An adjustment device for a roller blind having a bracket and a roller that is pivoted to the bracket and for adjusting the level of the roller includes a base frame, a moveable member and an adjustment member. The base frame is fastened to an end of the bracket. The moveable member, which is moveably mounted on the base frame, has a mounting hole for holding an end of the roller. The adjustment member is mounted in the base frame for moving the moveable member to further move the roller vertically up and down relative to the base frame.
FIG. 1
ROLLER LEVEL ADJUSTMENT DEVICE FOR ROLLER BLIND

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

The present invention relates to a roller blind and more particularly, to an adjustment device for use in a roller blind for enabling the user to adjust the level of the roller of the roller blind.

[0002] 2. Description of the Related Art

A regular roller blind generally comprises a bracket, a roller pivotally mounted in the bracket, a shade fastened to the roller, and an operating cord coupled to one end of the roller for pulling by the user to rotate the roller. The bracket is transversely (horizontally) provided at the top side of the window. The shade comprises a fabric shade body, which has a top side fixedly fastened to the periphery of the roller and a bottom side mounted with a weight rod. When operating the operating cord to rotate the roller, the roller is biased to roll up or let off (extend out) the shade body. By means of the gravity weight of the weight rod, the shade body is maintained smoothly suspended below the roller.

[0003] However, if the roller is not kept in horizontal perfectly after installation of the roller blind in the window, the shade body will not be smoothly wound round the roller when the user pulling the operating cord to rotate the roller to roll up the shade body. Due to different tensile force at two distal ends of the roller, the shade body will wrinkle at this time.

SUMMARY OF THE INVENTION

It is the primary objective of the present invention to provide a roller level adjustment device, which is practical for use in a roller blind for enabling the user to conveniently adjust the level of the roller of the roller blind.

To achieve this objective of the present invention, an adjustment device for a roller blind for adjusting the level of a roller of the roller blind comprises a base frame, a moveable member and an adjustment member. The base frame is used to be fastened to the roller blind. The moveable member, which is moveably mounted on the base frame, has a mounting hole for holding an end of the roller. The adjustment member is mounted in the base frame for moving the moveable member to further move the roller vertically up and down relative to the base frame.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view of a roller blind constructed according to the present invention.

[0009] FIG. 2 is an exploded view of a roller level adjustment device according to the present invention.

[0010] FIG. 3 is a front view of the roller level adjustment device according to the present invention.

[0011] FIG. 4 is a rear side view of the roller level adjustment device according to the present invention.

[0012] FIG. 5 is a schematic drawing showing the roller level adjustment device connected between the bracket and the roller according to the present invention.

[0013] FIG. 6 is similar to FIG. 5 but showing the adjustment member rotated in one direction, the moveable member moved upwards toward the bracket.

DETAILED DESCRIPTION OF THE INVENTION

[0014] Referring to FIGS. 1-4, two roller level adjustment devices 20 are shown used in a roller blind 10. The roller blind 10 comprises a bracket 11, a roller 60, and a shade 70. The bracket 11 is shaped like an angle bar, having a top wall 12 transversely (horizontally) provided at the top side of the window, and a side wall 13 perpendicularly downwardly extended from the top wall 12 along the length. The roller 60 is a cylinder transversely (horizontally) pivotally connected between the roller level adjustment devices 20 below the top wall 12 of the bracket 11. An operating cord (chain) 62 is provided at one end of the roller 60 for pulling by the user to rotate the roller 60. The shade 70 comprises a fabric shade body 71 and a weight rod 72. The roller level adjustment devices 20 are provided at the two distal ends of the bracket 11.

[0015] Each roller level adjustment device 20 comprises a base frame 30, a moveable member 40, and an adjustment member 50. The base frame 30 is made of a metal plate by stamping, comprising a mounting portion 31 and a guide portion 32. The mounting portion 31 has a substantially U-shaped profile comprised of a first sidewall 33, a second sidewall 34, and a third sidewall 35. The first sidewall 33 and the third sidewall 35 are arranged in parallel. The second sidewall 34 is connected between the first sidewall 33 and the third sidewall 35. The guide portion 32 has a flat configuration is perpendicularly outwardly extended from the distal end of the third sidewall 35. The first sidewall 33 has two oblong through holes 36 for mounting. The second sidewall 34 has a rectangular restraining hole 37 near the bottom side. The third sidewall 35 has a center through hole 38. The guide portion 32 has a guide slot 39 vertically extended to the bottom side on the middle, thereby defining two guide rails 391 at two sides of the guide slot 39. The guide rails 391 extend from the distal end of the guide portion 39 along the major axis of the guide portion 39 toward the third sidewall 35 to a predetermined distance. The extending direction of the guide rails 391 is perpendicular to the first sidewall 33. According to the present preferred embodiment, two screw bolts 14 are inserted through the oblong through holes 36 and fastened to the top wall 12 of the bracket 11 to fix the base frame 30 to the bracket 11. When installed, the guide rails 391 are vertically suspended below the bracket 11.

