

(No Model.)

J. McLAUGHLIN.
HANGING DEVICE FOR ELECTRIC ARC LAMPS.

No. 416,847.

Patented Dec. 10, 1889.

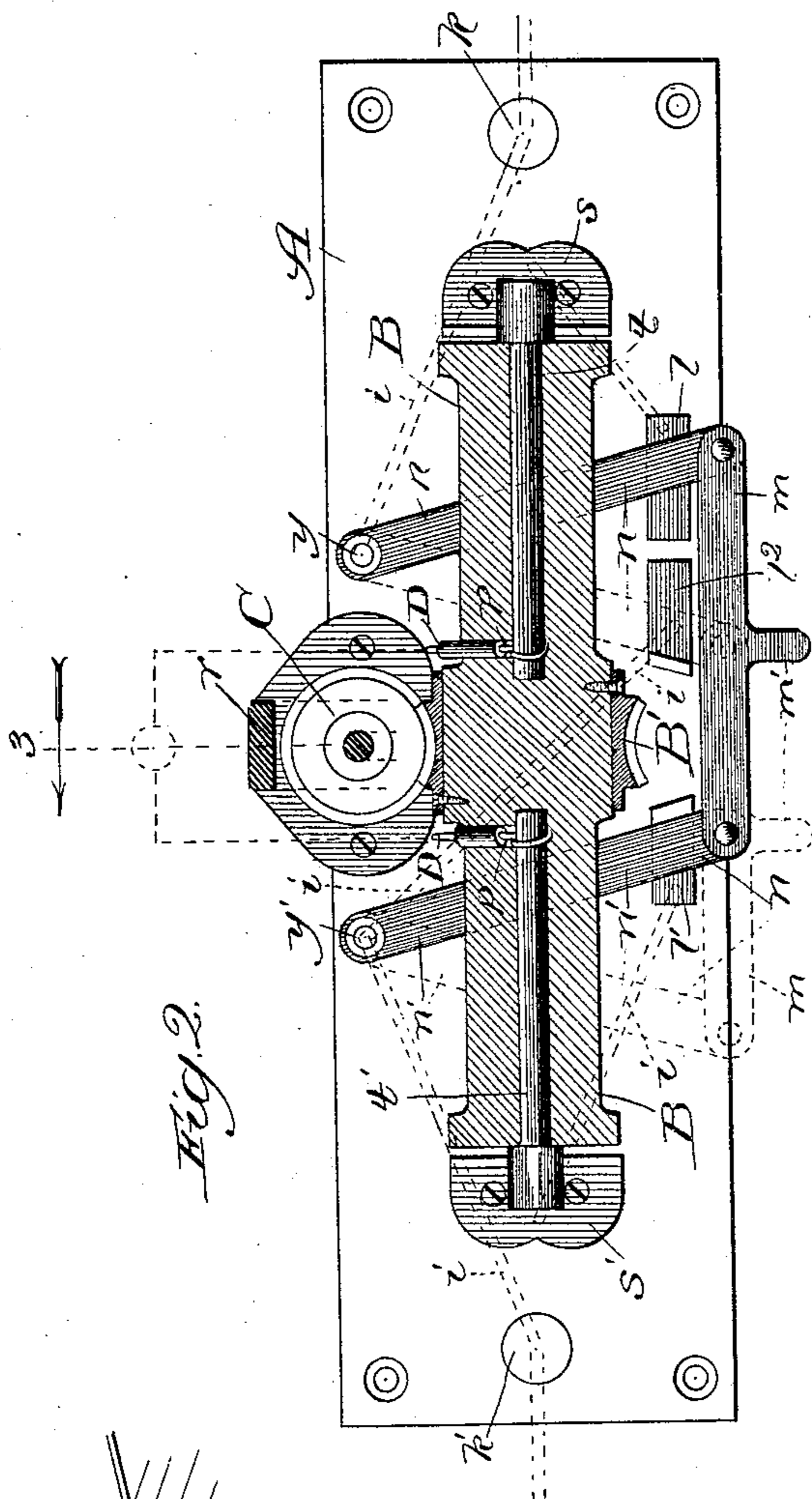


Fig. 2.

