No. 648,996. Patented May 8, 1900.

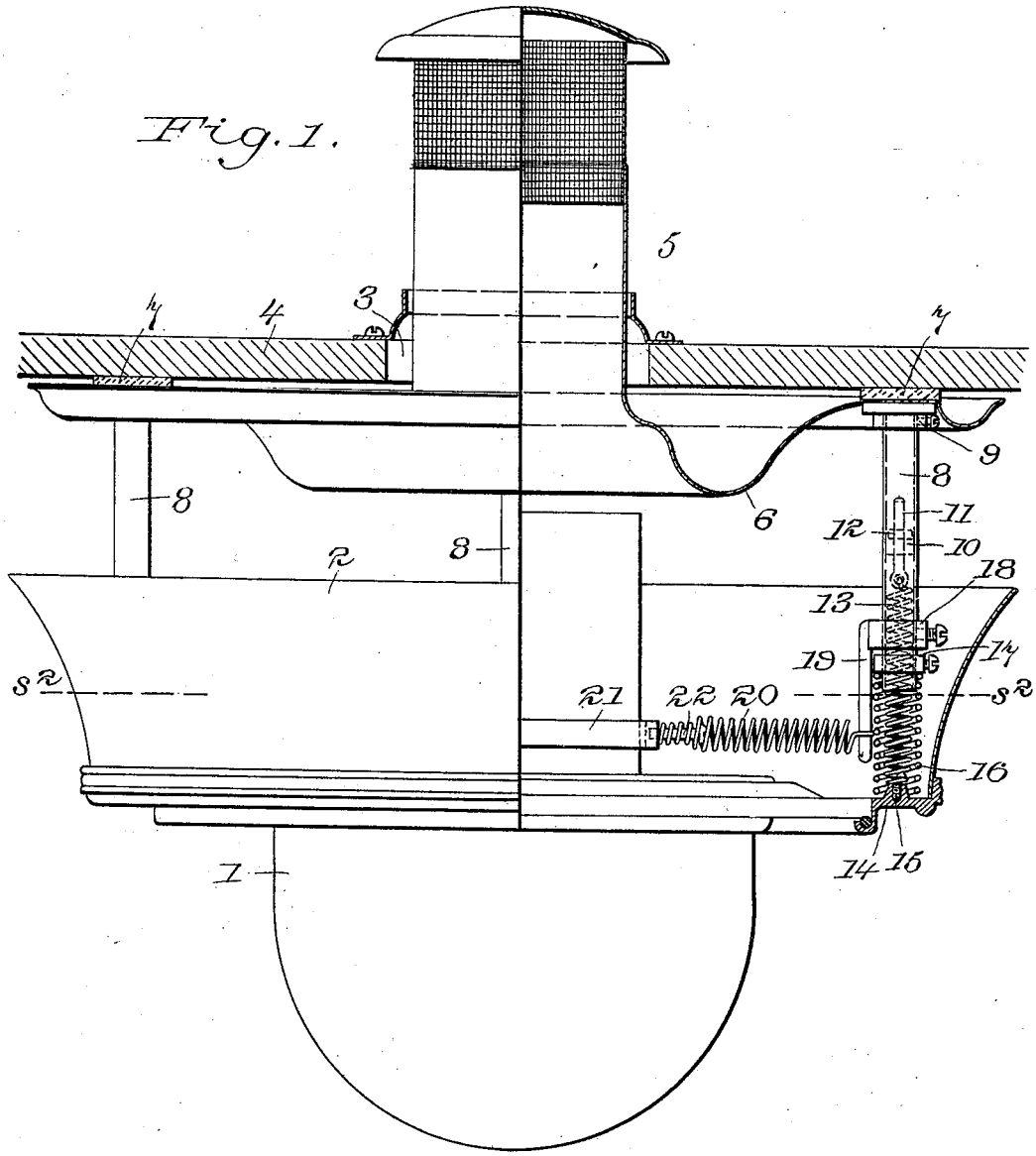
W. S. QUIGLEY.