[0016] The moveable member 40 comprises a leveling screw 41, and a roller carrier 42. The leveling screw 41 has one end, namely, the bottom end fixedly connected to the smoothly arched top side of the roller carrier 42. The roller carrier 42 is a block member comprising a groove 43 extended around the periphery and defining two coupling portions 46 at two opposite lateral sides of the roller carrier 42, a mounting hole 44 disposed at the center of the inner side, and a bottom open notch 45 formed in the bottom side in communication with one end of the mounting hole 44. The mounting hole 44 receives one end of the roller 60. The bottom open notch 45 is for enabling the roller 60 to be easily inserted into the mounting hole 44. The roller carrier 42 is installed in the guide portion 32 of the base frame 30.
by coupling the two coupling portions 46 of the roller carrier 42 to the guide rails 431, keeping the leveling screw 41 inserted upwards through the through hole 38 of the third sidewall 35 of the base frame 30.

[0017] The adjustment member 50 is a flat circular knob having a center screw hole 51 and a plurality of ribs 52 spaced around the periphery. The adjustment member 50 is supported on the top side of the third sidewall 35 in axial alignment with the through hole 38. The center screw hole 51 is threaded onto the leveling screw 41 of the moveable member 40, keeping the periphery of the adjustment member 50 partially projecting through the restraining hole 37. When the adjustment member 50 is actuated by a user at the second sidewall 34 of the base frame 30, the leveling screw 41 is moved vertically upwards or downwards because the vertical movement of the adjustment member 50 is limited by the top wall or the bottom wall of the restraining hole 37, thereby causing the roller carrier 42 to be moved with the leveling screw 41 along the guide rails 391.

[0018] When pulling the operating cord 62 to rotate the roller 60, the roller 60 rolls up or lowers (extends out) to the shade body 72. When rotating the roller 60 to lower (extends out) the shade body 72, the gravity weight of the weight rod 74 stretches the shade body 72 smoothly downwards. If the shade body 72 cannot be maintained smooth due to non-horizontal status of the roller 60, at this time the user can adjust one of the two roller level adjustment devices 20. During adjustment, as shown in FIGS. 5 and 6, rotate the adjustment member 50 at the second sidewall 34 of the base frame 30 to move the leveling screw 41 vertically upwards or downwards, thereby causing the roller carrier 42 to be moved with the leveling screw 41 along the guide rails 391 to lift or lower the corresponding end of the roller 60, and therefore the roller 60 is adjusted to horizontal.

[0019] After the roller 60 has been adjusted to horizontal, the shade body 72 is maintained smoothly suspended from the roller 60.

[0020] Further, it is to be understood that the objective of the present invention can also be achieved by simply installing only one roller level adjustment device in one end of the bracket.

[0021] Although a particular embodiment of the invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited except as by the appended claims.

What is claimed is:

1. An adjustment device for a roller blind and for adjusting the level of a roller of the roller blind, the adjustment device comprising:

   a base frame;

   a moveable member mounted on said base frame and movable relative to said base frame, said moveable member having a mounting hole for holding an end of said roller of said roller blind; and

   an adjustment member mounted in said base frame for moving said moveable member to further move the roller vertically up and down relative to said base frame.

2. The adjustment device as claimed in claim 1, wherein said base frame comprises a vertically extended rail; said moveable member comprises a coupling portion coupled to and movable along said vertically extended rail.

3. The adjustment device as claimed in claim 1, wherein said base frame comprises a through hole; said moveable member comprises a roller carrier having said mounting hole, and a leveling screw having a bottom end connected to said roller carrier and a top end inserted through the through hole of said base frame; said adjustment member comprises a screw hole axially disposed above the through hole of said base frame and threaded onto said leveling screw.

4. The adjustment device as claimed in claim 3, wherein said base frame comprises a restraining hole; said adjustment member has a periphery thereof partially protruding over said restraining hole.

