

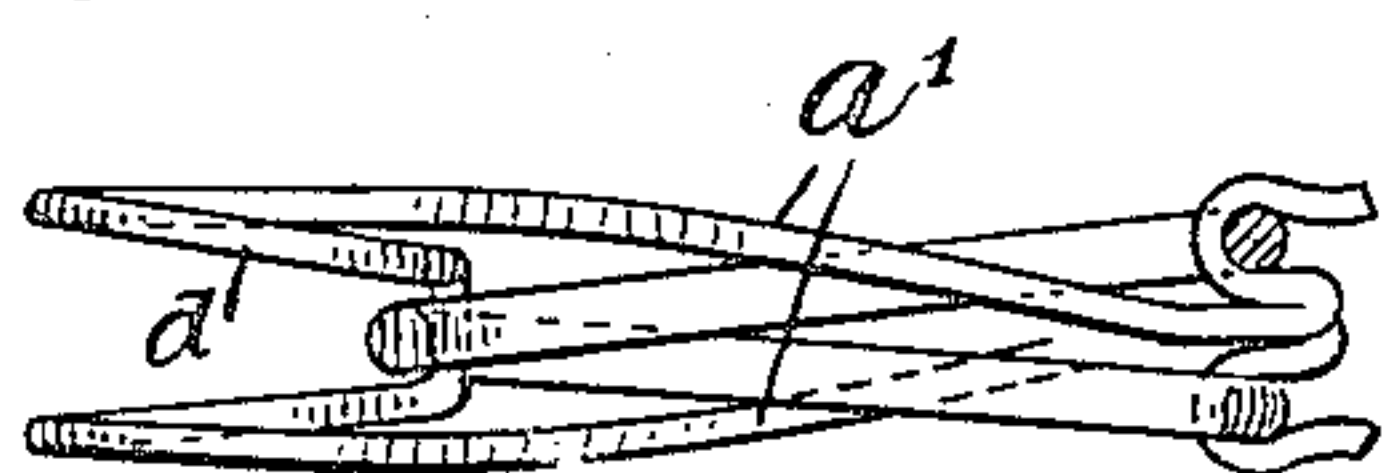
