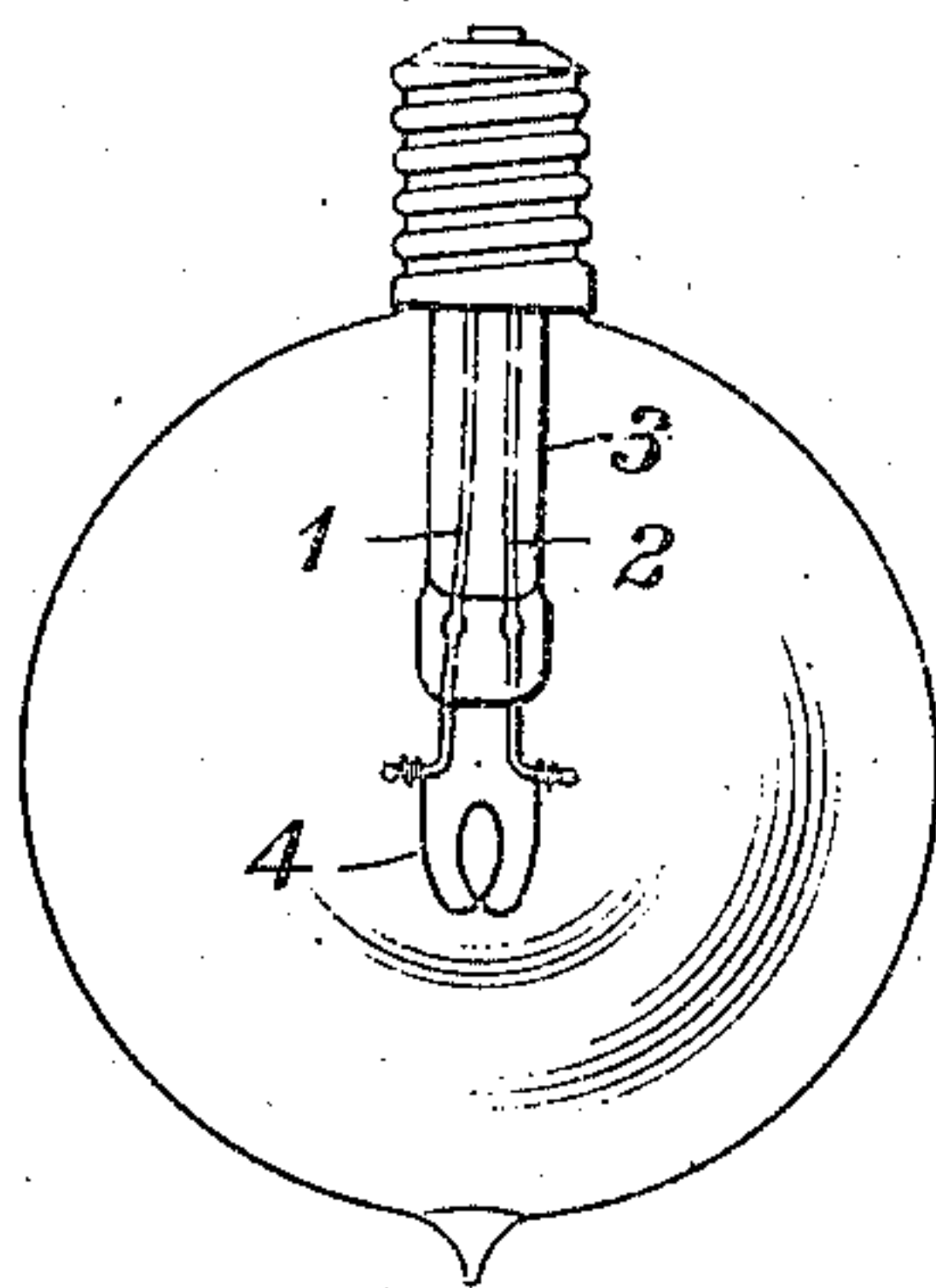


G. F. ATWOOD.  
INCANDESCENT LAMP.  
APPLICATION FILED JAN. 3, 1910.

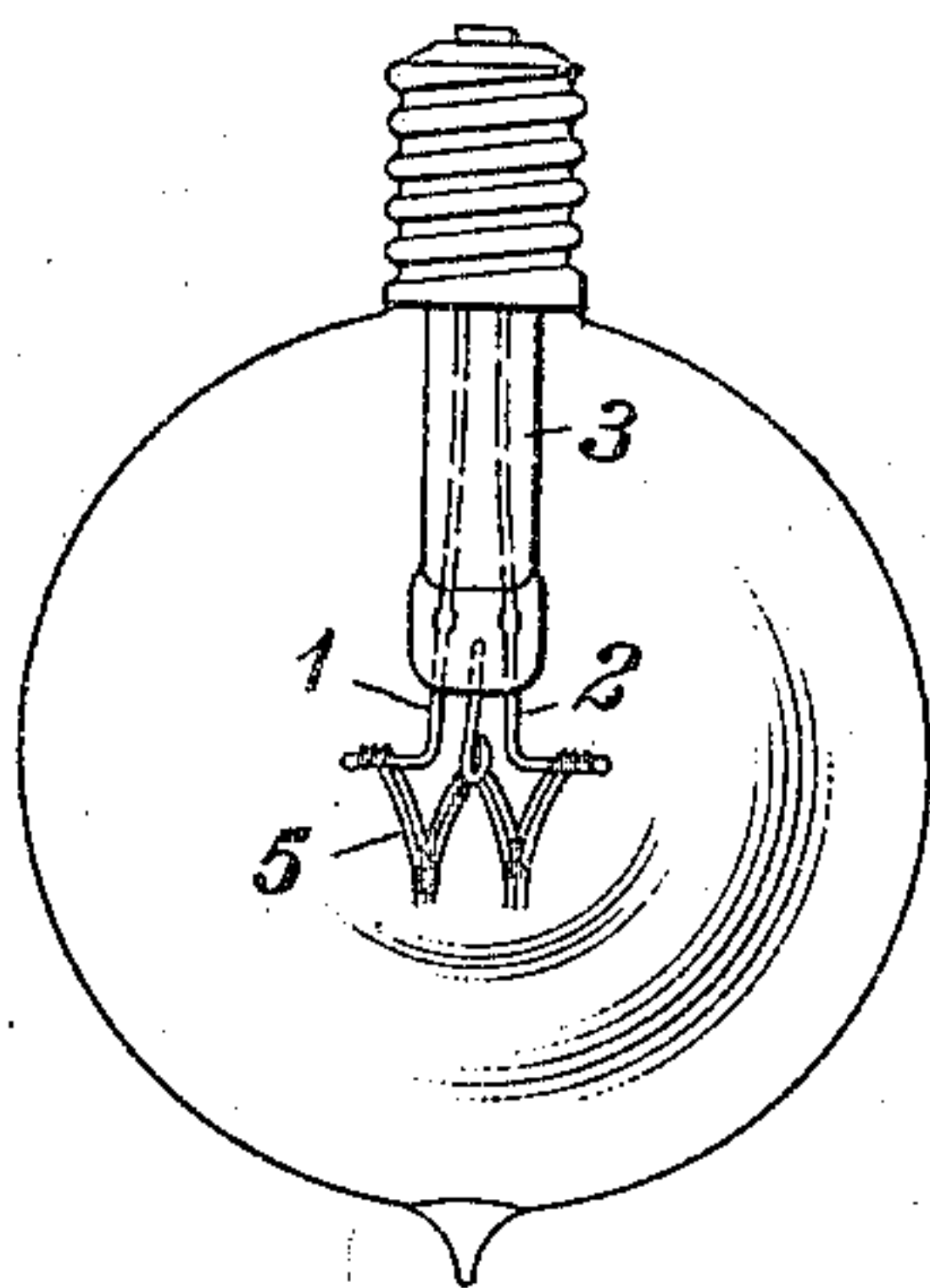
976,248.

Patented Nov. 22, 1910.

*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE F. ATWOOD, OF NEWARK, NEW JERSEY, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA.

## INCANDESCENT LAMP.

976,248.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed January 3, 1910. Serial No. 536,090.

*To all whom it may concern:*

Be it known that I, GEORGE F. ATWOOD, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Incandescent Lamps, of which the following is a specification.

My invention relates to incandescent lamps, and particularly to means for attaching and electrically connecting filaments to the terminal leads thereof.

In incandescent lamps having tungsten and similar fragile filaments, it has heretofore been customary to fuse, paste or otherwise rigidly attach the filaments to the terminal leads and other supports for the purpose of establishing good electrical connections between the said parts. However, when the filaments are thus attached to the supports, they are particularly susceptible to breakage adjacent to the supports because the rigid connections render them less flexible at those points. In the present lamp, the filament is, as usual, fused or otherwise rigidly attached at its extremities to its supports but its freedom of movement adjacent to its points of attachment to the supports is so limited as to relieve the said portions from undue strains. The result is that the filament is much less liable to breakage than in lamps heretofore provided.

The two figures of the accompanying drawing represent lamps embodying the present invention.