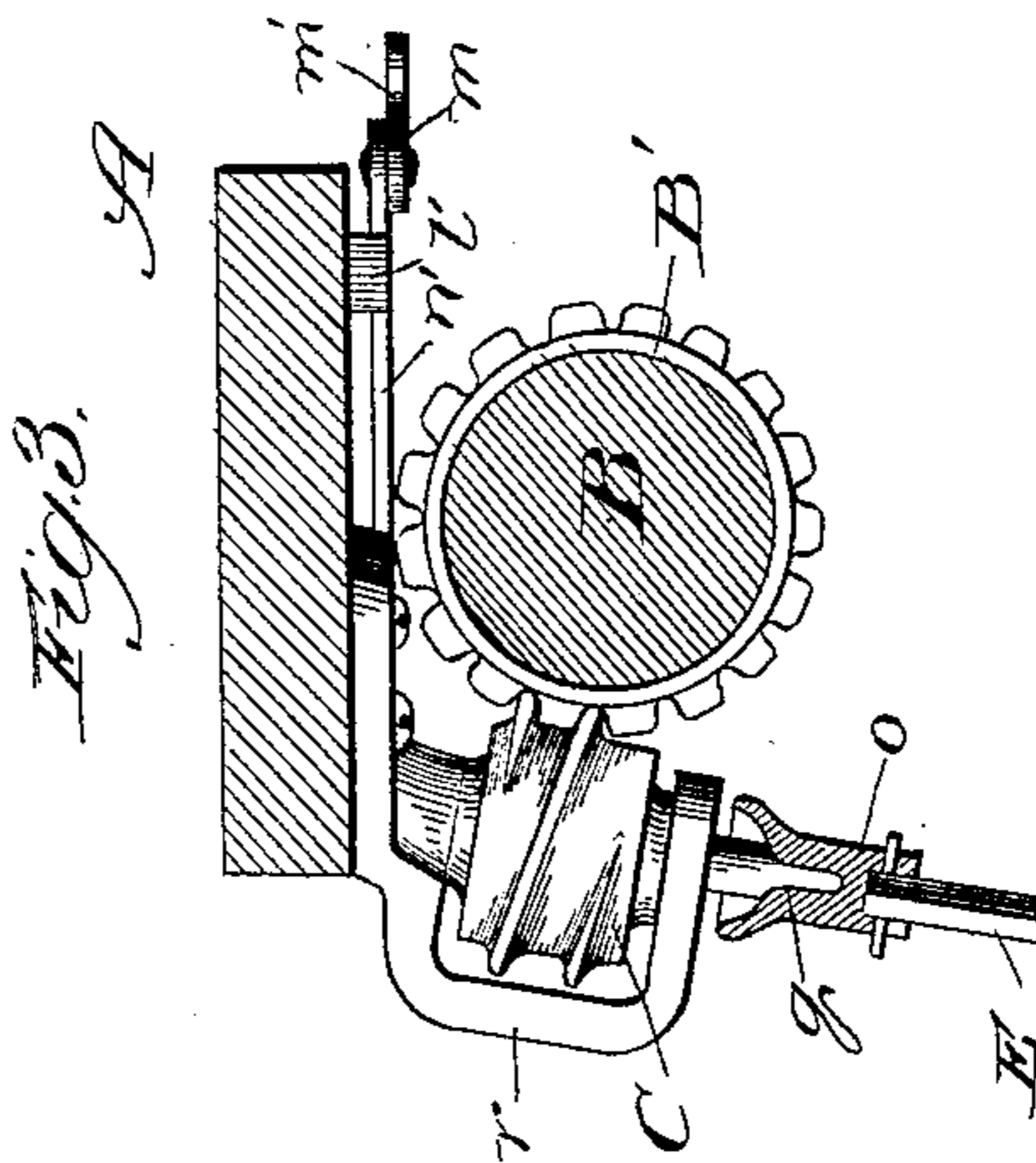


Fig. 3.

