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B62K 19/00

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(56) Documents Cited
EP 0058524 A1 **US 5351980 A**

(58) Field of Search
UK CL (Edition R) **A4L LDC LDH , B7E ECF EFX EPC EPM ESC , E1E , E1S SP , F2M MC1 , G2J JRB1**
INT CL^7 **B62K 13/08 19/00 19/30 19/32 19/36 21/12 21/16 , E04G 1/18 1/22 5/00 25/04 25/06 25/08 , E21D 15/14 15/16 15/28 15/32 15/40 , F16B 7/10 7/14 , G03B 17/56**

(54) Abstract Title
Telescopic handlebar support tube assembly

(57) The assembly comprises an outer tube 1 having a pair of axial slots 11,12 at one end opposing each other, and is sleeved with a restraining loop 3 which comprises a quick release lever 31 at one side and an indentation 32 on its inner surface to secure a positioning block 4 having a pair of grooves 41 at respective sides corresponding to the thickness of the wall of the outer tube. An inner tube 2 has a longitudinal V-groove 21. The inner end of the positioning block is formed with a tapered surface 43 to locate in the groove 21. The restraining loop has a threaded hole 33 accepting a screw 34 engaging a blind hole 42 in the block 4, the screw engaging a circular notch 13 in the slot 11 for securing the restraining loop 3 to the outer tube 1.

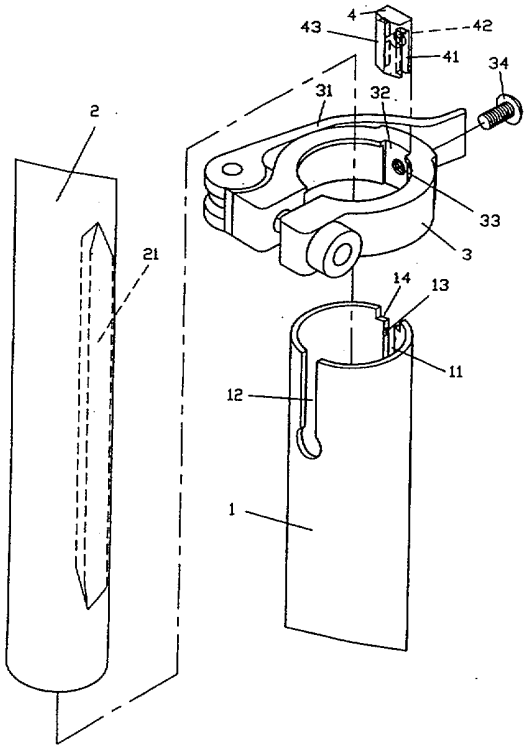
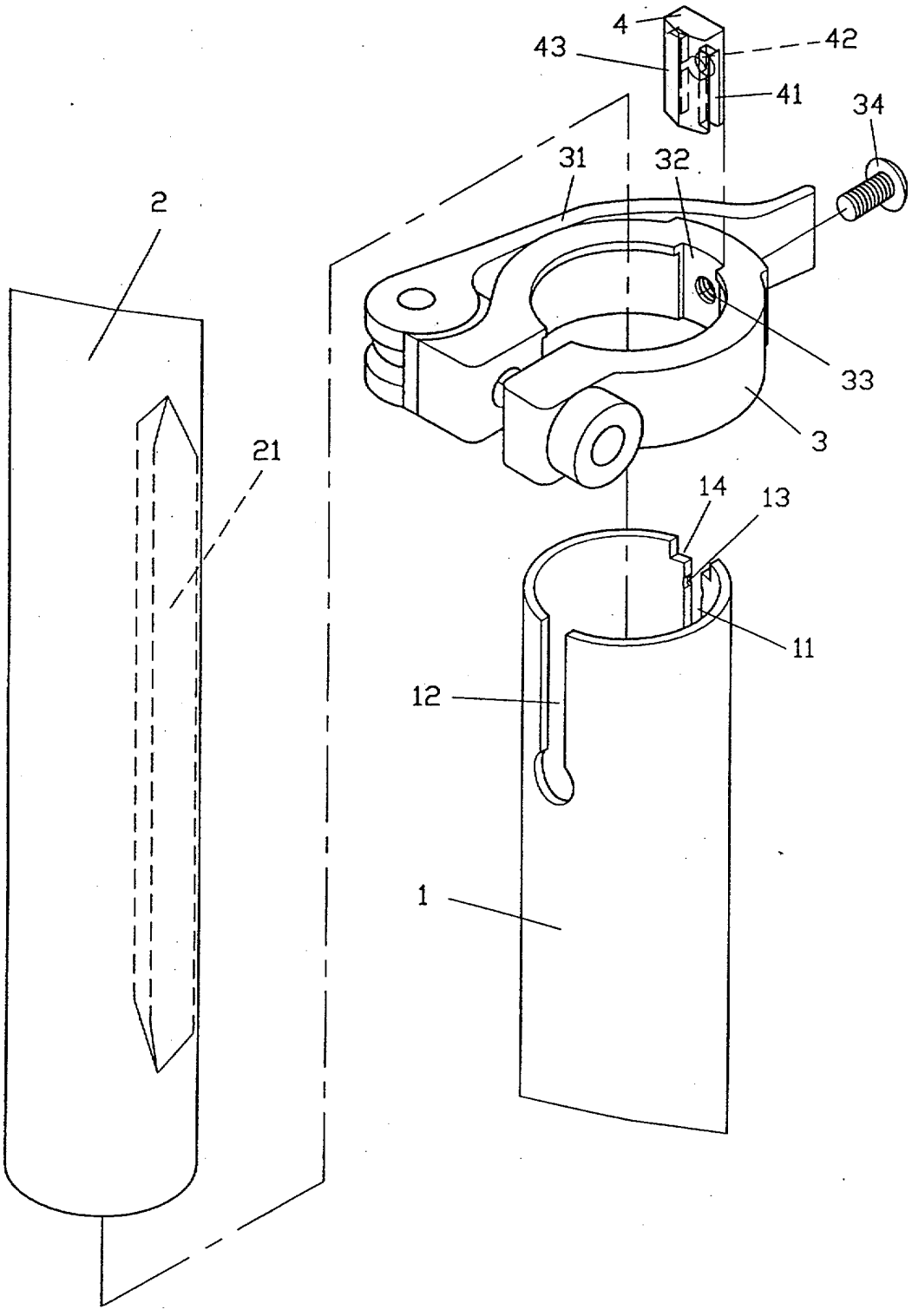


