

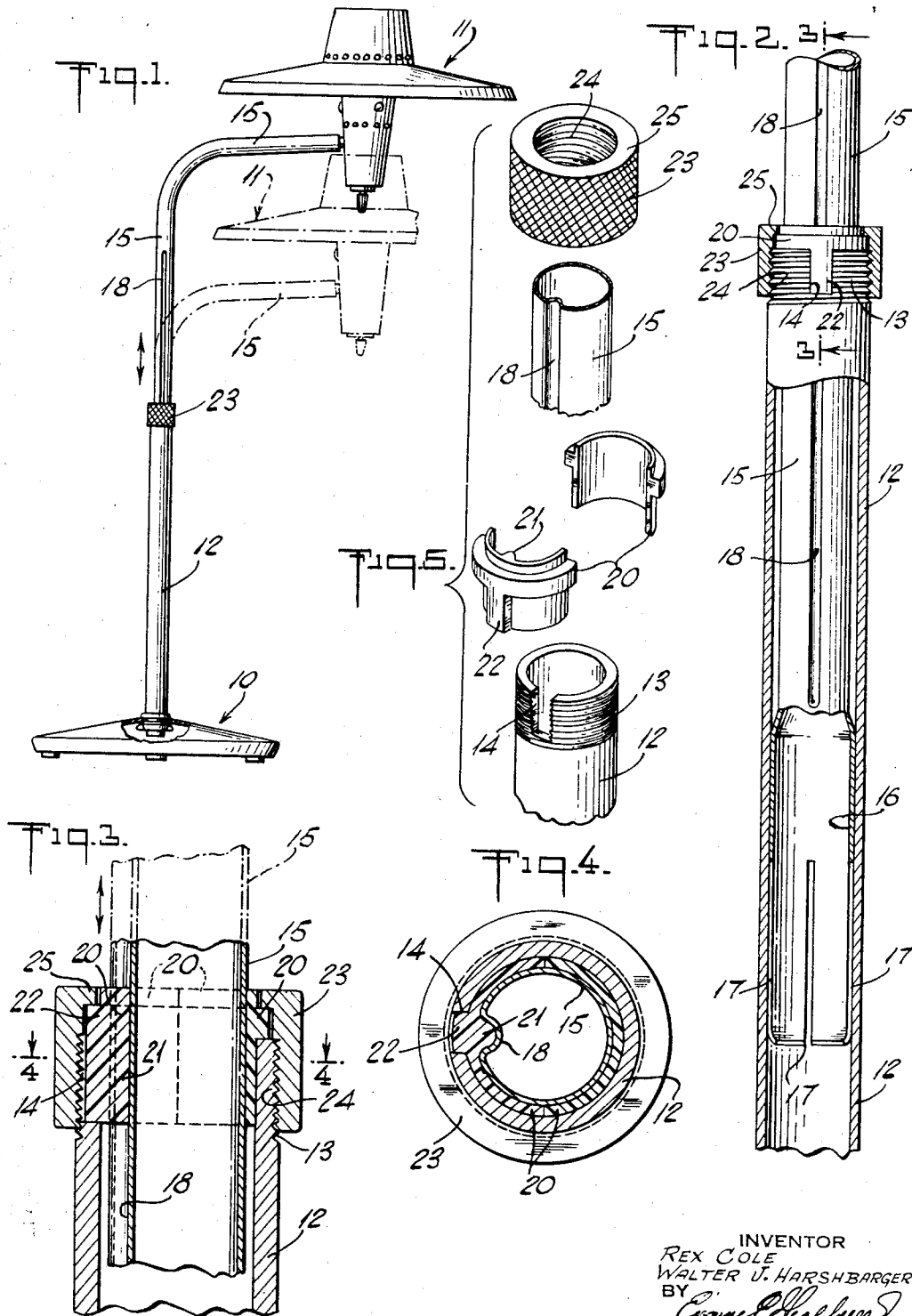
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R. COLE ET AL
PORTABLE LAMP

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2 Sheets-Sheet 1



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Fig. 6. Fig. 7. Fig. 8. Fig. 9.