SPRING SUPPORTED LAMP.

(Application filed June 14, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



WITNESSES:

J. E. Pearson

W. H. Dumphrey.

INVENTOR

Wm. S. Quigley

BY

A. Van Kleeck

ATTORNEY

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Fig. 2.

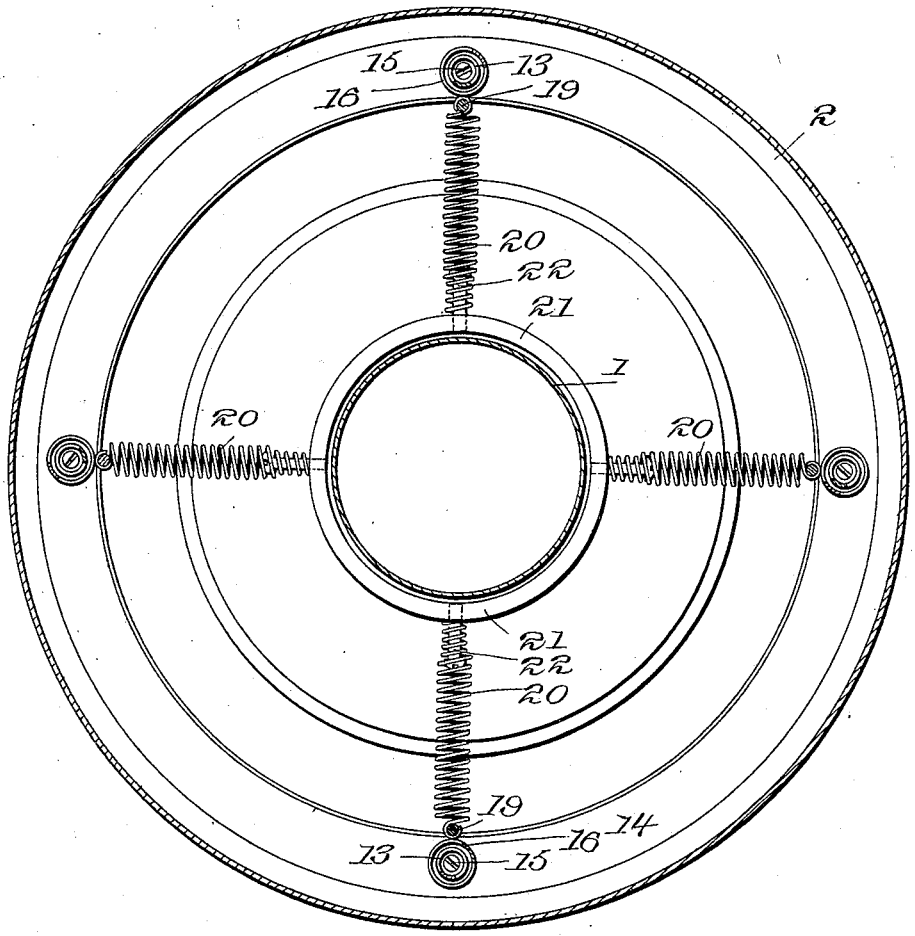
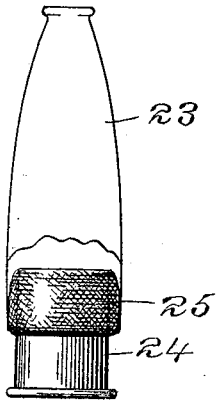


Fig. 3.



WITNESSES:

J. E. Pearson

W. A. Pumphrey.

INVENTOR

Wm. S. Quigley

BY

A. Parkerhurst

ATTORNEY

UNITED STATES PATENT OFFICE.

WIRT S. QUIGLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE KITSON HYDROCARBON HEATING AND INCANDESCENT LIGHTING COMPANY, OF SAME PLACE.

SPRING-SUPPORTED LAMP.

SPECIFICATION forming part of Letters Patent No. 648,996, dated May 8, 1900.

Application filed June 14, 1899. Serial No. 720,468. (No model.)