FIG.1

GB 2 360 260 A



F I G. 1

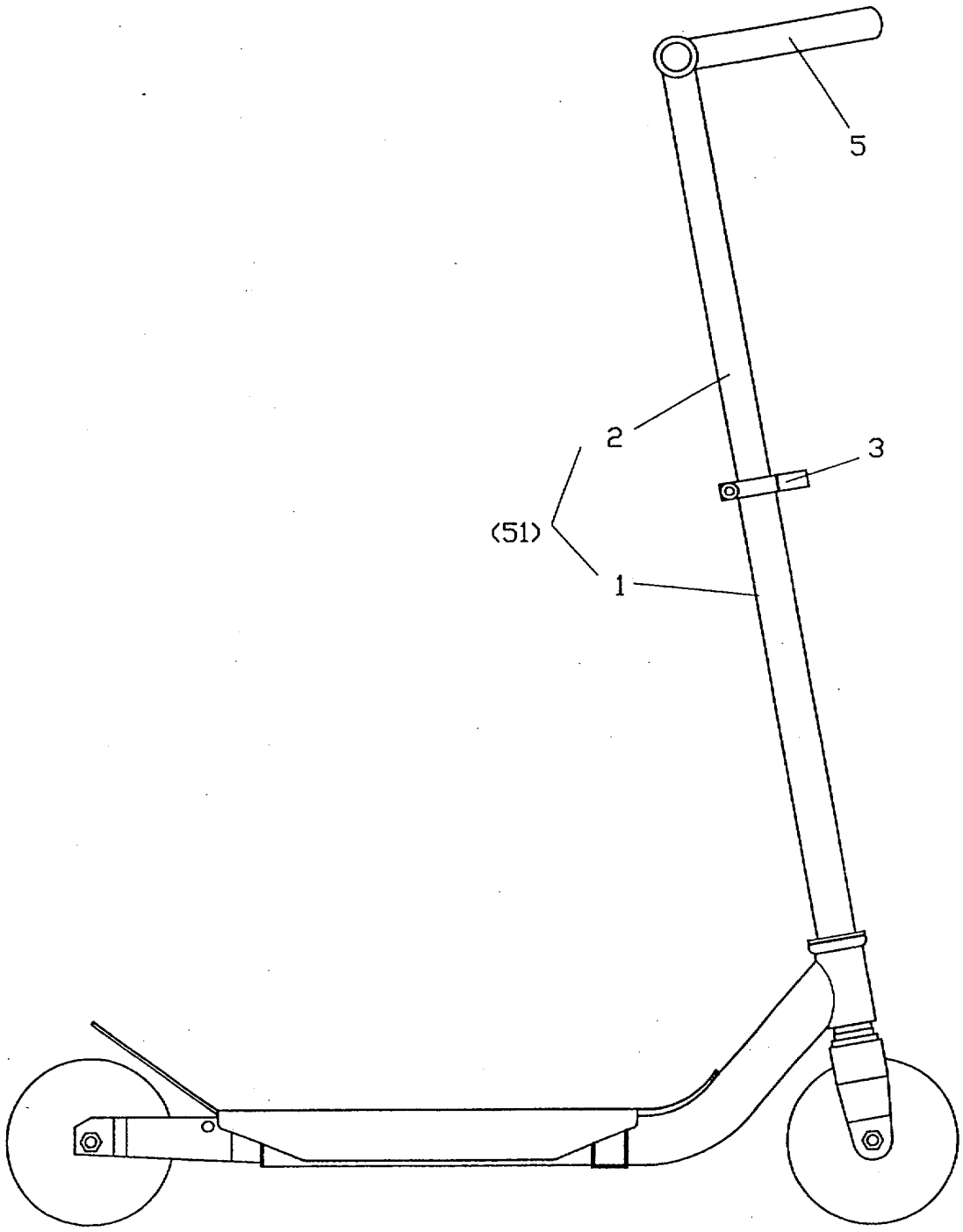


FIG.2

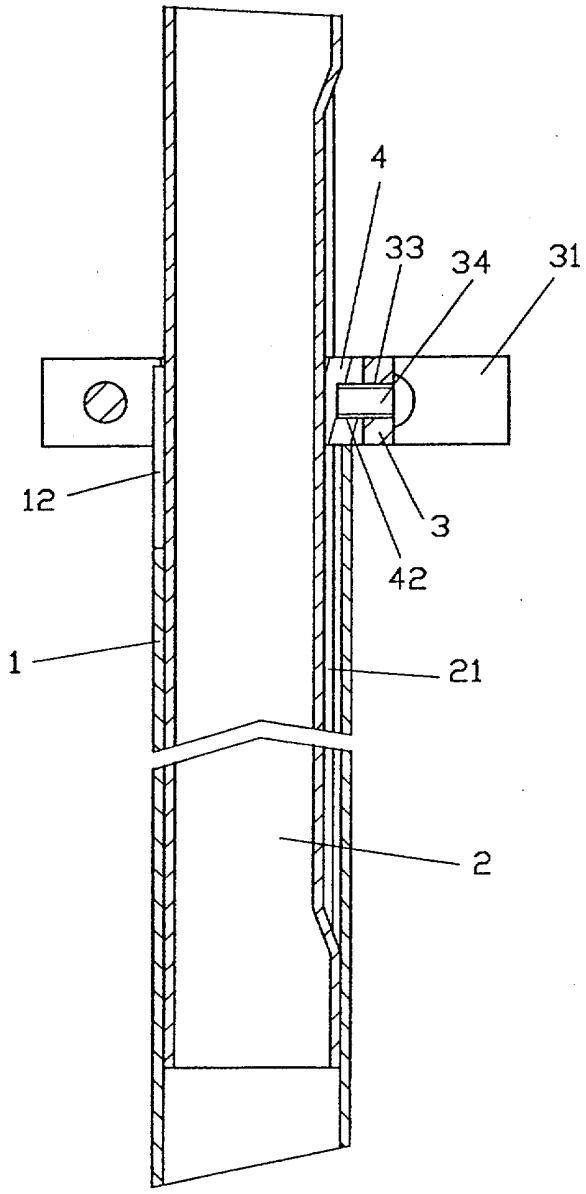


FIG.3

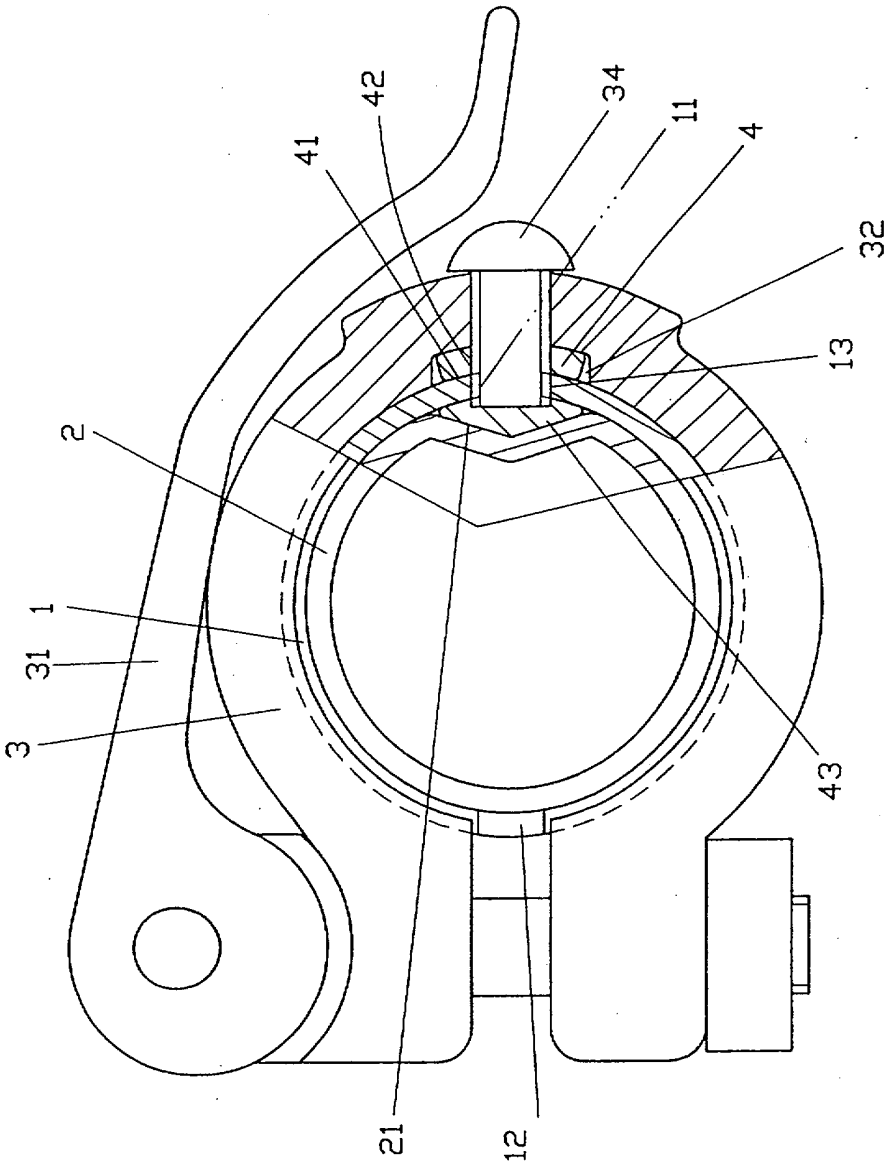


FIG.4

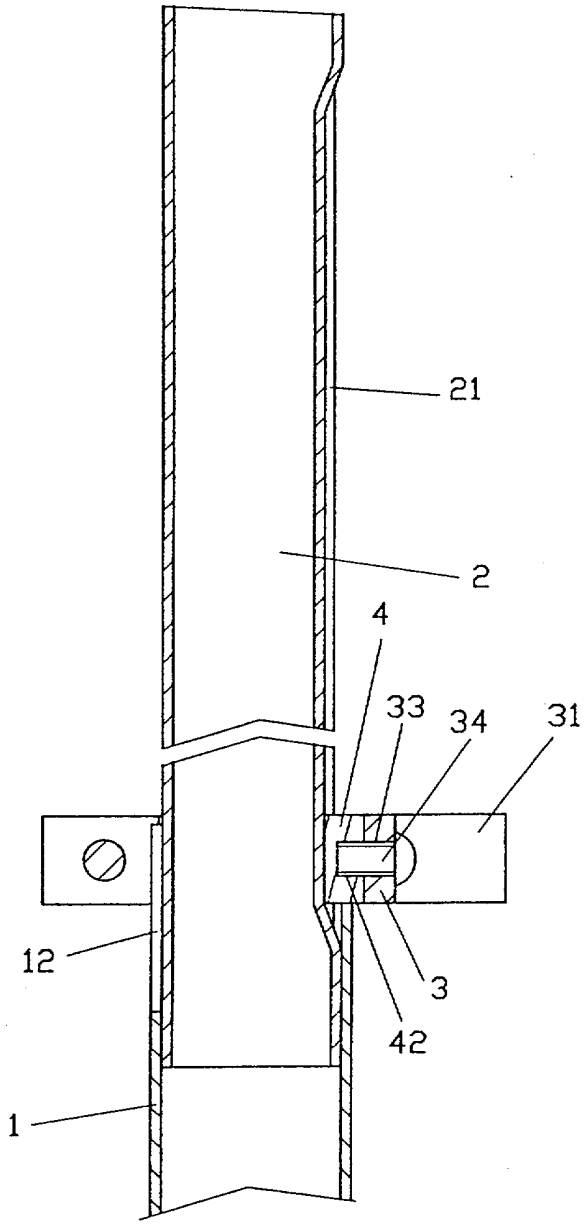


FIG.5

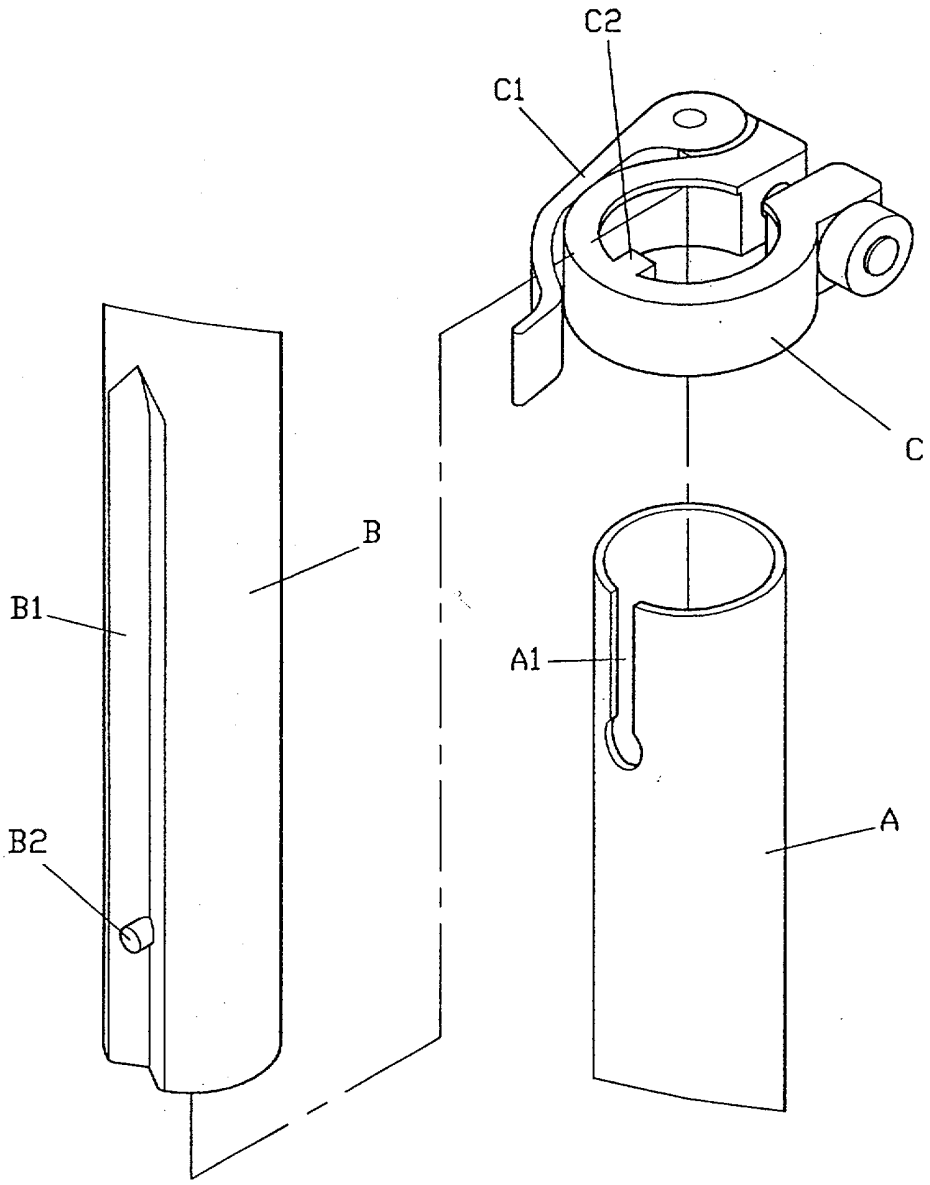


FIG.6
PRIOR ART

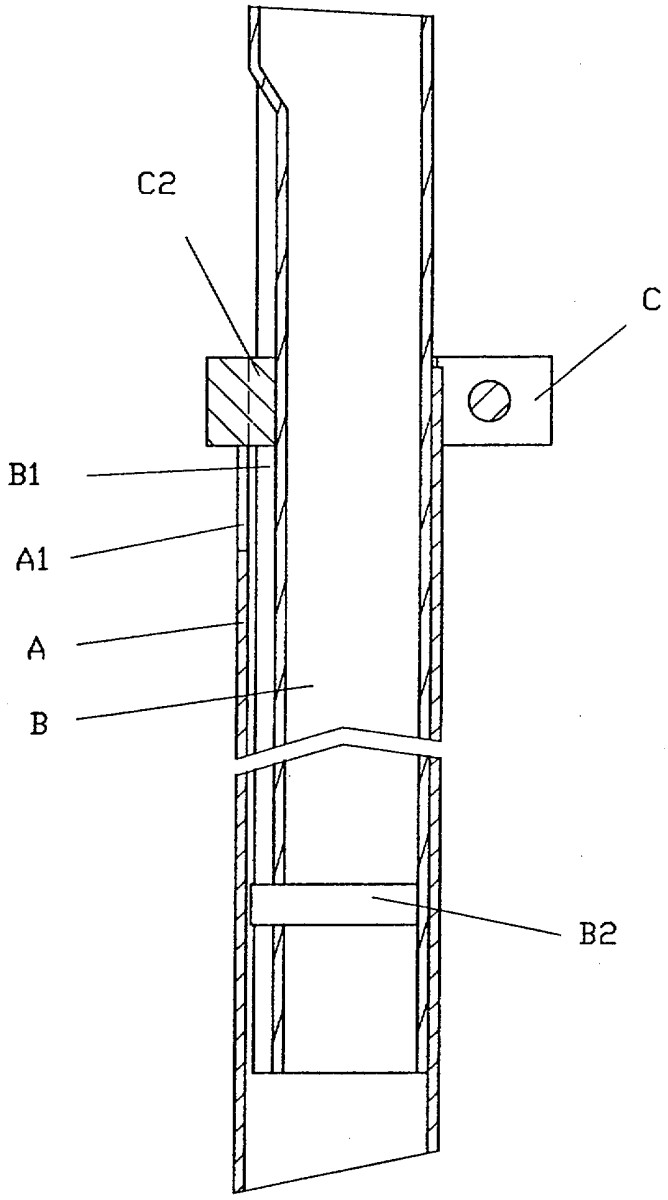


FIG.7

PRIOR ART

TITLE: A TELESCOPE TUBE FOR FAST EXPANDING AND RETRACTING A MAN-POWERED CYCLE OR SCOOTER

Background of the Invention

Field of the Invention

This invention relates to a man-powered cycle or scooter, and in particular to a telescope tube for fast expanding and retracting a cycle or scooter.

Prior art

In general, cycles or scooters have a large size which is not easy to carry or to store, thus a retractable structure is devised, as shown in FIGS. 6 and 7, which includes an outer tube (A) having an axial slot (A1), a restraining loop (C) with a quick-release lever (C1) sleeved