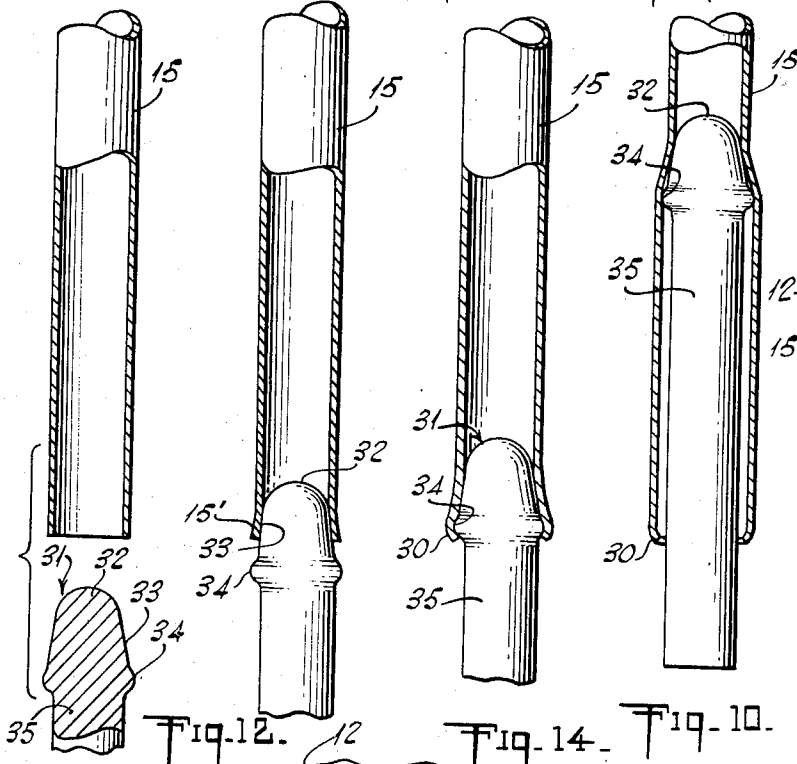


Fig. 11.

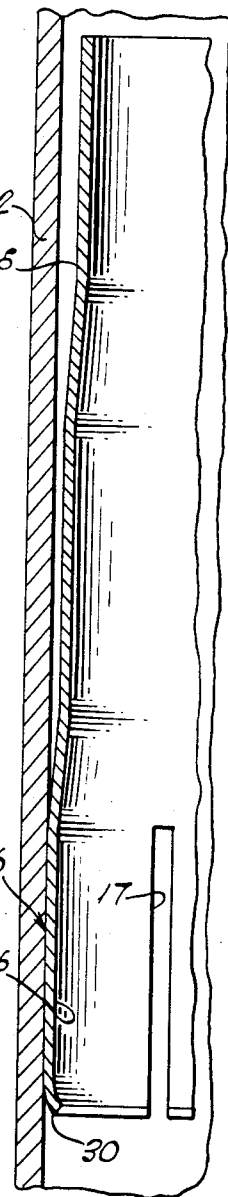
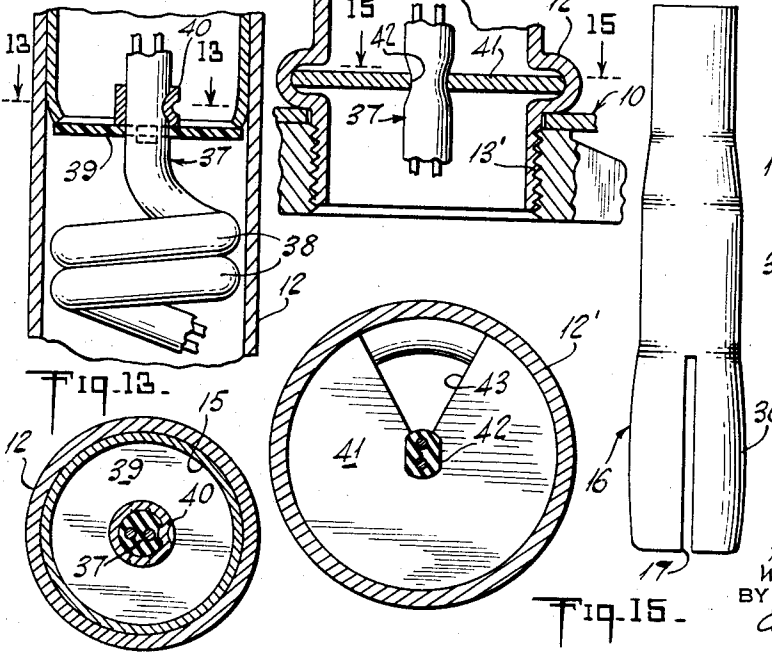


Fig. 12. Fig. 14. Fig. 10.