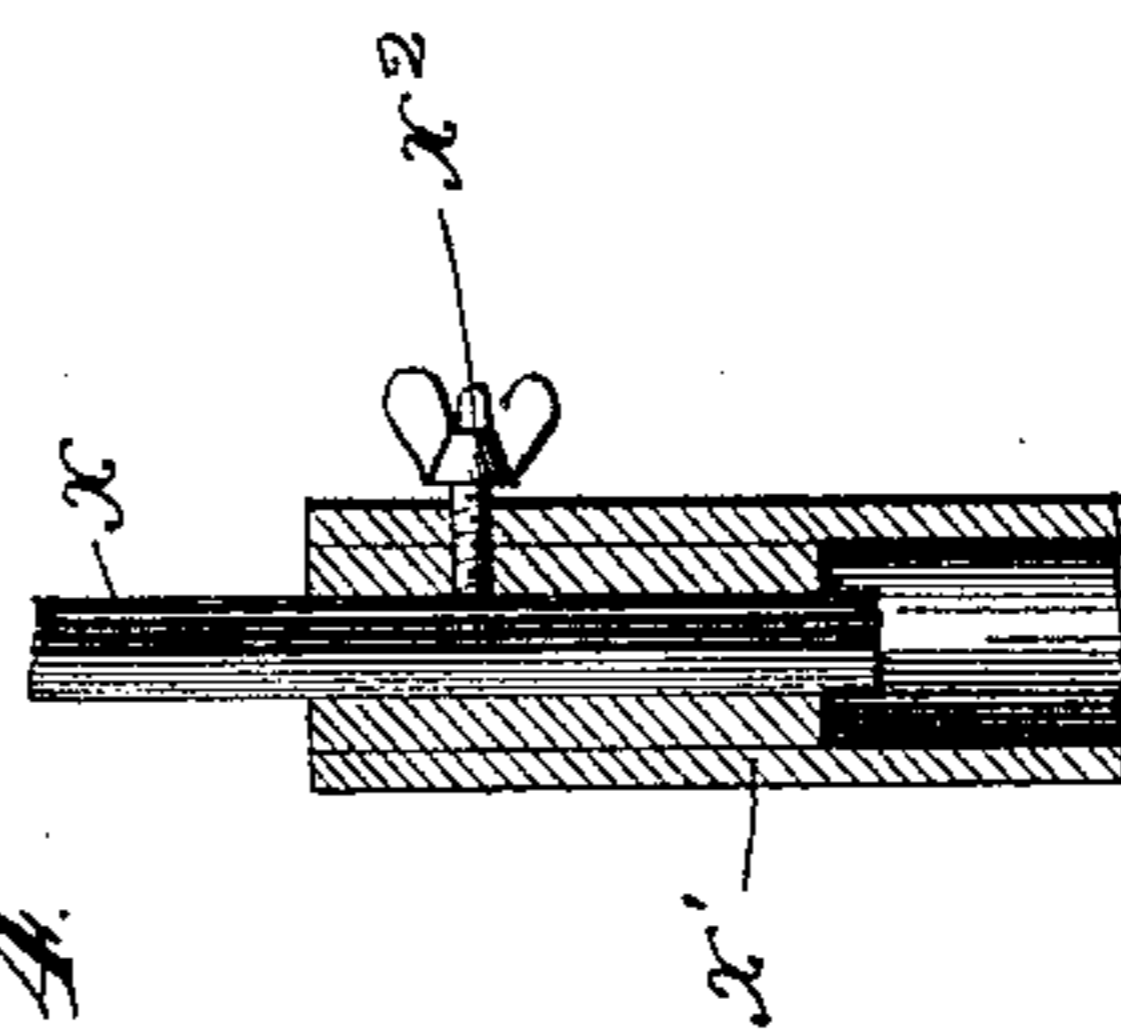


Fig. 4.

