(No Model.)

W. A. PENFIELD.

LAMP STANDARD.

No. 385,569. Patented July 3, 1888.

Fig. 1

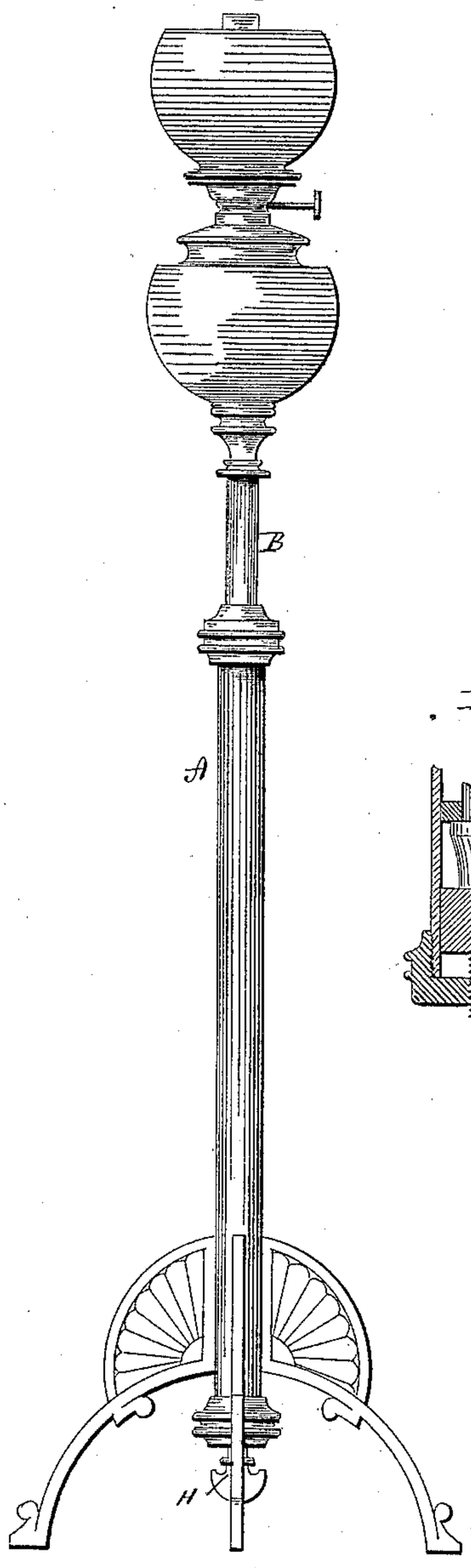


Fig. 2

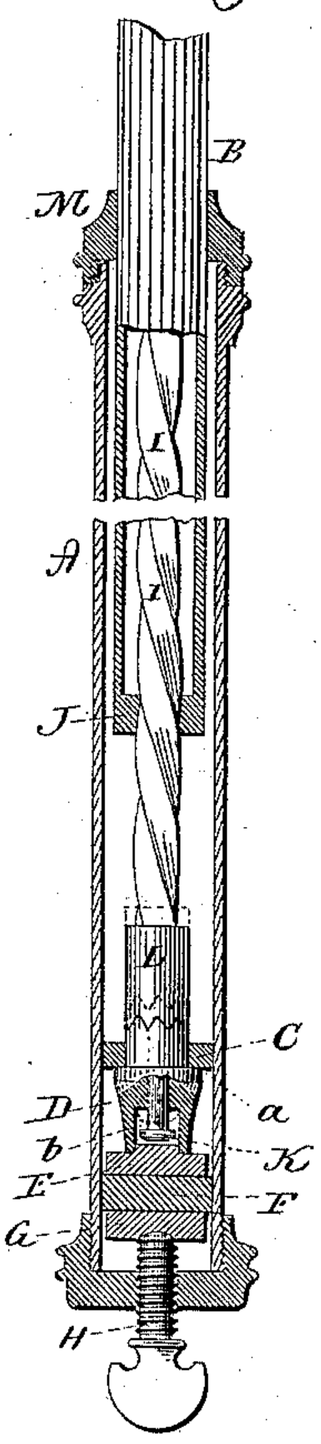


Fig. 4

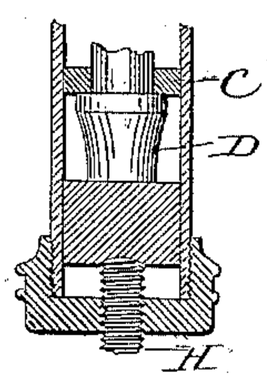
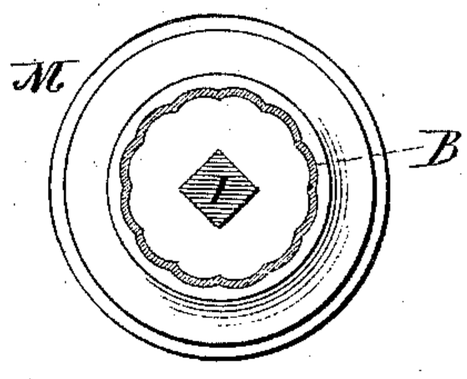


Fig. 3



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UNITED STATES PATENT OFFICE.