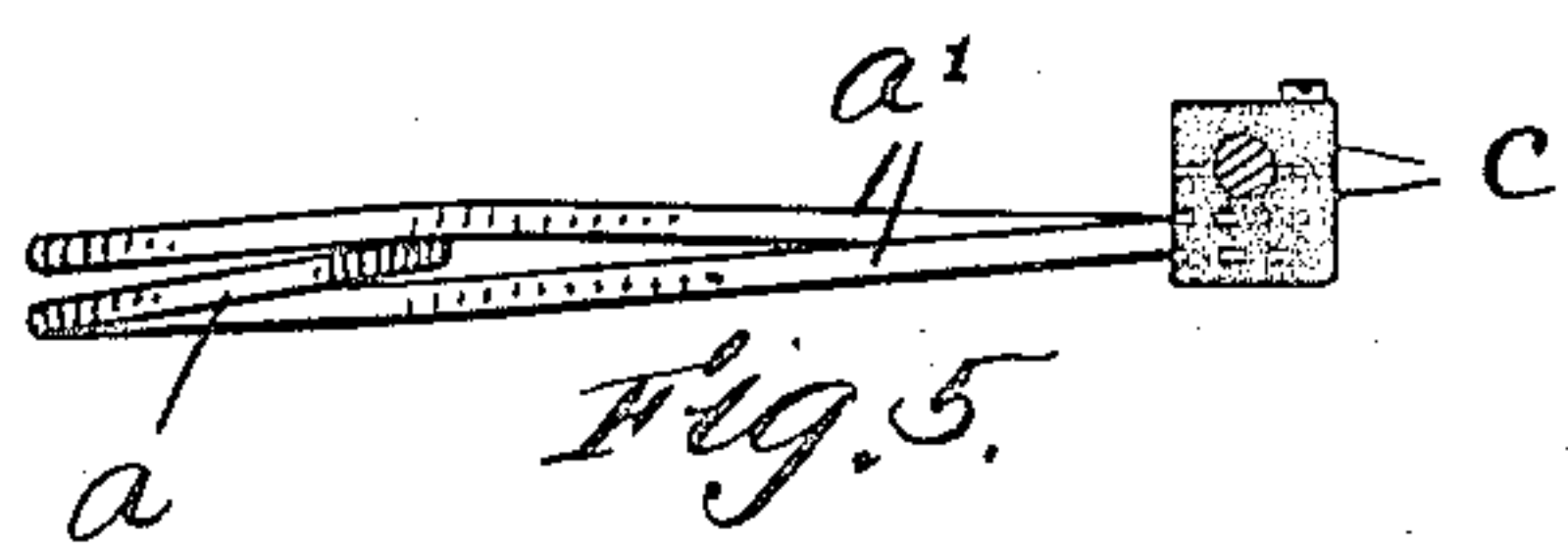
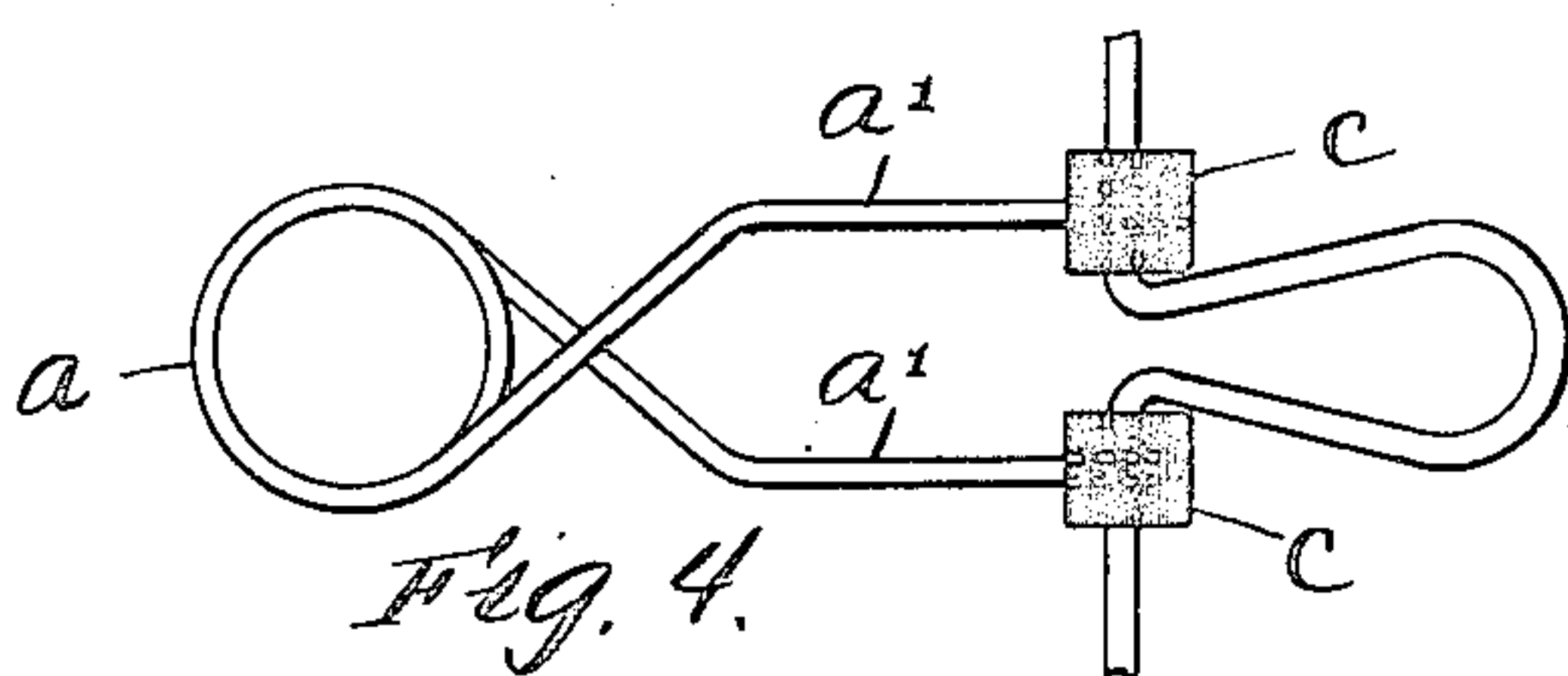
