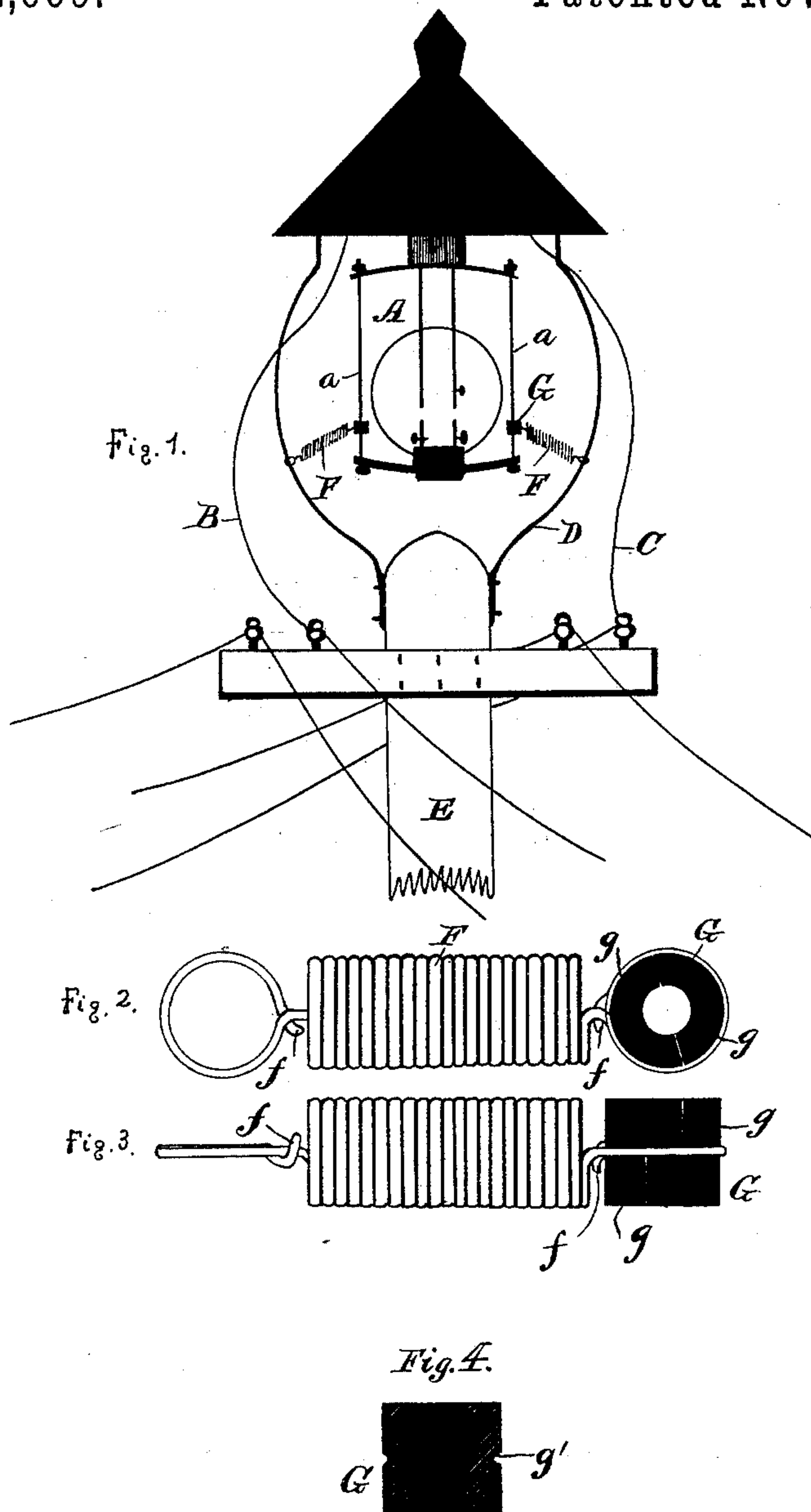


(No Model.)

F. A. JOHNSON.
STAY FOR SUSPENDED ELECTRIC LIGHTS.

No. 462,669.

Patented Nov. 3, 1891.



Witnesses:
Geverance
L. L. Whiting

Inventor:
Fred A. Johnson.
By L. Deane
his Attorney.

UNITED STATES PATENT OFFICE.

FRED A. JOHNSON, OF BATH, MAINE, ASSIGNOR OF ONE-HALF TO FRANCIS W. WEEKS, OF SAME PLACE.

STAY FOR SUSPENDED ELECTRIC LIGHTS.

SPECIFICATION forming part of Letters Patent No. 462,669, dated November 3, 1891.

Application filed July 21, 1888. Renewed April 18, 1891. Serial No. 389,442. (No model.)