on the top of the outer tube A. The restraining loop (C) has a protruding section (C2) in the inner surface which corresponds to the axial slot (A1). An inner tube (B) seats in the restraining loop (C) has a V-shaped groove (B1) which corresponds to the protruding section (C2). A buffer projection (B2) protrudes from the inner wall of the V-shaped groove (B1). The inner tube (B) can extend and retract over the protruding section (C2) of the restraining loop (C), but It is secured in place unable to turn. The buffer projection (B2) is placed against the protruding section (C2) in the restraining loop (C) to constraint movement. Whereas the telescopic design is able to retract so as to reduce its size. The ability to lengthen and shorten the tubes facilitates storage and transportation.

In view of this, the inventor has created a practical and improved product for the consumer, and so has energetically conducted research in this field.

Summary of the Invention

It is the primary object of the present invention to provide a telescope tube for fast expanding and retracting a man-powered cycle or scooter, which capable of retracting its size when not in use or to expand, as necessary.

It is another object of the present invention to provide a telescope tube for fast expanding and retracting a man-powered cycle or scooter, which is easy

to operate and saves more space.

It is a further object of the present invention to provide a telescope tube for fast expanding and retracting a man-powered cycle or scooter, which structure is solid.

Brief Description of the Drawings

FIG. 1 is an exploded view of the present invention;

FIG. 2 is a side view of a scooter incorporated in the present invention;

FIG. 3 is an assembled enlarging sectional view of the present invention;

FIG. 4 is a top view of the present invention;

