Claims

1. A writing instrument, comprising: a writing body stored in a barrel; an operation body provided at the barrel to be operated to longitudinally move the writing body; and a nib of the writing body configured to be capable of appearing from a front end of a writing instrument, wherein

the writing instrument further includes at least one of the operation body, a longitudinally extending slide hole provided in a side wall of the barrel, and an appearance mechanism putting the nib of the writing body from a retraction condition into a projection condition by slide operating the operation body placed in the slide hole forward,

the barrel includes a plurality of components capable of being coupled to each other, a first or second long hole longitudinally extending and opened forward or backward is provided respectively on respective side walls of two of the components configuring the barrel, and when coupling the two components, the first and second long holes form the slide hole in communication with each other,

the barrel includes therein, as the appearance mechanism, a plurality of longitudinally extending cam teeth and cam grooves alternately placed along a circumferential direction, a rotary member having a plurality of projected ribs rotatably placed in the rear of the writing body and capable of alternately engaging with the cam teeth or the cam grooves, another plurality of cam teeth provided in the operation body and turning the rotary member, and an biasing member biasing the writing body backward,

a component of two of the components configuring the barrel, which component is located at the front side of the writing instrument is provided with the first long hole in its side wall and the cam teeth and the cam grooves are provided on an inner surface of the side wall, and the first long hole extends backward of the cam teeth and the cam grooves and is opened at a rear end of the side wall.

2. The writing instrument of claim 1, wherein each side wall of the two components configuring the barrel is coupled to overlap radially with each other, and the first and second long holes form the slide hole in communication with each other in a condition radially overlapping with each other.

3. The writing instrument of claim 1, wherein one of the two components configuring the barrel, which one is located at the front side of the writing instrument is provided with the first long hole opened at the rear end of its side wall and another component located at the rear side of the writing instrument is provided with the second long hole opened at the front end of its side wall, and

when the side wall of the another component is fitted to an outer surface at the rear end

of the side wall of the one component, the first and second log holes form the slide hole in communication with each other in a condition radially overlapping with each other.

4. The writing instrument of claim 3, wherein the rear end of the side wall of the one component is formed into a reduced diameter portion and an outward projection is provided on an outer surface of the reduced diameter portion and an inward projection is provided on an inner surface of the side wall of the another component, and

when the side wall of the another component is fitted to the outer surface of the reduced diameter portion of the side wall of the one component, the outward projection and the inward projection climb over and are engaged with each other.

5. The writing instrument of any one of claims 1 through 4, wherein the operation body is a clip body.

6. A writing instrument, comprising: a writing body stored in a barrel; an operation body provided at the barrel to be operated to longitudinally move the writing body; and a nib of the writing body configured to be capable of appearing from a front end of a writing instrument, wherein

the writing instrument further includes a clip body as the operation body, a longitudinally extending slide hole provided in a side wall of the barrel, and an appearance mechanism putting the nib of the writing body from a retraction condition into a projection condition by slide operating the clip body placed in the slide hole forward,

the barrel includes therein, as the appearance mechanism, a plurality of longitudinally extending cam teeth and cam grooves alternately placed along a circumferential direction, a rotary member having a plurality of projected ribs rotatably placed in the rear of the writing body and capable of alternately engaging with the cam teeth or the cam grooves, another plurality of cam teeth provided in the clip body and turning the rotary member, and an biasing member biasing the writing body backward,

the clip body is provided integrally with a longitudinally extending stem stored in the barrel, a longitudinally extending rib is formed on an outer surface of a base portion of the clip body or on an outer surface of the stem and a longitudinally extending groove is formed on an inner surface of the barrel and the rib is engaged with the groove and moves along the groove longitudinally, and

by slide operating the clip body forward against a biasing force of the biasing member, the projected ribs are alternately engaged with the cam teeth or the cam grooves at longitudinally different positions to alternately put the nib of the writing body in the projection condition or the

retraction condition.

7. The writing instrument of claim 6, wherein the stem of the clip body and the rotary member are locked to each other in a condition having longitudinal allowance.