To all whom it may concern:

Be it known that I, FRED A. JOHNSON, a citizen of the United States, residing at Bath, in the county of Sagadahoc and State of Maine, have invented certain new and useful Improvements in Stays for Suspended Electric Lights or Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention is designed to prevent the vibration or swinging of electric lights, especially those used out of doors. As now used these are suspended from a wire or other like means, or are supported by a frame held upon a post; but in any way that these lights are used, especially out of doors, so far as known, there is more or less vibration or oscillation. The trouble that arises thence is that the means by which the light is sustained or supported are to some extent weakened, that to some degree the brilliancy of the light is impeded, and there is a certain flickering or motion to the light which is very disagreeable.

The novelty in the present instance consists in the structure and combination of the parts constituting the flexible or elastic non-conducting stay or cushion and in attaching the same to the frame-rods and hood-rods that support the parts which aid in producing the light, whereby the lamp is held in position of contact. By this means all the objections above referred to are obviated.

Having now generally stated the nature and object of this invention, I will proceed to describe the same more in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing a supported light and having the present invention attached. Fig. 2 is a plan view of the spring and thimble. Fig. 3 is a side elevation of the same; Fig. 4, a section through the thimble.

In the drawings, A denotes the usual body of the light, including the glass frame and carbons, and B C the usual system of electric currents. All this and the means for suspend-

ing the light may be of any usual ordinary description or character.

In the present drawings I have, for purpose of illustration, merely shown the wires or frame-work D, which incase the light supported on a post E. To prevent vibratory or swinging motion of the light, there is applied on each side of the frame *a* of the light proper the spiral spring F. The connection of the spring with the wires of the frame *a* is made by means of rubber or other non-conducting thimbles G. These can be made whole and put on the wires when the frame is made, but preferably they are made in two parts *g g*, as shown. When the thimble has been placed about the wire of the frame *a*, one end of the spring F is bent about it and secured upon it by the hooked end *f*, which engages on the main spring, while the other end of the spring is secured to a wire of the frame D. In like manner, that is, this end of the spring is passed about the frame wire and then its hooked end is caught upon the main wire of the spring. The object and advantage of this structure is that the engagement of the spring in either instance is very easily made, and when necessity arises the spring can be readily detached from the frame or the insulator. It will also be observed that there is considerable advantage in having the non-conducting or insulating portion thus held by a spring, as this insures a better grasp upon it under all circumstances. By placing one spring on each side of the light it is held sufficiently rigid to obviate the usual objection made to the swinging of the light, while the yielding character of the stay prevents it from being so rigid as to expose it to accident. A rigid stay might be used to some advantage, it is true; but the best results are attained by the flexible stay. The thimble is centrally grooved at *g'* to give a good seat for the wire of the spring to fit upon. Where the light is simply suspended from a wire or like means the outer end of the spring can be attached to any convenient and rigid support. It is obvious that the stay need not be always made precisely as illustrated, because any flexible or elastic agency to cushion or stay the light may be sub-

stituted for the spring and accomplish about the same results.

It is obviously necessary that the thimbles can be divided longitudinally and that the 5 grooves *g* may be peripheral or circumferential. It is also obvious that the inner section of the thimble would make a non-conducting attachment on account of the tension of the spring, but not so good an attachment as two 10 opposed sections.

This device is admirably adapted for the prevention of swinging or shaking arc lamps, which high winds often render unserviceable. It prevents crust forming at points of contact, 15 resulting in great resistance of circuit or open circuit in many cases. It gives steadiness of lamp-feed, preventing much unnecessary flicker, so annoying to the eye. It prevents dropping by of the carbon points, which often 20 causes partial or total extinguishment of light. It renders the dynamo more even in its regulation and less sparking at the brushes. It is a great saving of the commutator and brushes.

Having now described my invention, what I 25 consider new, and desire to protect, is—

1. The combination, with the frame of a suspended electric lamp, of a stay composed of a coiled spring having its outer end looped and hooked, substantially as described, for 30 ready and quick attachment to suitable supports, and a detachable insulator connected to the inner end of the spring and open or divided, so that it can be attached to the side

bars of said frame at any point without removing the end bars thereof, substantially as 35 specified.

2. In an electric lamp, the combination, with the inner frame having the side bars *a* and the outer frame *D*, of the elastic or spring stay having its ends looped and hooked, sub- 40 stantially as described, and a detachable laterally-open insulator connected to the inner frame and inner end of the spring, substantially as specified.

3. In an electric lamp, the elastic spring 45 stay composed of a coiled wire having its ends looped and hooked, substantially as described, and the tubular insulator divided longitudinally into sections and provided with a circumferential groove to receive and hold the 50 inner loop of the spring, substantially as specified.

4. In a stay for electric lamps, a spring or elastic portion having at one end means for readily attaching or detaching it from any 55 convenient support, and at the other end provided with means for readily attaching or detaching it from the lamp-frame, said latter means being provided with insulating material, substantially as described. 60

In testimony whereof I affix my signature in presence of two witnesses.

FRED A. JOHNSON.

Witnesses:

FRANCIS W. WEEKS,

HENRY T. FIELD.