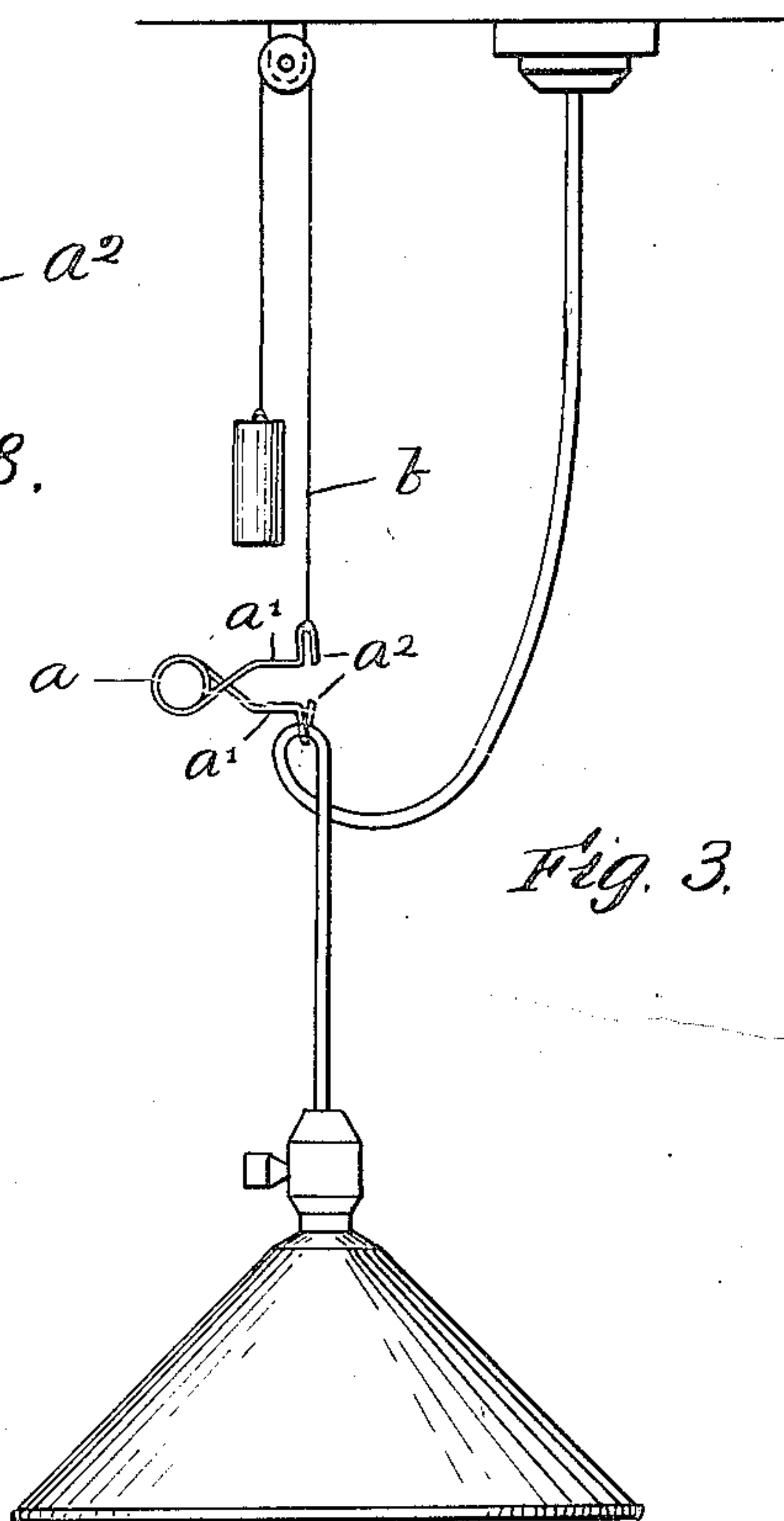