To all whom it may concern:

Be it known that I, WIRT S. QUIGLEY, a citizen of the United States of America, and a resident of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Spring-Supported Lamps, of which the following is a specification.

My invention relates to hanging lamps in general, and is more specifically designed to produce an improved form of cushioned spring-supporting apparatus for railway-lamps.

While as shown the invention is capable of application to any character of lamp and any situation, yet it is most advantageously employed in mounting vapor-burning lamps employing the incandescent mantle in railway-cars or similar places where the lamps are subjected to numerous sudden shocks and continued vibrations.

The preferred form of apparatus embodying my invention is illustrated in the accompanying two sheets of drawings, in which—

Figure 1 is a side elevation and half-section of a lamp with my invention applied thereto. Fig. 2 is a horizontal section on line s^2 s^2 of Fig. 1. Fig. 3 is a detail of the burner.

Throughout the drawings like reference-figures refer to like parts.

The lamp 1 shown in the drawings is of the type known as the "cluster-lamp," used in burning vaporized kerosene-oil under the ordinary form of Welsbach incandescent mantle. The lamp is of the usual construction, except that it is made unusually heavy and has an ornamental band 2 around its upper part to hide the suspension-springs. There is the usual opening 3 in the roof of the car 4, through which any convenient form of ventilator 5 projects, having the shield 6 under the car-roof to protect the same. One piece of metal is spun so as to form the shield 6 and the lower portion of the ventilator 5, and this is held up against the car-roof 4, with the intervening gasket 7 between, by any convenient means. As shown, this is effected by means of a series of studs 8, passing up into the roof and through the gasket 7 and shield 6, each of said studs being provided with an adjustable collar 9, which comes up under the shield 6 and holds it firmly in place. Each of the studs 8 is preferably made in the form of a hollow cylinder having the transverse partition 10, into which fits a screw-eyebolt 11, which may be adjusted by means of the nut 12. From the eye of the eyebolt 11 there depends a spiral suspension-spring 13, the lower end of said spring being fastened to the frame-plate 14 of the lamp by any convenient means, as by the screw 15. A spiral cushioning-spring 16 of larger diameter surrounds each one of the suspension-springs, having its lower end resting on the plate 14 of the lamp and its upper end pressing against the adjustable collar 17 on the outside of the stud 8. A second adjustable collar 18 on the stud 8 has a depending lug 19 extending down alongside of the springs 13 and 16, and from its lower end extends horizontally a centering-spring 20, the other end of which is attached to a ring 21, which surrounds the chimney of the lamp and is just loose enough to slide freely up and down said chimney. This centering-spring may be fastened to the ring 21 in any convenient manner; but I prefer to make its attachment adjustable by means of the screw 22.

Where an incandescent mantle 23 is employed, I find it highly advantageous to protect the same from the abrading action of the burner 24 by wrapping the upper portion of said burner with fibrous asbestos 25 to a thickness which nearly fills the lower portion of the mantle. The method of operation of my invention is as follows: The parts being assembled as shown in the drawings, the collar 17 is so adjusted that the spring 16 will be placed under compression and the spring 13 under tension. The collar 18 is so adjusted that the ring 21 will be located near the base of the chimney of the lamp and the centering-springs 20 put under the proper tension by manipulating the screws 22. It is evident that the lamp will then be free to rise and fall gently under any extraordinary jolting action of the car, but will remain practically unaffected by ordinary vibrations, all said vibrations being taken up by the action of either the spring 13 or the spring 16. Similarly any extraordinary side jolt produced by the coupling of the cars will be taken up by the centering-springs 20, and all ordinary side vibrations will be absorbed by

the springs 13 and 16 without bringing the lamp-chimney into contact with the ring 21. The ring 21 sliding freely up and down the chimney, the up-and-down motion of the lamp is not interfered with by the centering apparatus to any appreciable extent. The hot gases are carried out through the ventilator 5. The degree of pressure put upon the springs 13 and 16 may also be varied by turning the nut 12, and by means of the adjustment of the nut 12 and the adjustable collar 17 the vertical position of the lamp may be varied. The action of the springs, as above described, when supplemented by the steadying and cushioning of the lower end of the mantle by the wrapping of asbestos fiber, as shown in Fig. 3, enables me to use the incandescent mantle in car illumination and obtain as great length of life for said mantle as in ordinary lamps employed in stationary structures.

