(No Model.)

L. T. STANLEY.

FLEXIBLE SUPPORTING ARM FOR ELECTRIC LAMPS.

No. 472,611. Patented Apr. 12, 1892.

Fig. 1

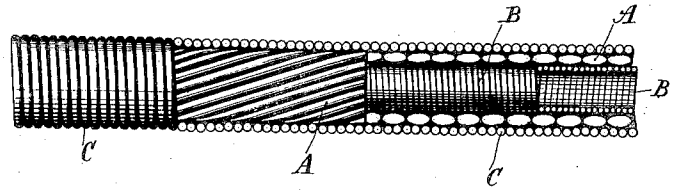


Fig. 2

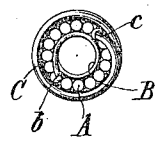
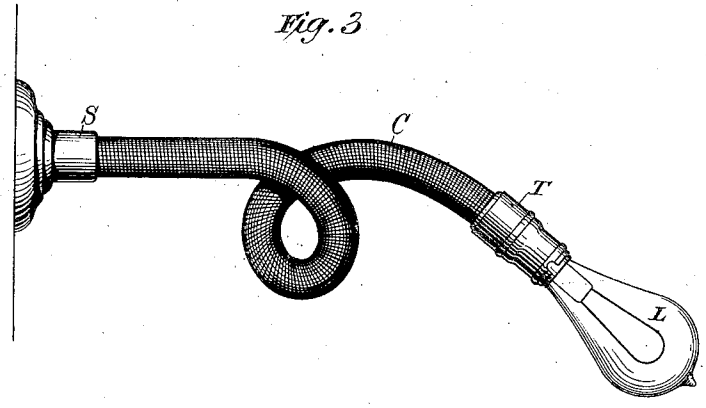


Fig. 3



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UNITED STATES PATENT OFFICE.

LUCIUS T. STANLEY, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE CUTTER ELECTRIC AND MANUFACTURING COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

FLEXIBLE SUPPORTING-ARM FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 472,611, dated April 12, 1892.

Application filed October 17, 1891. Serial No. 409,034. (No model.)

To all whom it may concern:

Be it known that I, LUCIUS T. STANLEY, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Flexible Supporting-Arms for Electric Lamps and other Devices, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

This invention is an improvement in flexible hollow arms more especially designed as supports for incandescent lamps, whether when used as a wall-bracket or when forming part of any fixture or device, such as a desk or table lamp-stand; but while the nature of the improvements which I have made in these devices renders them equally serviceable and useful as the flexible supports for portable lamp and tool stands, lens-holders, and analogous devices, to all of which purposes I contemplate applying the invention, it is more particularly useful as a part of an electrical fixture from the fact that it is hollow throughout for the passage of one or more conductors and that such passage is not closed or obstructed by bending the arm in any way that may be desired.

My improved flexible arm consists of a hollow core composed of a given number of strands of wire, preferably copper, wound spirally and in the manner hereinafter described to form a tube or cable, which is contained within an outer spiral of steel or similar resilient wire and secured at both ends to the ends of said outer spiral. The said core also contains a spiral spring of steel or similar wire, the ends of which are secured to those of the core, and both the inner and outer spirals are normally shorter than the intermediate tubular core, so that they require to be forcibly elongated in order to secure their ends to those of the core.

For a more specific description of the construction and mode of using the invention I now refer to the accompanying drawings.

Figure 1 is a longitudinal central section of a portion of a flexible arm constructed in accordance with my invention. Fig. 2 is an end view of the same, and Fig. 3 is a view in elevation of the arm used as a support for an electric lamp.

A is a hollow tube or core made up of several strands of copper or other suitable ductile or pliable wire wound spirally on a mandrel and at a pitch determined by the particular service for which the arm is designed. For example, if the completed arm is designed for a use in which it will be bent only slightly, as at right angles to itself, the pitch would be much shorter and the wires would have a much greater number of turns to the inch than in the case of an arm which is designed to be bent up into a coil, say, of two inches in diameter.

In practice I have found that for the ordinary purposes of a flexible arm for a wall-bracket or lamp-stand the proper pitch for the strands of the hollow core or cable is about one turn in two and a half inches. This allows the completed arm to be bent into a coil of about two and a half inches diameter without subjecting the copper strands to any injurious tensile strain.

Within the hollow core A is a spiral spring B of steel or other elastic wire. This spiral is relatively shorter than the core or cable A, and it must be distended to bring its two ends even with those of the core A.

C is an outer covering of steel or other elastic wire in the form, also, of a spiral. Similarly to the spiral B it is made shorter than the core A and has to be distended to equal it in length. The ends *b b* of the spiral B are bent outward and the ends *c c* of spiral C are bent inward over the ends of the core A, so as to hold them in position until they are soldered or brazed into suitable sockets. The strands composing the core A are wound on a mandrel and the ends are soldered or brazed together to form a tube of the desired length.

In practice I have found the best relative lengths of core and spirals to be as follows: If the core be sixteen inches, then each of the two spirals should be about fourteen inches. With these proportions and when the strands of wire composing the core A have one turn for about two and a half inches the arm may be subjected to any reasonable amount of bending without disturbing in any way the

relative conditions of its parts and without meeting any tendency to alter the shape or curve into which it has been bent.

In Fig. 3 one of the applications of the invention is illustrated. One end of the flexible arm is soldered into a stationary socket S, forming part of a wall-plate. The other end carries and is soldered into a lamp-socket T, into which a lamp L may be fitted.

I do not limit myself to the special form and proportions herein stated; but by following the general plan of construction herein described I am enabled to produce a flexible arm that is durable, strong, and serviceable, and which may be substituted for any of the jointed arms heretofore in use.

What I claim is—

1. A flexible supporting-arm consisting of a hollow core formed of spirally-wound strands of ductile wire, in combination with an outer spiral of resilient wire, as set forth.

2. A flexible supporting-arm consisting of a hollow core formed of spirally-wound strands of ductile wire, in combination with an outer spiral of resilient wire distended and having its ends secured to those of the core, as set forth.

3. A flexible supporting-arm consisting of a hollow core formed of spirally-wound strands of ductile wire, in combination with an outer spiral of resilient wire having a shorter pitch than the wires of the core, as set forth.

4. The combination, with a ductile core composed of spirally-wound strands and an outer spiral of resilient wire, of an inner supporting resilient spiral, both inner and outer spirals being distended and secured to the ends of the core, as set forth.

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