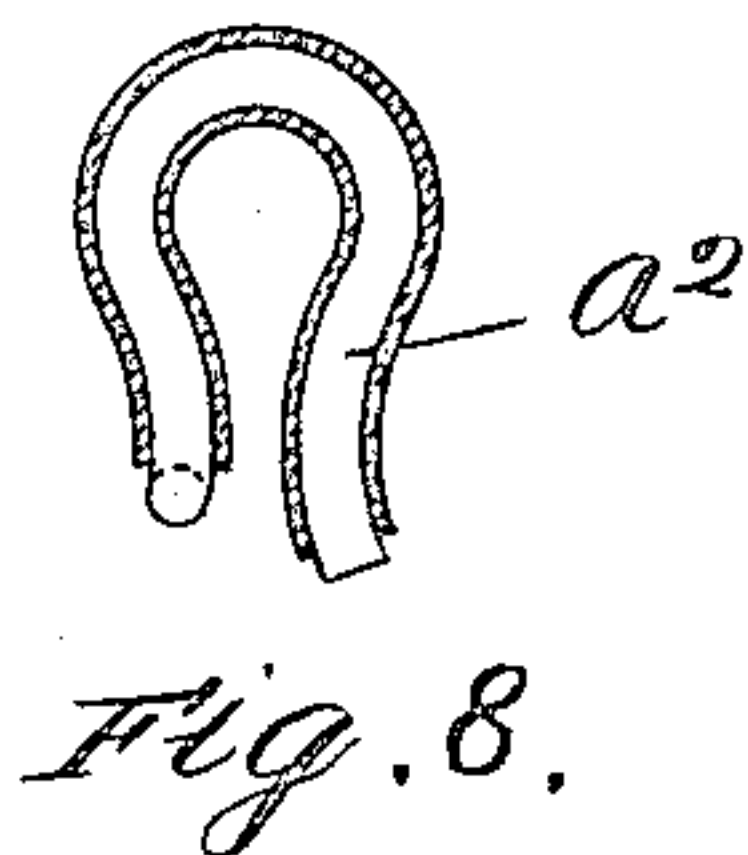
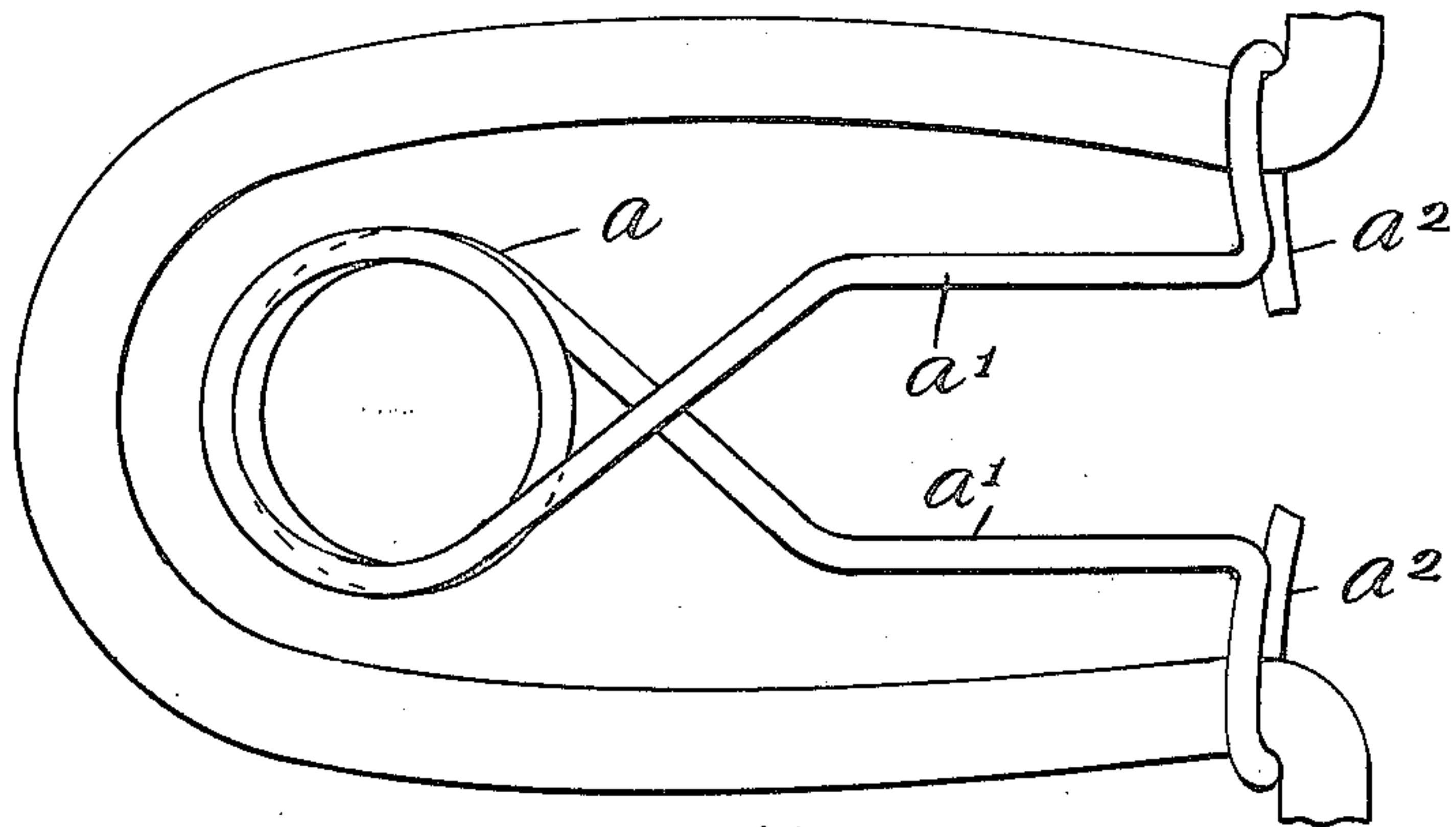