5. The adjustment device as claimed in claim 1, wherein said base frame comprises:

   a mounting portion having a first sidewall for mounting on said roller blind, a second sidewall perpendicularly downwardly extended from said first sidewall, and a third sidewall perpendicularly extended from said second sidewall placed in parallel to said first sidewall, and

   a guide portion downwardly extended from said third sidewall of said mounting portion remote from said second sidewall for guiding movement of said moveable member.

6. The adjustment device as claimed in claim 2, wherein said base frame comprises a mounting portion and a guide portion; said mounting portion having a first sidewall for mounting on said roller blind, a second sidewall perpendicularly downwardly extended from said first sidewall, and a third sidewall perpendicularly extended from said second sidewall and disposed in parallel to said first sidewall; said guide portion having a guide slot at a middle thereof defining two said guide rails vertically arranged in parallel at two sides of said guide slot;

   wherein said moveable member comprises a groove extended along a periphery thereof such that two said coupling portions are formed in said groove at two sides and respectively coupled to said guide rails.

7. The adjustment device as claimed in claim 6, wherein said third sidewall of said mounting portion of said base frame comprises a through hole; said moveable member comprises a roller carrier having said mounting hole, and a leveling screw having a bottom end connected to said roller carrier and a top end inserted through the through hole of said mounting portion of said base frame; said adjustment member comprises a screw hole axially disposed above the through hole of said base frame and threaded onto said leveling screw.

8. The adjustment device as claimed in claim 7, wherein said second sidewall of said mounting portion of said base frame comprises an restraining hole; said adjustment member has a periphery thereof partially protruding over said restraining hole.
9. A roller blind comprising:
   a bracket;
   an adjustment device having a base frame fastened to an end of said bracket, a moveable member moveably mounted on said base and having a mounting hole, and an adjustment member for moving said moveable member vertically up and down on said base frame;
   a roller having an end pivotally mounted in said mounting hole of said moveable member and an opposite end pivotally mounted to the other end of said bracket; and
   a shade connected to said roller and windable on said roller.

10. The roller blind as claimed in claim 9, wherein said base frame comprises a vertically extended rail; said moveable member comprises a coupling portion coupled to and movable along said vertically extended rail.

11. The roller blind as claimed in claim 9, wherein said base frame comprises a through hole; said moveable member comprises a roller carrier having said mounting hole, and a leveling screw having a bottom end connected to said roller carrier and a top end inserted through the through hole of said base frame; said adjustment member comprises a screw hole axially disposed above the through hole of said base frame and threaded onto said leveling screw.

12. The roller blind as claimed in claim 11, wherein said base frame comprises an restraining hole; said adjustment member has a periphery thereof partially protruding over said restraining hole.

13. The roller blind as claimed in claim 9, wherein said base frame comprises:
   a mounting portion having a first sidewall fastened to said bracket, a second sidewall perpendicularly downwardly extended from said first sidewall, and a third sidewall perpendicularly extended from said second sidewall and disposed in parallel to said first sidewall, and a guide portion downwardly extended from said third sidewall of said mounting portion remote from said second sidewall for guiding movement of said moveable member.

14. The roller blind as claimed in claim 10, wherein said base frame comprises a mounting portion and a guide portion; said mounting portion having a first sidewall fastened to said bracket, a second sidewall perpendicularly downwardly extended from said first sidewall, and a third sidewall perpendicularly extended from said second sideway and disposed in parallel to said first sidewall; said guide portion being downwardly extended from said third sidewall of said mounting portion remote from said second sidewall, said guide portion having a guide slot at a middle thereof defining two said guide rails vertically arranged in parallel at two sides of said guide slot;

   wherein said moveable member comprises a groove extended along a periphery thereof such that two said coupling portions are formed in said groove at two sides and respectively coupled to said guide rails.

15. The roller blind as claimed in claim 14, wherein said third sidewall of said mounting portion of said base frame comprises a through hole; said moveable member comprises a roller carrier having said mounting hole, and a leveling screw having a bottom end connected to said roller carrier and a top end inserted through the through hole of said mounting portion of said base frame; said adjustment member comprises a screw hole axially disposed above the through hole of said base frame and threaded onto said leveling screw.

16. The roller blind as claimed in claim 15, wherein said second sidewall of said mounting portion of said base frame comprises an restraining hole; said adjustment member has a periphery thereof partially protruding over said restraining hole.

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