FIG. 5 is a side cross sectional view of the present invention illustrating an adjustment of the telescopic tube;

FIG. 6 is an exploded view of a prior art; and

FIG. 7 is a side cross sectional view of FIG. 6.

Detailed Description of the Invention

As shown in Figure 1, the telescopic tube of the present invention is divided into sections which are fitted together which includes an outer tube 1, an inner tube 2, a restraining loop 3 with a quick-release lever 31 at one side, and a positioning block 4.

The outer tube 1 comprises a pair of slots 11 and 12 at one end and corresponds to each other. The slot 11 has a circular notch 13 along its length, and an enlarged opening 14 at its extremity which connects with the positioning block 4. And the restraining loop 3 is sleeved on the outer tube 1.

The inner tube 2 has a V-shaped channel 21 formed into the outer wall which corresponds to the slot 11 of the outer tube 1.

The restraining loop 3 has an axial indentation 32 on the inner surface to seat the positioning block 4 therein. The positioning block 4 rises above the inner surface of the restraining loop 3 and comprises a pair of grooves 41 on respective sides which correspond to the thickness of the wall of the outer tube 1 and to the width of the slot 11. The positioning block 4 has an indented hole 42 in the center in between the two grooves 41, with a diameter slightly larger than the distance between the inner walls of the grooves 41, thus connecting the grooves 41. The hole 42 corresponds to the aforementioned circular notch 13 in the slot 11 of the outer tube 1. Thus, a tapered surface 43 of the positioning block 4 is facing inwards from the slot 11 of the outer tube 1. In addition, the restraining loop 3 has a screw hole 33 which also corresponds to the hole 42, so that the screw hole 33 can be connected with the indented hole 42 by a fastener 34.