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PORTABLE LAMP

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2 Claims. (Cl. 240—81)

This invention relates to portable lamps and more particularly concerns portable lamps having vertically adjustable telescoping joints and constitutes a continuation-in-part of our application filed Feb. 13, 1956, Serial No. 565,080, entitled Portable Lamps, now abandoned.

The telescoping joint employed in the present invention is one constructed out of two telescoping tubes through which wiring may pass. The inner tube has an enlarged lower end which frictionally engages the smooth bore outer tube, and the two tubes are secured together by a bushing nonrotatably coupled to each tube and fixed to the outer tube. The joint is one which employs easily made and assembled parts and is suitable for supporting the upper parts of the lamp by friction alone. It is characterized by the absence of mechanism involving any clamping action or the adjustment of extraneous parts.

The invention further contemplates an improved method and apparatus for forming the enlarged lower end of the inner tube and means for the retention of the electric wiring in such a manner as to impose minimum strain and stress on the wiring and permit easy assembly.

The accompanying drawings show, for purposes of illustrating the present invention, one embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In the accompanying drawings:

Fig. 1 is a side elevational view of the portable lamp showing the upper part of the lamp at two heights;

Fig. 2 is a vertical sectional view at a larger scale, showing the telescoped tubes and associated parts;

Fig. 3 is a fragmentary sectional view, at a still larger scale and taken on the line 3—3 of Fig. 2;

Fig. 4 is a horizontal section in the line 4—4 of Fig. 3;

Fig. 5 is an exploded perspective view of the parts.

Figs. 6—9 illustrate certain steps in the process of fabricating the enlarged lower end of the inner tube and forming part of the telescoping joint;

Fig. 10 is a side elevational view of the completed enlarged lower end of the inner tube;

Fig. 11 is an enlarged cross sectional view of a fragmentary section of the telescoping joint shown in Fig. 2;

Fig. 12 is a cross sectional view of a fragmentary portion of Fig. 1 showing the improved wiring in accordance with the invention;

Fig. 13 is a cross sectional view of Fig. 12 taken along the line 13—13 thereof;

Fig. 14 is a cross sectional view of the lamp stand showing the attachment of the telescoping tubes to the base and the attachment of the wiring; and

Fig. 15 is a cross sectional view of Fig. 14 taken along the line 15—15 thereof.

In Fig. 1, the base of a portable lamp is indicated at 10, and the head of the lamp, which typically includes a lamp socket, lamp bulb, and reflector, shade or other light controlling device about the bulb, is shown at 11. The base carries an upwardly extending tube 12, having

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a smooth bore and provided at the upper end as shown in Fig. 2 with thread 13 and a notch 14. The lower end of the tube 12 includes an enlarged portion 12' and threads 13' (see Fig. 14) for attachment of the tube 12 to the base 10 by wing nut 10'. The lamp head 11 is secured to a tube 15 of smaller diameter than the tube 12 and here shown as bent so as to carry the lamp head at a position laterally of the axis of tube 12.

The lower end of the inner tube 15 is enlarged, as indicated at 16 (see Fig. 2), and split, as indicated at 17, to form fingers 17'. The expanded portion of the tube frictionally engages the inner wall of the outer tube so as to offer substantial resistance to sliding, i.e. one sufficient to sustain the load imposed by the lamp head. The lower ends of the fingers 17 include inwardly formed portions indicated at 30 to prevent abrasion or other damage to the internal wall of tube 12.

The tube 15, beyond the enlarged end thereof, is straight for a length corresponding to the amount of adjustment desired. This straight portion of the tube has a vertical keyway 18 as indicated more clearly in Fig. 4.

A split bushing 20, preferably made of tough plastic such as nylon, Teflon or polyethylene, is received in the upper end of the tube 15. This bushing has an internal rib or key 21 to enter the keyway 18 in the inner tube and an external key 22 which enters the notch 14 in the upper end of the tube 12. A ring 23 has threads 24 to fit the threads in the upper end of the tube 12 and a flange 25 bearing against the top of the bushing.

The split bushing is preferred to a one-piece structure, as the split bushing can be put in place without sliding it onto the smaller tube before the latter is secured to the socket cover or other article carried by it. Moreover the bushing merely acts as a guide and the nut 23 need not be loosened to adjust the height of the lamp.