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LAMP-STANDARD.

SPECIFICATION forming part of Letters Patent No. 385,569, dated July 3, 1888.

Application filed October 17, 1887. Serial No. 252,533. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PENFIELD, of Meriden, in the county of New Haven and State of Connecticut, have invented a new Improvement in Lamp-Standards; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the standard supporting the lamp; Fig. 2, a vertical central section showing parts in side view; Fig. 3, a transverse section through the inner tube, showing top view of its guide enlarged; Fig. 4, a modification.

This invention relates to an improvement in the construction of standards for that class of lamps which are adapted to be supported from the floor upon a standard, and in which the standard is made adjustable, so that the lamp may rest at different elevations. These standards are usually made of a telescopic character—that is, made of two tubes, one within the other, one supported from the base and the other carrying the lamp, so that in raising the lamp one tube is drawn from the other to extend the standard. Some device is necessary to prevent the adjustable tube, with the lamp it carries, from descending of its own gravity. Various devices have been applied, some simply of a frictional character; others have positive engagement between the tubes. Frictional engagement is the more desirable, because it requires no manipulation other than simply raising or forcing down the adjustable portion of the standard to the elevation required; but the friction must be of such a character as to insure the lamp being supported at the desired point when at rest, and so that it may not readily descend; but at the same time it should be so that the adjustable tube, with the lamp it carries, may be raised without the application of any considerable force.

The object of my invention is the construction of a frictional device which will be entirely relieved in raising the adjustable tube with the lamp it carries, but so firmly applied when the lamp stands at any desired elevation as to avoid any possible liability of accidental descent; and the invention consists in an outer and an inner tube arranged to slide telescopically, the one fixed to the base and the other adapted to carry the lamp to be supported, a sleeve arranged within the outer tube substantially concentric with the tube, supported between a stationary bearing and an adjustable bearing against vertical movement, but so that it may be rotated between the said bearings, combined with a screw-threaded spindle concentric with said sleeve and extending through a nut in the end of the inner tube, the pitch of the thread of the screw being so long that vertical movement of the inner tube will impart rotary movement to the spindle, the said spindle supported in said sleeve free for a certain amount of axial movement, the said spindle provided with a collar corresponding to the upper end of the said sleeve, and the adjacent faces of the said collar on the spindle and said sleeve being serrated or notched, so as to engage the one with the other, but so that they may be separated by an axial movement upon the spindle, and whereby when the collar is engaged with the said sleeve and caused to rotate by the descent of the inner tube it will impart corresponding rotation to said sleeve; but when raised so as to disengage the collar from the sleeve, then the spindle may revolve independent of the sleeve; the friction being applied to the said sleeve, it consequently exerts its force only as the inner tube descends, as more fully hereinafter described.

A represents the outer tube, which is fixed to the base in the usual manner; B, the inner tube, which works through a collar upon the upper end of the outer tube, and so as to slide up and down within the inner tube in the usual manner for this class of standards.

Near the lower end of the tube A, and upon its inside, a collar, C, is introduced, having a stationary shoulder, *a*.

D represents the tubular sleeve, its upper end extending through the collar C, and is constructed with a shoulder below to rest against the stationary shoulder *a* of the tube A. The sleeve is cylindrical, so that it may rotate in the collar C. The sleeve D rests at its lower end upon a block, E, which in its turn rests upon a flexible material, F, prefer-

ably felt. Below the flexible material F is a second block, G, which rests upon an adjusting-screw, H. The sleeve D is adapted to revolve upon the plate E; and to this end the plate E is constructed with a cylindrical projection extending up into a corresponding concentric recess in the sleeve D.

It will be seen that the sleeve D is supported against vertical movement between the stationary shoulder *a* and the block E below, the said shoulder *a* and block E forming the bearings between which the said sleeve may revolve, so that in revolving there will be frictional resistance between the sleeve and the said shoulder *a*, and also between the sleeve and the block E below. The pressure upon the sleeve may be increased or diminished by means of the adjusting-screw H. If the flexible material F be compressed to a greater extent, the pressure of the block E upon the sleeve is greater, and vice versa.