The terminal leads 1 and 2 of the lamp of Figure 1 extend, in the usual manner, through its stem 3 and into the bulb, and their inner ends serve as supports for a coiled or otherwise suitably shaped filament 4, the extremities of which are preferably fused to the extremities of the leads, though they may be pasted or otherwise attached or united thereto. The end portions of the filament are wound or coiled around, or are otherwise suitably shaped to embrace, the end portions of the supporting leads, so that the movements of the filament adja-

cent to its points of attachment to the leads will be limited, the end portions of the filament being thus relieved from undue strains resulting from its vibrations.

It will, of course, be understood that the lamp may be of any other form or type than those illustrated; that the filament may be composed of other materials than tungsten, and that the filament and its supports may be shaped otherwise than illustrated, without departing from the spirit of the invention.

In Fig. 2 a plurality of parallel filaments 5 are employed instead of a single filament, as shown in Fig. 1, the object being to increase the flexibility of the filament and to provide a larger incandescent area. With this construction also lamps of substantially any desired current capacity may be manufactured from filaments of the same size.

I claim as my invention:

1. An incandescent lamp comprising filament supports, and a filament having its end portions coiled around the supports and its extremities united thereto.

2. An incandescent lamp comprising filament supports, and a filament having its end portions coiled around the supports and its extremities fused thereto.

3. An incandescent lamp comprising filament supports, and a filament the end portions of which embrace the end portions of the supports, and the extremities of which are united to the supports.

4. An incandescent lamp comprising filament supports, and a plurality of parallel filaments the end portions of which embrace the end portions of the supports and the extremities of which are united to the supports.

In testimony whereof, I have hereunto subscribed my name this 24th day of December, 1909.

GEORGE F. ATWOOD.

Witnesses:

G. F. CAFFEY,  
A. YOUNGHOLM.