The formation of the enlarged end portion 16 of the inner tube 15 is shown in Figs. 6—10, inclusive. The tube 15 is shown in Fig. 6 prior to insertion of the mandrel 31 shown below the tube. The mandrel has a rounded nose portion 32 with diverging walls 33 terminating in annular ridge 34 and a reduced shank 35. In Fig. 7, the mandrel 31 is shown entering the tube 15 producing gradual expansion of the end 15'. When the ridge 34 passes the end 15' of the tube as shown in Fig. 8, the end 15' contracts to form an inwardly curved portion as indicated at 30. After penetration of the mandrel to the desired depth, the latter is withdrawn leaving the expanded section with the inwardly turned end part 30. Expansion or enlargement of tube 15 in this way avoids the need for a separate operation or step to attain the rounded or curved end part 30.

After enlargement of the tube 15 as shown in Fig. 9, the slots 17 are formed in the expanded portion. This releases certain of the stresses produced in the expanding operation and causes the fingers to bow outwardly as shown at 36 in Fig. 10. When the enlarged end 16 is placed within the tube 12, the fingers 17' are forced inwardly as shown in Figs. 2 and 11, but which may be observed more clearly in Fig. 11. Since the lower ends of the finger 17' are curved inwardly, they will slide easily within the tube 12 and the pressure of the fingers 17' will offer sufficient friction to support the weight of the lighting means.

Figs. 12 to 15 illustrate a novel and improved electric cord and means for securing it within the tube 12 in order to minimize the stress on the cord in the adjustment of the lamp and prevent damage to the insulating covering material forming part of the cord. More specifically the cord, denoted by the numeral 37, includes means for causing it to form a series of coils 38 that may be expanded with the application of pressure and will contract to the position shown in Fig. 12 when the pressure is relieved.

The upper end of the cord 37 extends through a washer 39 of insulating material and is secured to the washer by a clip 40 formed integrally with the washer or secured thereto. The washer 39 holds the cord centrally of tube 12 and will move upwardly and downwardly with tube 15 because the upper end of the cord 37 is secured to the lamp head.

The lower end of the cord 37 is secured to the base of the tube 12 by means of a split washer 41. This washer has a central opening 42 slightly smaller than the wire 37 and has a sector removed as indicated at 43. The wire or cord 37 is inserted in the opening 42 whereupon the washer is forced into the tube 12 until it engages the expanded portion 12' and enters the annular recess formed thereby. In this way the bottom portion of the cord is locked in place and movement of the tube 15 will expand and contract the coils 38 of cord 37.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular form shown is but one of these forms, and, various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A vertically adjustable lamp comprising a base, a vertical cylindrical tube secured to and extending upwardly from said base, a second tube slidably disposed within the first said tube, friction means carried by said second tube and frictionally engaging the walls of the first tube, a bushing at the upper end of the first tube and loosely engaging said second tube to facilitate relatively free movement of said second tube therethrough, an elongated keyway formed in one of said tubes with the wall thickness of the keyway being substantially equal to the wall thickness of the tube and functioning to stiffen the tube, means fixedly positioned relative to the other of said tubes and cooperating with said keyway to limit relative rotation of said tubes, and illuminating means carried by said second tube, said illuminating means including a light source, light controlling means surrounding said light source and extensible electric cable means ex-

tending from said light source through said tubes and base for connection to a source of electric energy whereby said tubes may be moved readily in a longitudinal direction one relative to the other while relative angular motion is resisted.

2. A vertically adjustable lamp comprising a base, a vertical cylindrical tube secured to and extending upwardly from said base, a second tube slidably disposed within the first said tube, friction means carried by said second tube and frictionally engaging the walls of the first tube, a bushing at the upper end of the first tube and loosely engaging said second tube to facilitate relatively free movement of said second tube therethrough, an elongated keyway in one of said tubes with the wall thickness of the keyway being substantially equal to the wall thickness of the tube and functioning to stiffen the tube, means fixedly positioned relative to the other of said tubes and cooperating with the keyway to limit relative rotation of said tubes, and illuminating means carried by said second tube and including a light source, light controlling means surrounding said light source and cable means extending from said light source through said tubes and base for connection to a source of electric energy, said second tube having a laterally extending upper end portion with said illuminating means carried by said laterally extending portion and said light controlling means including a bulb-receiving lamp socket and reflector about the bulb.

References Cited in the file of this patent

UNITED STATES PATENTS

888,376	Wilson	May 19, 1908
1,970,624	Recker	Aug. 21, 1934
1,994,886	Doane	Mar. 19, 1935
2,281,542	Barrans et al.	May 5, 1942
2,506,657	Webster	May 9, 1950
2,609,502	Worden	Sept. 2, 1952
2,679,681	Resler	June 1, 1954
2,682,570	Elliott	June 29, 1954