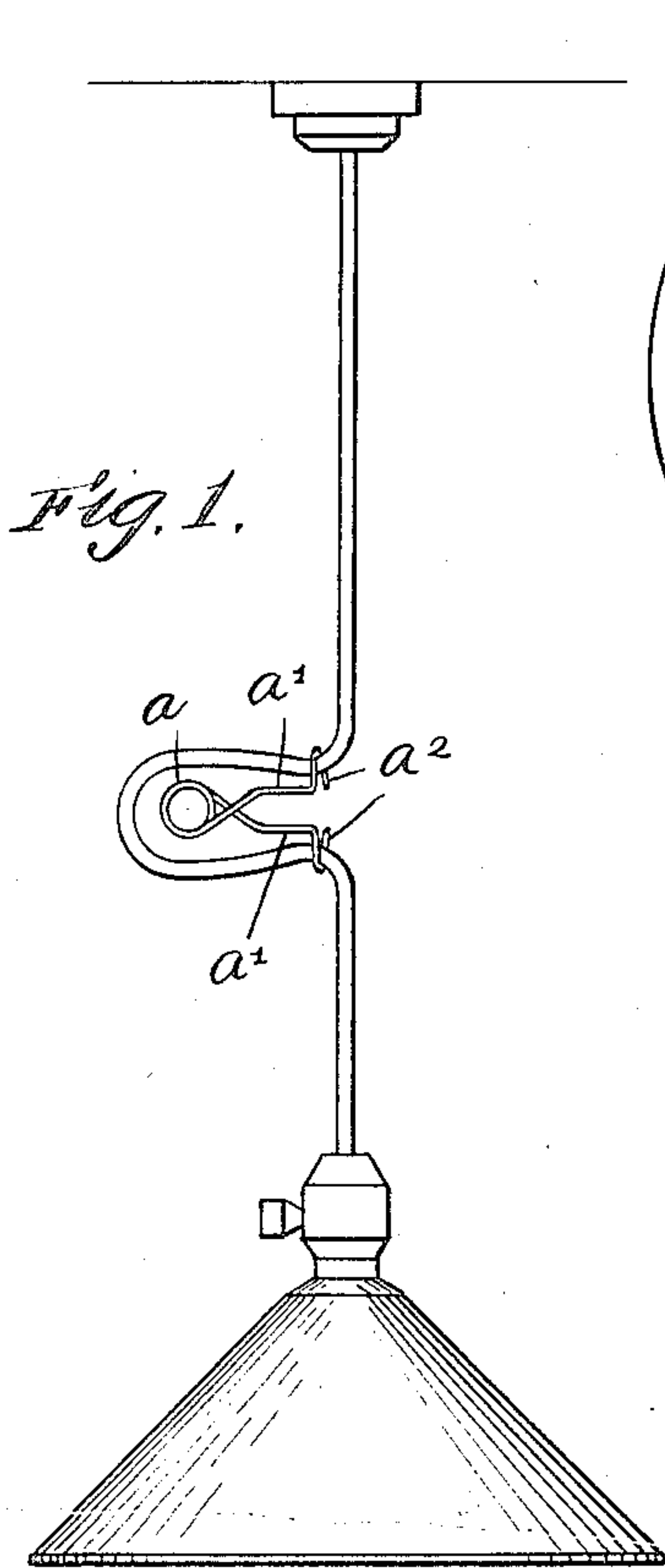
G. A. BURNHAM.

