg or a roller for controlling the driving arm of the swinging member.

14. Control device according to claim 11, wherein said indexer mechanism further comprises a second swinging member having a first arm hinge-like coupled with the driving arm of said swinging member, and the driven arm of the lever, during its manual displacement up to the predetermined rotation threshold, controls a second arm of the second swinging member.

15. Control device according to claim 1, further comprising return means for biasing the lever into rotation in a second direction opposite the first direction.

16. Control device according to claim 1, further comprising elastic means (for biasing the second pawl into retention engagement with the second teeth.

17. Control device according to claim 1, further comprising a brake lever for controlling a brake of the bicycle.

18. Control device according to claim 17, wherein an actuation arm of the lever is provided with an articulation pivot essentially parallel to a pivot of the brake lever.

19. A control device for a bicycle derailleur, comprising:  
a support body;  
a cable-winding bush supported for rotation with respect to the support body;  
an indexer mechanism housed in the support body and suitable for controlling the angular position of the cable-winding bush; and  
a manual actuation lever;  
the indexer mechanism comprising:  
a toothed wheel integral in rotation with the cable-winding bush and having a first plurality of slanting teeth and a second plurality of slanting teeth;  
a first pawl integral with a driven arm of the lever and brought into thrusting engagement on the first teeth while the lever is manually moved in a first direction beyond a predetermined rotation threshold; and  
a second pawl formed on a driven arm of a swinging member pivoted onto the support body, wherein said second pawl disengages from the second teeth by the driven arm of the lever while the lever is manually moved in the first direction up to the predetermined rotation threshold, and the driven arm of the lever, during its manual displacement up to the predetermined rotation threshold, controls a driving arm of the swinging member.

20. A control device for a bicycle derailleur, comprising:  
a support body;  
a cable-winding bush supported for rotation with respect to the support body;

an indexer mechanism housed in the support body and suitable for controlling the angular position of the cable-winding bush; and

a single manual actuation lever;

the indexer mechanism comprising:

a toothed wheel integral in rotation with the cable-winding bush and having a first plurality of slanting teeth and a second plurality of slanting teeth;

a first pawl integral with a driven arm of the lever and brought into thrusting engagement on the first teeth while the lever is manually moved in a first direction beyond a predetermined rotation threshold; and

a second pawl formed on a driven arm of a swinging member pivoted onto the support body, wherein said second pawl disengages from the second teeth by the driven arm of the lever while the lever is manually moved in the first direction up to the predetermined rotation threshold, and the driven arm of the lever, during its manual displacement up to the predetermined rotation threshold, controls a driving arm of the swinging member;

wherein while the lever is manually moved to the predetermined rotation threshold, the first pawl disengages from the first teeth and at the predetermined rotation threshold, the first pawl comes into interfering engagement with the first teeth;

wherein while the lever is manually moved beyond the predetermined rotation threshold, the second pawl disengages from the second teeth; and

wherein while the lever rotates in a second direction opposite the first direction, the first pawl is out of engagement with the first teeth and the second pawl is in retention engagement with the second teeth.

21. A control device for a bicycle derailleur, comprising:  
a support body;

a cable-winding bush supported for rotation with respect to the support body;

an indexer mechanism housed in the support body and suitable for controlling the angular position of the cable-winding bush; and

a single manual actuation lever;

the indexer mechanism comprising

a toothed wheel integral in rotation with the cable-winding bush and having a first plurality of slanting teeth and a second plurality of slanting teeth;

a first pawl integral with a driven arm of the lever and brought into thrusting engagement on the first teeth while the lever is manually moved in a first direction beyond a predetermined rotation threshold; and

a second pawl formed on a driven arm of a swinging member pivoted onto the support body, wherein said second pawl disengages from the second teeth by the driven arm of the lever while the lever is manually moved in the first direction up to the predetermined rotation threshold, and the driven arm of the lever, during its manual displacement up to the predetermined rotation threshold, controls a driving arm of the swinging member;

wherein while the lever is manually moved to the predetermined rotation threshold, the first pawl disengages from the first teeth, and the toothed wheel and the cable-winding bush rotate in an unwinding direction of a traction cable of the derailleur, fastened to the cable-winding bush;

wherein while the lever is manually moved at the predetermined rotation threshold, the first pawl comes into interfering engagement with the first teeth;

wherein while the lever is manually moved beyond the predetermined rotation threshold, the second pawl disengages from the second teeth, and the toothed wheel and the cable-winding bush rotate in a winding direction of a traction cable fastened to the cable-winding bush; and

wherein while the lever rotates in a second direction opposite the first direction, the first pawl is out of engagement with the first teeth and the second pawl is in retention engagement with the second teeth.

22. A control device for a bicycle derailleur, comprising a single manual actuation lever that is movable in a first direction to a predetermined rotation threshold to initiate one of an upwards or downwards gearshifting operation, and manually movable in the first direction beyond the predetermined rotation threshold to initiate the other one of an upwards or downwards gearshifting operation;

wherein when the lever is manually moved to the predetermined rotation threshold, a first pawl integral with a driven arm of the lever is brought into thrusting engagement on first teeth of an indexer mechanism's toothed wheel;

wherein when the lever is manually moved beyond the predetermined rotation threshold, a second pawl disengages from second teeth of an indexer mechanism's toothed wheel; and

wherein the indexer mechanism's toothed wheel is biased to rotate in a first direction under tension from a cable;

wherein the movement of the lever to and beyond the predetermined rotation threshold rotates the indexer mechanism's toothed wheel and creates or relieves tension in the cable; and

wherein the creation of tension in the cable and relief of tension in the cable causes one of an upwards or downwards gearshifting operation.