No. 848,573. PATENTED MAR. 26, 1907.

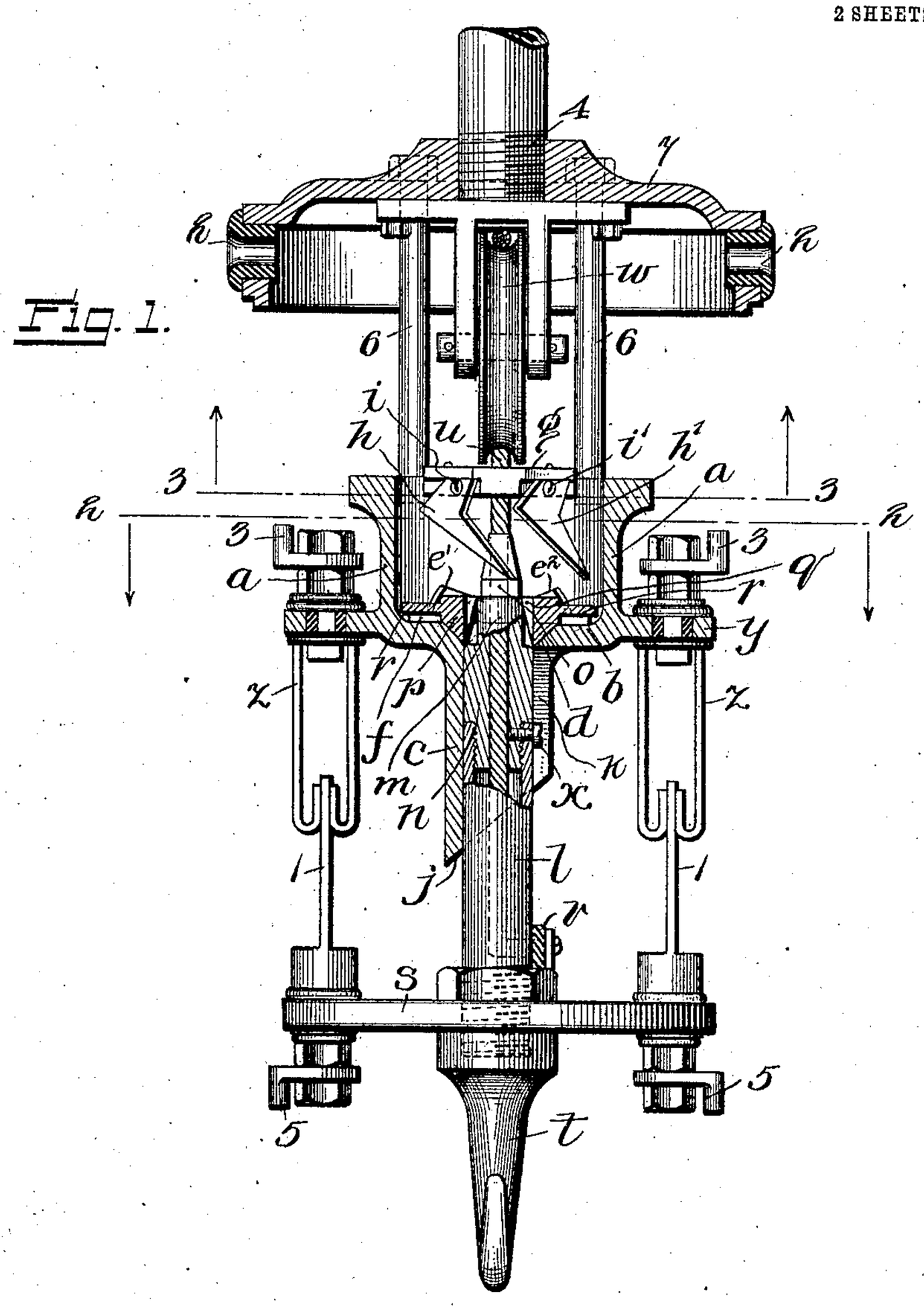
C. SMART.

SUSPENSION DEVICE FOR ELECTRIC LAMPS.