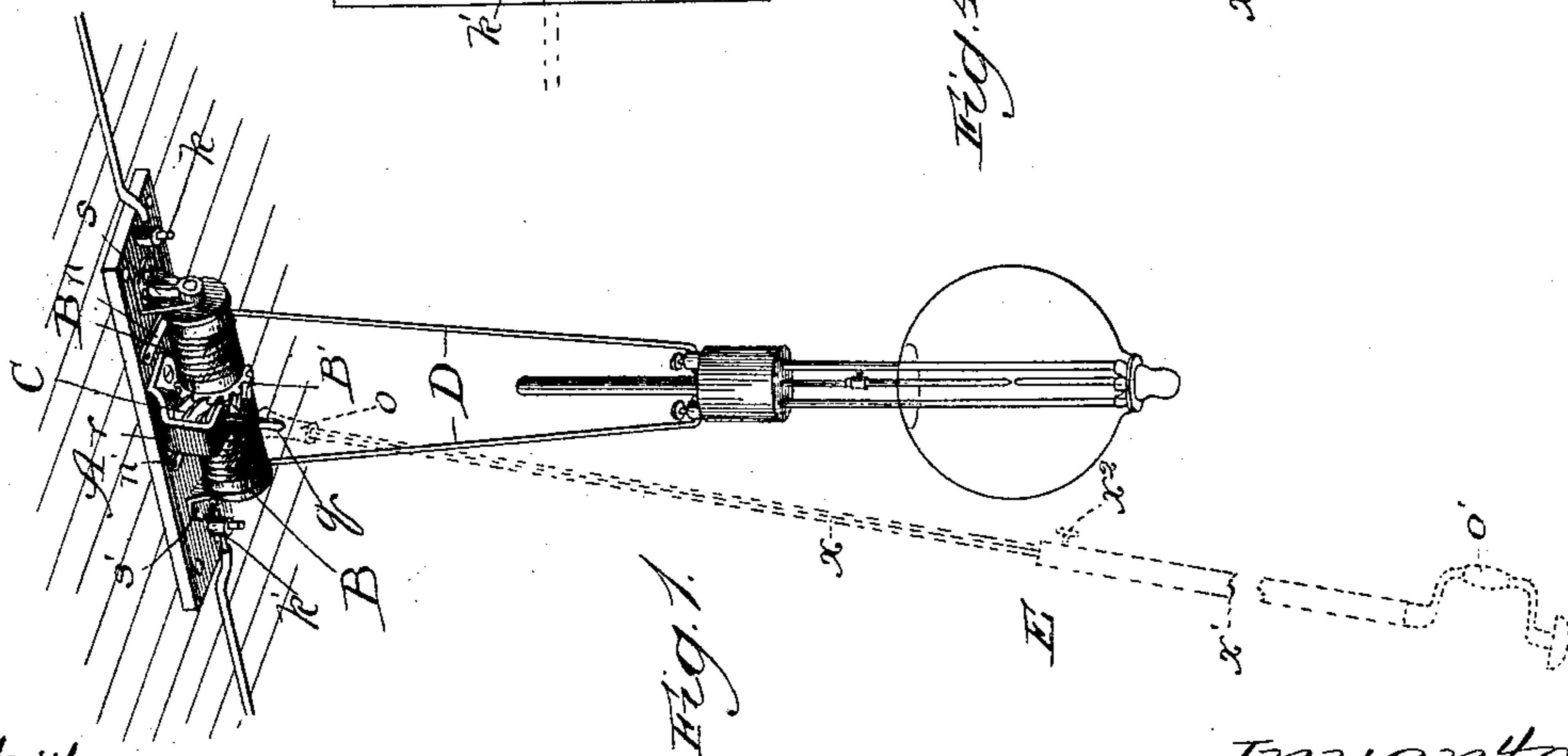


Fig. 1.