SHOCK ABSORBING AND CORD ADJUSTING DEVICE FOR INCANDESCENT ELECTRIC LAMPS.

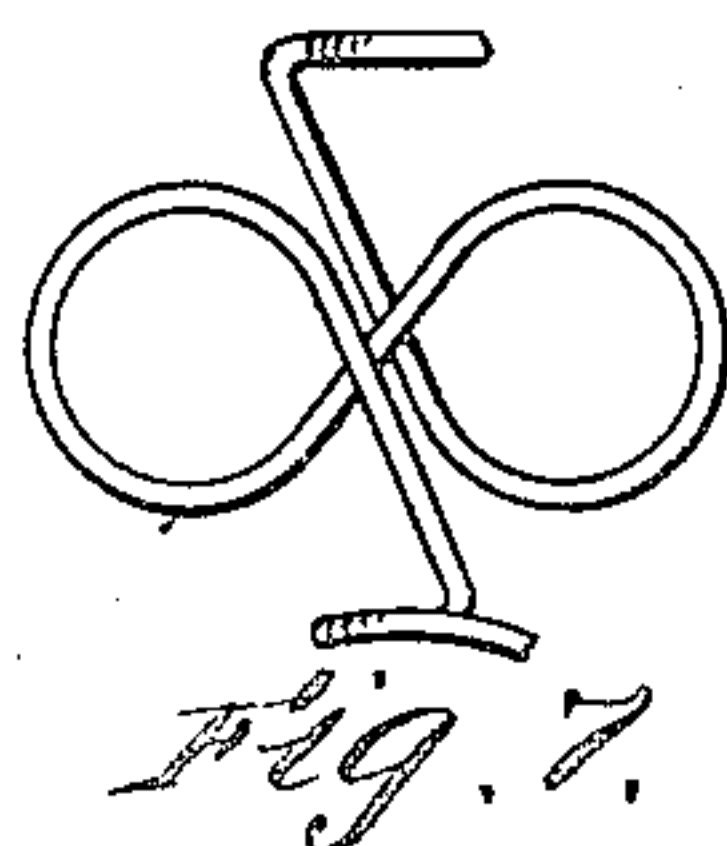
APPLICATION FILED FEB. 17, 1910.