The advantages of my invention consist in the complete spring suspension and cushioning effect of the apparatus against every kind of jolt. The lamp being heavy remains undisturbed by the ordinary vibrations of the car, and when displaced by any unusual jolt the shock of the same is taken up by the springs, so that even the fragile Welsbach mantle is not disturbed.

It is evident, of course, that various changes could be made in the details of the apparatus disclosed without departing from the spirit and scope of my invention so long as the relative arrangement of the parts or the principle of operation disclosed is preserved. Other forms of springs might be used than the spiral springs shown, and different means of adjusting and attaching said springs might be substituted for those illustrated; but the resulting construction I should still consider within my invention.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. The combination of the lamp, a plurality of spiral suspension-springs therefor, and a spiral cushioning-spring surrounding each suspension-spring and subjected to compression by the contraction of said suspension-spring.

2. The combination of a lamp, a rigid supporting-frame therefor, a plurality of suspension-springs for the lamp attached to the frame, and a plurality of cushioning-springs opposed to said suspension-springs, together with a plurality of centering-springs for said lamp, all said springs being connected to the rigid supporting-frame.

3. The combination of the lamp, a supporting-frame having a series of depending studs, a series of suspension-springs connected to the lamp and to said studs, lugs extending laterally from said studs, and a series of centering-springs extending from the lamp to the lugs.

4. The combination of a lamp, the rigid supporting-frame therefor, the ring surrounding the chimney thereof and free to slide longitudinally thereon, centering-springs extending horizontally from said ring and connected to the supporting-frame, and a plurality of suspension-springs for said lamp.

5. The combination of a lamp, the rigid supporting-frame therefor, the ring surrounding the chimney thereof, centering-springs extending horizontally from said ring and connected to the supporting-frame, and a plurality of suspension-springs for said lamp, together with a plurality of cushioning-springs opposed to said suspension-springs.

6. A cushioned spring suspension device for a lamp, which comprises the following parts in combination: a hollow vertical cylindrical stud, a spiral suspension-spring having its upper end adjustably fastened in the interior of said stud and its lower end adapted to be attached to the lamp-frame, a spiral cushioning-spring of larger diameter surrounding said suspension-spring and the lower end of the stud, and having its lower end pressing downward upon the lamp-frame, together with the adjustable collar on said stud against which the upper end of the cushioning-spring rests.

7. A cushioned spring suspension device for a lamp, which comprises the following parts in combination: a hollow vertical cylindrical stud, a spiral suspension-spring having its upper end adjustably fastened in the interior of said stud and its lower end adapted to be attached to the lamp-frame, a spiral cushioning-spring of larger diameter surrounding said suspension-spring and the lower end of the stud, and having its lower end pressing downward upon the lamp-frame, together with the adjustable collar on said stud against which the upper end of the cushioning-spring rests, the ring surrounding the lamp-chimney and the centering-spring extending from the ring and connected to the first-mentioned stud.

8. The combination of the supporting structure, a plurality of hollow studs depending therefrom, a spiral suspension-spring extending up into the interior of each stud and adjustably fastened therein, the lamp-frame attached to the lower ends of the suspension-springs, spiral cushioning-springs surrounding the suspension-springs and resting on the lamp-frame, an adjustable collar on each stud against which the upper end of the cushioning-spring is pressed, an adjustable depending lug on each stud, a centering-spring attached to the lower end of each lug, and a ring which loosely fits over the lamp-chimney, to which ring the inner ends of the centering-springs are attached.

Signed by me at Philadelphia, Pennsylvania, this 9th day of June, 1899.

WIRT S. QUIGLEY.

Witnesses:
EUERLEUS BALLARD,
EDGAR W. LANK.