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UNITED STATES PATENT OFFICE.

JAMES McLAUGHLIN, OF CHICAGO, ILLINOIS.

HANGING DEVICE FOR ELECTRIC-ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 416,847, dated December 10, 1889.

Application filed August 24, 1889. Serial No. 321,844. (No model.)

To all whom it may concern:

Be it known that I, JAMES McLAUGHLIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hanging Devices for Electric-Arc Lamps, of which the following is a specification.

My invention relates to an improvement in hanging devices for electric-arc lamps of the class which allows the lamps to be raised and lowered, and are designed more especially for use in suspending the lamps from the ceilings of rooms or from other overhead supports.

The object of my invention is to provide such a hanging device of an improved construction, which will operate to maintain the lamp always perpendicular at any adjusted height below the support, and render it capable of manipulation to raise and lower the lamp without necessitating exertion by the operator of a downward pull upon the support—as, for example, to draw down the lamp against a counter-weight.

My further object is to provide such a hanging device wherein the raising and lowering of the lamp by unauthorized or meddlesome persons may be guarded against by necessitating the employment of a special implement to actuate the device for that purpose.

A still further object is to provide, in connection with my support and raising and lowering mechanism, a switch of especial construction to shunt the current around the lamp, whereby the latter may be cut out completely from the circuit to enable it to be handled by the operator without danger of a shock.

In the drawings, Figure 1 is a view in perspective of an electric-arc lamp suspended from a ceiling by a hanging device of my improved construction; Fig. 2, an enlarged bottom plan view, partly sectional, of the hanging device; Fig. 3, a broken section taken on the line 3 of Fig. 2, and viewed in the direction of the arrow; and Fig. 4, a broken and partly-sectional view of a detail.

A is a board or block, of wood or other insulating material, arranged to be secured against the underside of an overhead support, and known as the "ceiling-board."

B is a roller, of insulating material, provided between its extremities with a gear-wheel B', as shown, and having metallic pins $t t'$, which extend from toward the middle, where they are insulated from each other, and the gear-wheel centrally beyond the opposite ends of the roller, to afford journals for the latter, having their bearings in metallic hangers $s s'$, which are secured to the ceiling-board.

At one side of the roller B, and meshing with its gear-wheel B', is a worm C, journaled in a bracket r , secured to the ceiling-board, and the arbor q of the worm, which is rigid with the latter, extends below the bracket r , where it is formed with flat sides, as shown, or otherwise rendered non-circular, to be engaged and turned by a rod, as hereinafter described.

The lamp is suspended from the roller B by insulated cables D, which are connected with the pins t through holes p in the roller, intersecting the pins toward the inner ends of the latter.

The raising and lowering of the lamp are effected by turning of the worm C, which rotates the roller B and winds and unwinds the cable, depending upon the direction of turning, the worm operating to prevent rotation of the roller and consequent raising or lowering of the lamp by any other means.

To enable the operator to actuate the raising and lowering mechanism from the floor, I provide a rod E, having a socket o at one end to fit the arbor q , and provided at its opposite end with a brace o' . The operator slips the socket o over the shaft q and, placing one hand under the brace, turns the latter, and the raising or lowering operation is thus quickly and easily effected. The rod E may be formed of telescoping sections $x x'$, with a set-screw x^2 to hold them in relative adjusted position, all as shown in the drawings, or it may be rendered extensible in any other desired manner, whereby one rod may be used with equal convenience to actuate the turning mechanism of hangers located at different altitudes. To render the raising and lowering of the lamps more convenient, the worm-wheel and its shaft should extend downward in an outward inclined direction at an angle to the vertical sufficient to cause

the brace o' when the rod is adjusted to rotate beyond the line of descent of the globe of the lamp. Such an arrangement will prevent the parts from interfering with each other, and lessens the danger of accidental breakage of the globe in the operation of handling the rod.