960,269.

Patented June 7, 1910.



Witnesses:  
H. B. Davis,  
D. S. Peterson,



Inventor:  
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# UNITED STATES PATENT OFFICE.

GEORGE A. BURNHAM, OF SAUGUS, MASSACHUSETTS, ASSIGNOR TO S. B. CONDIT, JR.,  
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SHOCK-ABSORBING AND CORD-ADJUSTING DEVICE FOR INCANDESCENT ELECTRIC  
LAMPS.

960,269.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed February 17, 1910. Serial No. 544,366.

*To all whom it may concern:*

Be it known that I, GEORGE A. BURNHAM, of Saugus, in the county of Essex and State of Massachusetts, have invented an Improvement in Shock-Absorbing and Cord-Adjusting Devices for Incandescent Electric Lamps, of which the following is a specification.

When incandescent electric-lamps are subjected to shocks, jars and even repeated feeble vibrations, their filaments are liable to break at any moment. This is more particularly the case with the modern type of lamp having a "tungsten" filament, and commonly known as the "tungsten" lamp, for the reason that the filaments of these lamps are more friable than the filaments of the older types.

The "tungsten" lamp costs more than the older types of lamps, and this extra cost, added to the additional expense incident to breakage of the filaments, becomes a large item of expense which deters many from using this type of lamp, notwithstanding its advantages.

From time to time devices have been made, designed to absorb the vibrations due to shocks, jars, and other causes; some of them being arranged in rosettes on the ceiling, which is expensive and not adapted to be applied easily after the lamps have been installed, and others have involved the employment of springs which acted expansively; that is to say, they were repeatedly expanded by the vibrating lamp, and, as a result, the lamps were permitted to move bodily through a considerable distance, contraction of the spring being relied upon for the return movements of the lamps. Such springs soon lose their efficiency, being oftentimes unduly expanded and caused to "set."

This invention has for its object to construct a simple device which may be employed for this purpose, which may be composed entirely or essentially of wire, and preferably of a single piece of wire, bent to form a coiled spring, and a pair of cord-engaging arms which cross each other so that the spring is repeatedly contracted by the vibrations of the lamp, relying upon its expansibility to return the lamps to normal, thereby increasing its efficiency as contrasted to springs working in the opposite way; and the cord-engaging arms have fric-

tion clamps at their extremities adapted to engage the cord at any points throughout its length, so that the device may be applied to lamps already installed, and, at the same time, serve as a cord-adjuster for the lamps.

The wire may be bent in various ways, and the device may be applied in various ways, only a few of the modified forms and ways of application being herein shown.

Figure 1 is a side elevation of a shock-absorbing and cord-adjusting device for incandescent electric-lamps embodying this invention. Fig. 2 is an enlarged view of the device shown in Fig. 1. Fig. 3 is a like view, one of the cord-engaging arms engaging the lamp cord and the other engaging a cord suspended from the ceiling. Fig. 4 is a side view of a modified form of my device, the friction-clamps at the extremities of the cord-engaging arms being made as independent elements. Fig. 5 is a plan view of the device shown in Fig. 4. Figs. 6, 7 and 8 are other modified forms of my device.