APPLICATION FILED JAN. 12, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

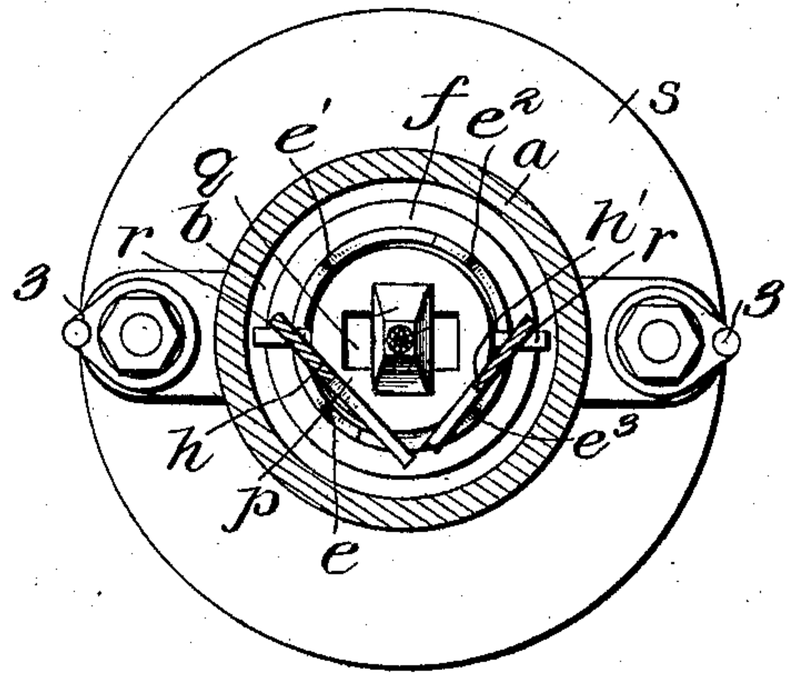

Fig. 3.

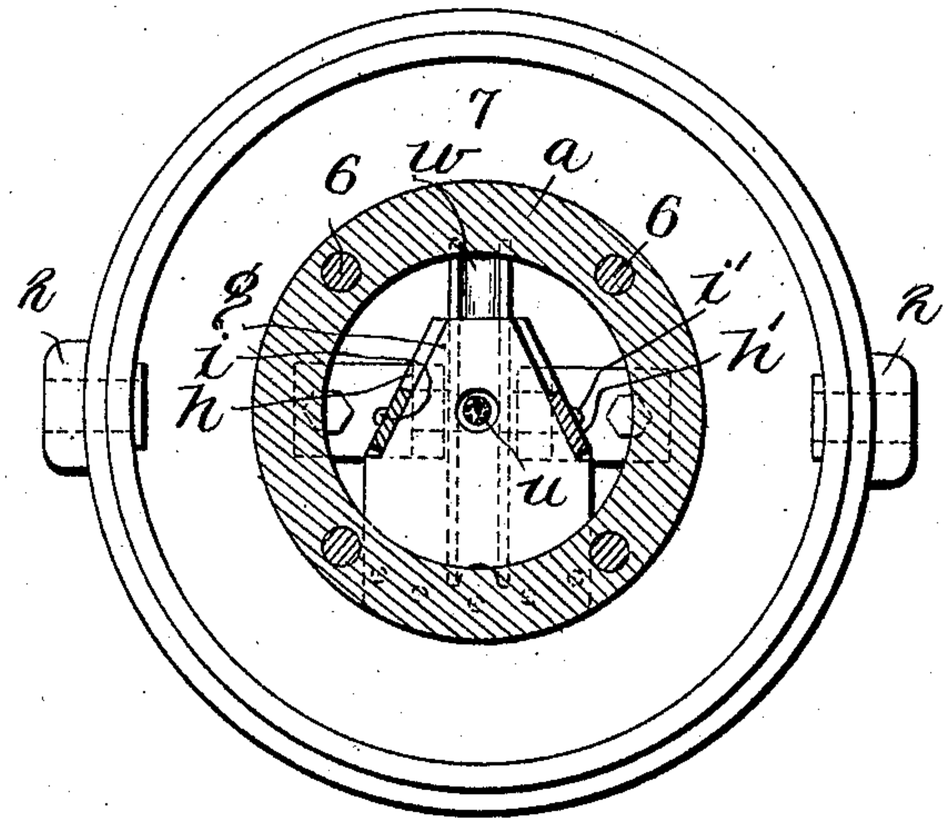

Fig. 4.

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UNITED STATES PATENT OFFICE.

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SUSPENSION DEVICE FOR ELECTRIC LAMPS.

No. 848,573. Specification of Letters Patent. Patented March 26, 1907.

Application filed January 12, 1907. Serial No. 352,012.

To all whom it may concern:

Be it known that I, CAMPBELL SMART, a subject of the King of Great Britain, of 27 Mirador Crescent, Swansea, in the county of Glamorgan, England, have invented a new and useful Improvement in Suspension Devices for Electric Lamps and the Like, of which the following is a specification.