To assemble, as shown in Figure 3, slides the positioning block 4 into the indentation 32 of the restraining loop 3, then insert the inner tube 2 into the outer tube 1 through the restraining loop 3 with the tapered surface 43 of the positioning block 4 positioned within the V-shaped channel 21 in the wall of the inner tube 2. Whereas the two grooves 41 of both sides of the positioning block 4 slide into the slot 11 in the wall of the outer tube 1.

The restraining loop 3 secures the upper end of the outer tube 1, and the

bolt 34 is screwed into the aforementioned screw hole 33 and the hole 42, and also secures into the circular notch 13 in order to fix the restraining loop 3, the positioning block 4, and the outer tube 1 in their respective positions.

Using this invention on a vertical stem 51(as shown in Figure 2, actually including outer tube 1 and inner tube 2) of a handlebar 5 of a cycle or scooter (such as the scooter) shown in Figure 2, enables the height of the vertical stem 51 to be adjusted by sliding the inner tube 2 into the outer tube 1. Figures 3 and 4 show that the positioning block 4 and the restraining loop 3 are fitted on the inside and outside of the outer tube 1 and are secured by a bolt 34. The positioning block 4 fits into the slot 11 of the outer tube 1, and its tapered section 43 corresponds to the V-shaped channel 21 of the inner tube 2 when this is inserted into the outer tube 1. This acts to limit the movement of the inner tube 2 and outer tube 1 so that they cannot be turned against one another and so that they can slide smoothly over each other to produce a telescopic effect. By manipulating the quick-release lever 31, the restraining loop 3 can be made to grip the outer tube 1 tightly, and another slot 12 locks the inner tube 2 into place. When the quick-release lever 31 is slackened, the restraining loop 3 no longer tightly grips the outer tube 3 and the inner tube 2 can be pulled out to its limit. As shown in Figure 5, the tapered surface 43 of the positioning block 4 restricts movement beyond the end of the V-shaped channel 21 of the inner tube 2. This prevents the inner tube 2 from being pulled out of the outer tube 1.

I CLAIM:

A telescope tube for fast expanding and retracting a man-powered cycle or scooter comprising an outer tube, an inner tube and a restraining loop with a quick-release lever, said outer tube having a pair of slots at respect side wall, said restraining loop being secured within said slot of said outer tube, said inner tube comprising a V-shaped channel which fits over the inner tube has two axial slots cut into it, and the improvements comprising,

said restraining loop comprising an indentation on the inner surface to accommodate said positioning block which then projecting from the inner surface of said restraining loop, a pair of grooves at respect sides for sliding along said slot in said outer telescopic tube, said grooves having a distance the same as the width of said slot in said outer tube for sliding said positioning block therein, said positioning block having a hole which diameter being slightly larger than the distance between said inner tube of said two grooves, thus connecting said grooves on the two sides, the inward-facing side of said positioning block being tapered, a screw-hole running through said restraining loop and into the rear end of said positioning block so that said restraining loop and said positioning block can be secured to said outer tube, said tapered surface fitting into said corresponding indentation along said inner tube.

The Patent Office

INVESTOR IN PEOPLE

Application No: GB 0006185.3 **Examiner:** Roger Binding
Claims searched: 1 **Date of search:** 5 June 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): B7E (ECF, EFX, EPC, EPM, ESC); A4L (LDC, LDH); E1E; E1S (SP); F2M (MC1); G2J (JRB1)

Int Cl (Ed.7): B62K 13/08, 19/00, 19/30, 19/32, 19/36, 21/12, 21/16; E04G 1/18, 1/22, 5/00, 25/04, 25/06, 25/08; E21D 15/14, 15/16, 15/28, 15/32, 15/40; F16B 7/10, 7/14; G03B 17/56

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	EP 0058524 A1 (HON CORPN)	
A	US 5351980 A (HUANG)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.