The device shown in Fig. 1 comprises essentially a single piece of wire, bent to form a spring-coil  $a$ , having as many convolutions as desired, and a pair of spring-arms  $a'$ ,  $a'$ , extended therefrom. These arms  $a'$ ,  $a'$ , cross each other, as shown, so that when their extremities are moved toward each other the spring-coil is contracted, and thereby acts to absorb the vibrations by being repeatedly contracted. The extremities of the arms  $a'$  are bent outward and reflexed to form spring-clamps  $a^2$ , which are adapted to engage the lamp-cord at any points throughout its length and to hold thereon by friction, thereby firmly engaging the lamp-cord. Said clamps or equivalent cord-engaging means may be insulated, see Fig. 8, wherein an insulating sheath is arranged on the wire. By reason of the clamps being adapted to engage the lamp-cord at different points and to firmly hold thereon by friction, it may be used as an adjusting-device for the cord.

In lieu of applying the device to the cord in the manner shown in Fig. 1, it may be applied as shown in Fig. 3, wherein one of the clamps  $a^2$  engages the lamp-cord and the other engages another cord  $b$ , suspended from the ceiling or otherwise supported.

In lieu of forming the clamps  $a^2$  by bending the wire composing the device, said



clamps may be made as independent cord-engaging holders *c*, preferably composed of insulating material, see Figs. 4 and 5, which are attached to the extremities of the arms  
 5 *a'*, said independent holders being constructed in any well known manner and adapted to receive the lamp-cord.

In lieu of forming the spring-coil *a* as shown in Fig. 1, it may be formed with its  
 10 convolutions separated, see Fig. 6, and a loop *d* interposed between them, adapted to receive the lamp-cord.

In lieu of bending the wire so as to arrange the convolutions of the spring-coil one  
 15 upon another, said convolutions may be arranged side by side, as represented in Fig. 7.

In all instances shown, however, the device is so arranged that the spring-coil is repeatedly contracted by the vibrations of the  
 20 lamp and acts to absorb such vibrations, and also in all instances shown, the device may be employed as a cord-adjuster.

I claim:

1. As a new article of manufacture, a  
 25 shock-absorber and cord-adjuster for incandescent electric-lamps, consisting of a piece of wire bent to form a spring-coil, and a pair of spring-arms extended therefrom, the extremities of said arms being bent to form  
 30 outwardly-extended spring-hooks for engaging the cord at any point throughout its length, substantially as described.

2. As a new article of manufacture, a  
 35 shock-absorber and cord-adjuster for incandescent electric-lamps consisting of a piece of wire bent to form a spring-coil and a pair of spring-arms extended therefrom, which cross each other, and have cord-en-

gaging means at their extremities, substantially as described.

3. As a new article of manufacture, a  
 40 shock-absorber and cord-adjuster for incandescent electric-lamps, consisting of a piece of wire bent to form a spring-coil, and a pair of spring-arms extended therefrom, which cross each other, and which have friction-clamps at their extremities for engaging the cord at any points throughout its  
 45 length, substantially as described.

4. As a new article of manufacture, a  
 50 shock-absorber and cord-adjuster for incandescent electric-lamps, consisting of a piece of wire bent to form a spring-coil of two or more convolutions, and a pair of spring-arms extended therefrom, which cross each  
 55 other, and friction-clamps at the extremities of said arms for engaging the cord at any points throughout its length, substantially as described.

5. As a new article of manufacture, a  
 60 shock-absorber and cord-adjuster for incandescent electric-lamps, consisting of a piece of wire bent to form a spring-coil, and a pair of spring-arms extended therefrom, which cross each other, the extremities of  
 65 said arms being bent outward and reflexed to form spring-acting friction-clamps for engaging the cord at any points throughout its length, substantially as described.

In testimony whereof, I have signed my  
 name to this specification, in the presence of  
 two subscribing witnesses.

GEORGE A. BURNHAM.

Witnesses:

B. J. NOYES,  
 H. B. DAVIS.