The switch for shunting the current around the lamp comprises two metallic bars $n n'$, pivoted at $y y'$, respectively, to the ceiling-board A, and connected together toward their free ends by a cross-piece m , of insulating material, which is provided with a handle m' . On the ceiling-board toward the free ends of the bars $n n'$, for the latter to bear against, are contacts l, l' , and l^2 . Cables i , indicated in the drawings by dotted lines, and running in grooves on the reverse side of the ceiling-board, connect, respectively, the binding-post k with the bar m at y , the contact l with the hanger s , the contact l' with the hanger s' , the contact l^2 with the bar n' at y' , and the said bar with the binding-post k' . The direction of the current which enters, say, at k , (the lamp being switched into circuit,) is, therefore, from k to y , thence over the bar n to l , thence to s , and over the pin t to the cable, and through the lamp to the pin t' and hanger s' , thence to l' and over the bar n' to y' , and thence to the binding-post k' . When the switch is turned (as indicated by dotted lines) to cut out the lamp, the current is shunted around the lamp, taking the course from k to y , thence over the bar n to l^2 , thence to y' , and out at the post k' . The space between the contacts l and l^2 being less than the width of the bar n , prevents the breaking of the current in the manipulation of the switch.

As the desire for location, and especially when attaching the hanging device to plastered ceilings, renders it necessary in some instances to attach the ceiling-board so insecurely that it has little hold beyond what is necessary to sustain the lamp, any raising and lowering hanger which requires the operator to exert a downward pull, however slight, upon the ceiling-board in lowering the lamp, is apt to loosen the device from the ceiling and eventually pull it down altogether. With my improved hanging device, the use of the rod E in raising and lowering the lamp obviates all danger from this source, besides rendering it difficult for one unauthorized and unprovided with the rod to get at the lamp. The operator is, furthermore, owing to the lo-

cation and peculiar construction of the switch, enabled to handle the lamp with perfect safety to himself and to switch the lamp into or out of circuit by pressure with the rod E against the handle m' in the proper direction.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a hanging device for electric lamps, the combination of a ceiling-board A, a roller B, of insulating material, on the ceiling-board and from which the lamp-cables are suspended, conductors on the roller connecting the lamp-cables with the terminals of the line-wire, teeth upon the roller, and a worm C, supported in mesh with the teeth of the roller and provided with an arbor q , substantially as and for the purpose set forth.

2. In a hanging device for electric lamps, the combination of a ceiling-board A, a roller B, of insulating material, journaled upon pins insulated from each other in bearings $s s'$ on the ceiling-board, teeth upon the roller, and a worm C, supported in mesh with the teeth of the roller and provided with an arbor q , substantially as and for the purpose set forth.

3. In a hanging device for electric lamps, the combination, with the support, of a roller B, of insulating material, provided with a gear-wheel and journaled upon pins $t t'$, insulated from each other, bearings $s s'$ for the pins, mounted upon the support and in electric communication with binding-posts $k k'$, lamp-cables D, connected with the pins $t t'$ through holes p in the roller, and a rotary shaft provided with a worm meshing with the gear-wheel to turn the roller, substantially as described.

4. In a hanging device for electric lamps, the combination of a ceiling-board A, a roller B, of insulating material, journaled upon pins insulated from each other and mounted in bearings $s s'$ on the ceiling-board, teeth around the roller toward the middle of the latter, and a worm C, meshing with the teeth on the roller and provided with an arbor q , mounted below the ceiling-board at an angle to the vertical, substantially as described, whereby the rod employed to turn the worm will diverge to a position outside the path of the lamp, as set forth.

JAMES McLAUGHLIN.

In presence of—

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