My present invention relates to improvements in automatic suspension-gear and cable-coupling for electric-arc lamps and the like; and it consists in improved means of suspending, raising, and lowering such lamps.

The accompanying drawings are in illustration of my invention.

Figure 1 is a vertical section through the suspending apparatus for an arc electric lamp, the lamp itself not being shown, but only the hook to which it is suspended. Fig. 2 is a horizontal section through the apparatus, taken on the line 2 2 of Fig. 1 and looking downward in the direction of the arrows. Fig. 3 is a horizontal cross-section on the line 3 3 of Fig. 1 and looking upward in the direction of the arrows, and Fig. 4 is a cross-section of the ring *p*.

a is a vertical cylindrical casting of suitable size, having a flat bottom or plate *b*, which is provided on its under side with a central tube *c*, extending downward, the bore of the tube extending up through the bottom of the casting *a* and its upper end being somewhat widened out in the form of a cone at *d*. Upon the upper side of the flat bottom of the casting rise four upright pointed teeth *e e'* e^2 e^3, arranged concentrically round the upper open end of the vertical tube *c*. These teeth are shown attached at equal distances apart to a ring *f*.

g is a bracket having a perforation therein and secured to the top of the cylindrical casting *a*. To this bracket and within said casting are fixed two metal arms *h h'* (shaped as hereinafter described) by screws *i i'*, so that they hang in a vertical plane, while their lower edge inclines down at an angle approximately the same as that of the upper edges of the fixed teeth *e e'*.

The lower end of the tube *c*, which descends centrally below the flat plate *b*, is beveled to a point at one side at its lower edge at *j*, the edges of the beveled part sloping upward, as shown, until they merge in the two sides of a vertical slot *k* in the side of the tube *c*, which extends up to the end of the latter below the flat plate *b*. Inside this tube *c* slides freely a cylindrical tubular rod *l*, having a tubular plug *n* screwed into its upper end and having near its upper end a neck *m* of less diameter surmounted by a head *o* of the same diameter as the cylindrical bar *l*, but flattened at two opposite sides to a thickness somewhat less than the diameter of the neck, while the upper end of the head is also tapered to nearly a point, both from the ends and from the flattened sides of the flattened part. This flattened head is capable of passing freely through a slot *q* in a horizontal ring *p*, (the slot corresponding in shape and size with the section of the flattened part of the head *o*,) so that if the latter be inserted through the slot in the ring *p* and then turned through a quarter of a circle it, with the bar *l*, is locked to the ring and cannot be withdrawn until it has been again turned through a quarter of a circle. The ring *p* itself is tapered on its lower side, so as to form a cone which fits into the upper widened conical end of the tube *c*, already described. The ring also carries two pins *r r*, projecting horizontally from the upper part of two of its opposite sides when it is placed in position upon the hollow cone at the upper end of the tube. The cylindrical rod *l*, which slides in the tube, is attached by suitable means—such as the plate *s*, nuts, and hook *t*—to the top of the arc-lamp and has attached to it centrally a flexible wire rope *u*, which is fastened at *v* and passes up vertically through the entire mechanism and is then led to a winch over suitable pulleys, one of which is shown at *w*, carried by the upper plate 7, which is connected to the casting *a* by columns 6.

When the rod *l* is raised through the tube *c* by means of the rope and winch, a pin *x*, suitably fixed in its side, strikes against the sloping sides of the lower end of the tube *c* and turns the rod *l* round until the pin enters the vertical slot *k* in the side of the tube, from which point it is raised to the top without turning, thus insuring that the flattened part of the head of the rod enters the slot *q* of the ring *p* and lifts the latter together with it. As the ring rises one of the pins *r* in its side strikes the under or inclined side of one of the arms *h h'*, (after having passed freely under its pointed end,) along which it is guided, so that the ring *p* itself is turned round a quarter of a circle, while the bar *l* itself cannot turn, as the pin *x*, which it carries, is held in the vertical slot *k* in the tube. The rope *u* is then slackened, which lowers the rod *l* and the

ring *p* together until the latter rests upon the hollow cone on the upper side of the flat plate *b* above the tube *c*, and as the flattened head *o* of the rod *l* cannot in this position pass through the ring *p* both it and the arc-lamp carried thereby are automatically suspended firmly and mechanically. To lower the lamp, the rope *u* is again tightened, raising the rod *l* and the ring *p*, so that one of the projecting arms *r* on the latter strikes the under side of one of the upper inclined arms *h h'*, as before, and the ring *p* is thus again turned round through a quarter of a circle into such a position that the flattened head *o* of the rod *l* is able to pass through the slot *q* in the ring *p*. The rope is then slackened, and the rod *l* and the ring *p* fall until the latter rests in the hollow cone *d;* but the rod continues to move downward as far as required. The ring is thus in a position to receive the cylindrical rod, when it is again raised and the same series of operations as before is gone through, alternately locking and setting free the cylindrical rod *l* each time it is raised to the top position.