8. The writing instrument of claim 6, wherein the another cam teeth are provided at a cylindrical body, and in a condition that the stem of the clip body is inserted into the cylindrical body, the stem of the clip body and the rotary member are locked to each other in a condition having longitudinal allowance.

9. The writing instrument of claim 6, wherein the clip body includes a clip main body operated by sliding forward, the base portion provided consecutively and integrally with the clip main body and the stem being a cylindrical form provided consecutively and integrally with the base portion and extending forward of the base portion, and wherein at the stem, the another cam teeth are formed integrally.

10. The writing instrument of any one of claims 6 through 9, wherein a longitudinally extending guide groove is formed on an outer surface of the barrel forward of the slide hole and a projected bump is provided on a front inner surface of the clip body, and the bump longitudinally slides in the guide groove in association with a longitudinal movement of the clip body.

11. A thermochromic writing instrument, comprising: a writing body storing a thermochromic ink therein, stored in a barrel; an operation body provided at the barrel to be operated to longitudinally move the writing body; a nib of the writing body configured to be capable of appearing from a front end of the writing instrument, wherein

the writing instrument further includes a friction unit made from a low wear elastic material for rubbing handwriting in the thermochromic ink and capable of thermally changing the color of the handwriting by frictional heat generated at that time at a rear end of the barrel and

a longitudinally extending slide hole provided in a side wall of the barrel, and an appearance mechanism putting the nib of the writing body from a retraction condition into a projection condition by slide operating the operation body placed in the slide hole forward,

the barrel includes therein, as the appearance mechanism, a plurality of longitudinally extending cam teeth and cam grooves alternately placed along a circumferential direction, a rotary member having a plurality of projected ribs rotatably placed in the rear of the writing body and capable of alternately engaging with the cam teeth or the cam grooves, another plurality of cam teeth provided in the operation body and turning the rotary member, and an biasing member

biasing the writing body backward,

by slide operating the operation body forward against a biasing force of the biasing member, the projected ribs are alternately engaged with the cam teeth or the cam grooves at longitudinally different positions to alternately put the nib of the writing body in the projection condition or the retraction condition,

the barrel includes a plurality of components, of which component having the slide hole is provided with the cam teeth and the cam grooves on an inner surface of the side wall and a guide groove is provided, which guide groove longitudinally extends forward of the slide hole of an outer surface of the side wall, and

the operation body is a clip body and a projected bump is provided on a front inner surface of the clip body, and the bump longitudinally slides in the guide groove in association with a longitudinal movement of the clip body.

12. The thermochromic writing instrument of claim 11, wherein the clip body has a stem stored in the intermediate barrel and extending longitudinally, and the stem and the rotary member are locked to each other in a condition having longitudinal allowance.

13. The thermochromic writing instrument of claim 11 or 12, wherein the friction unit is made from a low wear elastic material, and a portion of the friction unit abuts on the clip body in a nib retraction condition.

14. The thermochromic writing instrument of any one of claims 11 through 13, wherein the friction unit is made from a low wear elastic material, and is fastened to a component configuring a rear end of the barrel by press fitting, engaging, screwing, fitting, adhesion, and two color molding, or an entire of the component configuring a rear end of the barrel is formed with the elastic material as the friction unit.

15. The thermochromic writing instrument of any one of claims 11 through 14, wherein the clip body has a stem stored in the intermediate barrel and extending longitudinally, a cylindrical body attached to the stem, guide projections are formed on the outer surface of the cylindrical body, the guide projections are engaged with the cam grooves longitudinally movably therealong, cam teeth are formed at the front end of the cylindrical body, and the cam teeth of the cylindrical body abut on the projected ribs of the rotary member.

16. The thermochromic writing instrument of claim 15, wherein an outward projection is formed on an outer surface of the stem, an internal hole penetrates longitudinally the cylindrical

body, an inward projection is formed on an inner surface of the internal hole, and the outward projection on the outer surface of the stem and the inward projection on the inner surface of the internal hole climb over and are engaged with each other.