I represents the spindle, which is of screw shape, and is best made square, as indicated in Fig. 3, and twisted, as indicated in Fig. 2, so as to produce a very long pitch to the thread, this being a common construction for this class of screw-spindles. The lower end of the tube B is provided with a fixed nut, J, corresponding to the screw-thread of the spindle I. The lower end of the spindle extends down through the sleeve D, with a head, K, upon its lower end, which is adapted to bear upward against a shoulder, *b*, in the sleeve, but so that a certain amount of vertical movement may be given to the spindle before the head K will come to a bearing upon the shoulder *b*, as indicated in broken lines, Fig. 2.

Directly above the sleeve D the spindle is constructed with a collar or enlargement, L, corresponding in shape to the upper end of the sleeve D. The adjacent faces of the collar L and the sleeve D are made irregular, preferably correspondingly serrated, as represented in Fig. 2, and so that in the down position of the spindle the collar L will firmly engage the sleeve D, as seen in Fig. 2; but when the spindle is raised the irregularities of the collar L are drawn from the irregularities on the surface of the sleeve D, as indicated in broken lines, Fig. 2, the head K of the spindle then coming to a bearing upon the shoulder *b* of the sleeve D.

The inner tube, B, is prevented from rotation by any circumferential irregularity in its shape which is adapted to engage a corresponding shape in the collar M. The irregular shape of the tube B, I illustrate as what is called "reeded"—that is, a succession of vertical beads formed in the surface of the tube. The collar M, which is fixed to the outer tube, being of corresponding shape, serves as a guide for the tube B, so that while the tube B is free to be moved up and down or in a longitudinal direction within the outer tube it is held against rotation.

Under this construction, if the inner tube be raised, it will lift the spindle I, because of frictional engagement between the spindle and the nut J of the tube B, until the collar L is disengaged from the sleeve and the head K comes to a bearing upon the shoulder *b*. Then, as the spindle cannot rise beyond that point, further upward movement of the tube B will impart a rotary movement to the spindle I in one direction without effect upon the sleeve D, so long as this upward movement of the tube B is continued; but when that upward movement stops, then the tube B, with its spindle, is free to drop, so as to bring the collar L into engagement with the sleeve D. On the contrary, if the tube D be forced downward, it will impart rotation to the spindle I, and because of the engagement between the spindle and the sleeve D that rotary movement will be imparted to said sleeve, and the said sleeve will resist the rotation of the spindle to the extent of the friction which is applied to it, and to that extent will resist the descent of the tube B.

The friction upon the sleeve D is made adjustable, as before described, by the set-screw H, so that it may be increased or decreased, according to the varying weights of the lamp or resistance which it is desired to offer to the descent of the inner tube.

While I prefer to make the resistance adjustable, it will be evident that it may be constant, as represented in Fig. 4, in which the sleeve is brought to bear upon a stationary support at both ends. I therefore do not wish to be understood as limiting my invention to the necessity of making the friction adjustable.

I am aware that vertically-adjustable stands for lamps and other articles composed of a tube stationary upon a base or foot, a second tube vertically movable within said stationary tube, the said movable tube carrying a head or its equivalent, combined with a clutch mechanism concealed within the stationary tube, and so that the said clutch and inner tube are automatically engaged to support the said inner tube and its attached parts with relation to the outer tube, were well-known structures long prior to my invention. I therefore do not wish to be understood as claiming such elements, except in the combination as hereinafter particularly recited.

I claim—

1. The combination of the outer tube, the inner tube longitudinally but not revolubly movable in said outer tube, and provided at its lower end with a fixed nut, a sleeve mounted revolubly between friction-bearings held by said outer tube, and a screw-spindle movable in said nut and having a collar at its lower end adapted to engage the said sleeve, and provided with a head to retain said collar within a limited distance from said sleeve, substantially as described.

2. The combination of the outer tube, A, the inner tube, B, of other than cylindrical shape, adapted to engage a corresponding non-cylindrical surface in the outer tube, and pro-

vided with a nut, J, at its lower end, the screw-spindle I, movable in said nut and having the collar L at its lower end, the shoulder *a*, fixed within said tube A, tubular sleeve D, revolubly held against said shoulder, and the block E, adjustable toward the said shoulder *a*, for increasing the frictional resistance between the same and the sleeve D, the said spindle I being provided with a head to retain its collar within a limited distance from said sleeve, and the adjacent faces of said sleeve and collar being adapted to engage each other, substantially as described.

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