Two lugs or ears *y y* are provided upon the opposite sides of the flat plate *b*, and two spring-contacts *z z* of considerable length are fixed in and project downward from the lugs, but insulated from them, and in the sockets engage two corresponding insulated contact plugs or plates 1 1, connected by electrical conductors with the top of the arc-lamp, which plates enter between the contact-springs above them when the pin *x* upon the cylindrical rod *l* enters the vertical slot *k* in the side of the tube *c*, in which the rod rises and falls. The whole may be fitted with a cast-iron top to screw at 4 to a pipe-bracket or other fixing, and an ornamental metal case may be added, embracing the whole mechanism.

The cable connections come down through the upper cylindrical casting by suitable holes 2 2 and are connected at 3 3 to the spring conducting-plates *z*, carried by the lugs *y* on the flat plate *b*.

5 represents the connections leading to the two carbons of the electric lamp, respectively.

While I have thus described my invention, I wish it to be distinctly understood that I do not limit myself to the exact details shown and described, as these might be varied considerably without departing from the spirit of my invention.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. In a suspension device for electric lamps, the combination of a fixed casting provided with electric contacts, and with a downwardly-extending central tube, said tube being slotted on one side and having its lower end beveled off, with a movable part provided with contacts, said movable part being provided with an upwardly-projecting cylindrical portion provided with an extension adapted to engage the lower end of said tube and to ride in said slot, the upper part of said cylindrical portion being provided with a neck and a flattened head, a movable ring provided with projecting arms, said ring being perforated to permit the passage of said flattened head, the bottom of said casting being provided with inclined teeth, downwardly-projecting inclined arms supported by said casting with which said first-named arms are adapted to engage as the movable part is raised, and a rope attached to said movable part for raising and lowering the same, substantially as described.

2. In a suspension device for electric lamps, the combination of a stationary cylindrical hollow casting terminating at its bottom in an extended tube, said tube being provided with a slot and having its lower end beveled off, electrical contacts carried by said casting, said casting being provided with inclined teeth on its bottom, a movable part provided with a hook and with electrical contacts, said movable part having an upwardly-projecting cylindrical portion provided with an extension, said extension being adapted to contact with the lower end of said inclined tube and to move in the slot therein, the upper end of said movable part being provided with a neck and an enlarged flattened head, a ring movably supported on the bottom of said casting and provided with projecting arms and with a perforation of substantially the same shape as said flattened head, a bracket secured to said casting, downwardly-projecting arms having inclined faces carried by said bracket, and a rope attached to said movable part, substantially as described.

3. In a suspension device for electric lamps, the combination of a fixed portion, a pulley supported thereon, a casting also supported thereon, said casting being hollow and provided with a bottom terminating in a downwardly-extending tube, said tube having its lower end beveled off and being provided with a slot, the bottom of said casting being provided with upwardly-extending teeth, a perforated ring in said casting provided with projecting arms, a movable part, the upper part of said movable part being provided with a neck, and a flattened head adapted to pass through the perforation in said ring, a perforated bracket secured to said casting, arms projecting downwardly from said bracket and having inclined faces, and a rope attached to said movable part and passing through the perforation in said bracket and over said pulley, substantially as described.

4. In a suspension device for electric lamps, the combination of a stationary part,

a bracket secured to said stationary part, a pulley mounted in said bracket, a casting secured to said stationary part, said casting being cylindrical in form and hollow and provided with a bottom, a tube extending downward centrally from the bottom of said casting, the upper end of said tube being coned out, and said tube being provided with a slot and having its lower end beveled, electrical contacts carried by said casting, a movable part consisting of a plate provided with electrical contacts, a hook and an upwardly-extending cylindrical part terminating in a neck, and a flattened head, said cylindrical part having an extension adapted to engage the lower end of said tube and move in said slot, the bottom of said casting being provided with inclined teeth, a movable ring having its lower portion coned and provided with projecting arms and a perforation through which said flattened head can pass, a perforated bracket attached to said casting, arms extending downwardly from said bracket and having inclined faces, and a rope attached to said movable part and passing through the perforation in said bracket and over said pulley, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

CAMPBELL SMART.

Witnesses:
ARTHUR OWEN ROBERTS,
ARTHUR LOSCOMBE LAMEAUX.