

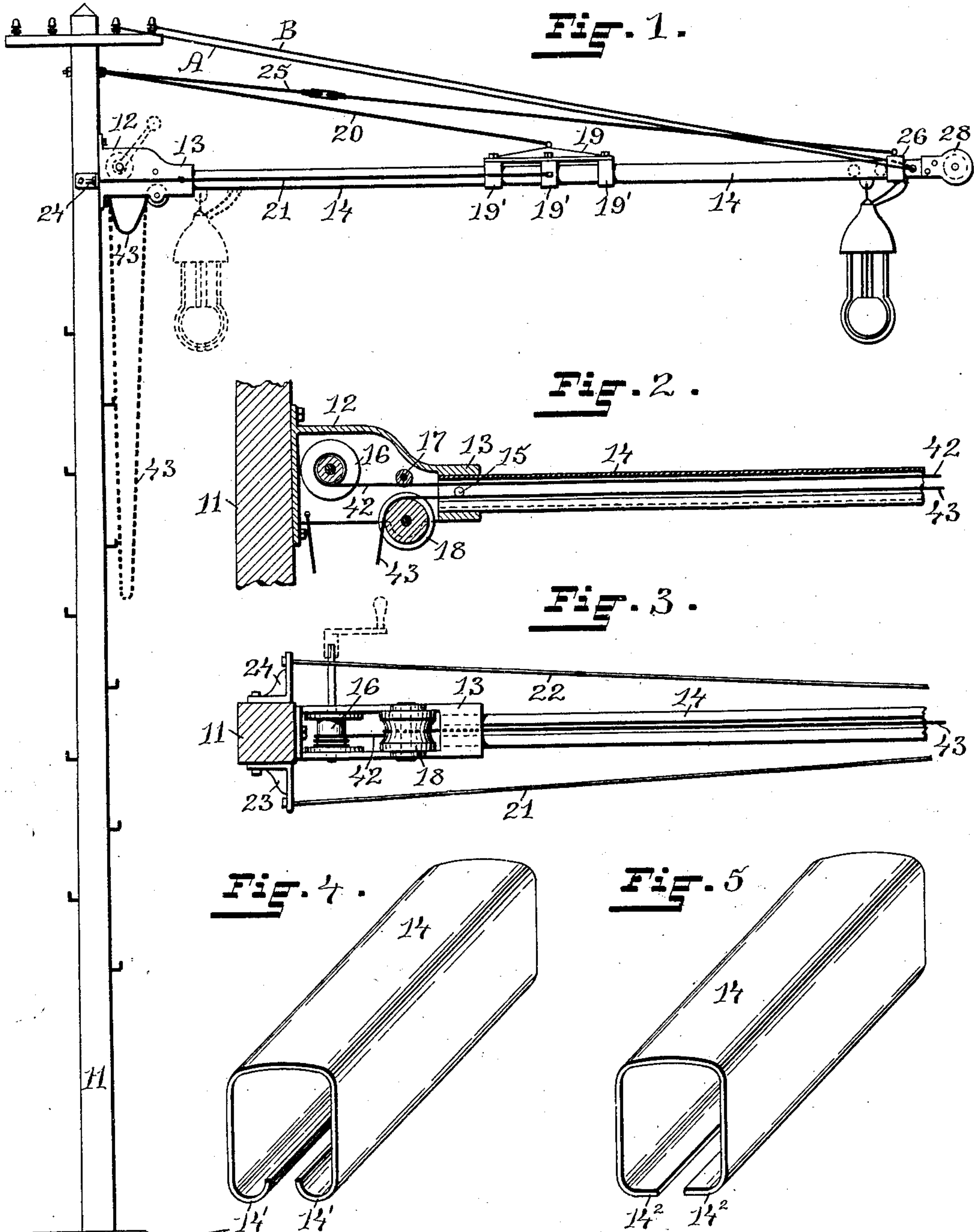
(No Model.)

2 Sheets—Sheet 1.

J. I. DRAKE.
MAST ARM FOR ELECTRIC LAMPS.

No. 547,246.

Patented Oct. 1, 1895.



WITNESSES:

Mr. F. Bligh.
Chas. H. Luther Jr.

INVENTOR:

John I. Drake,
Joseph Miller & Co.,
Atty.

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Fig. 6.

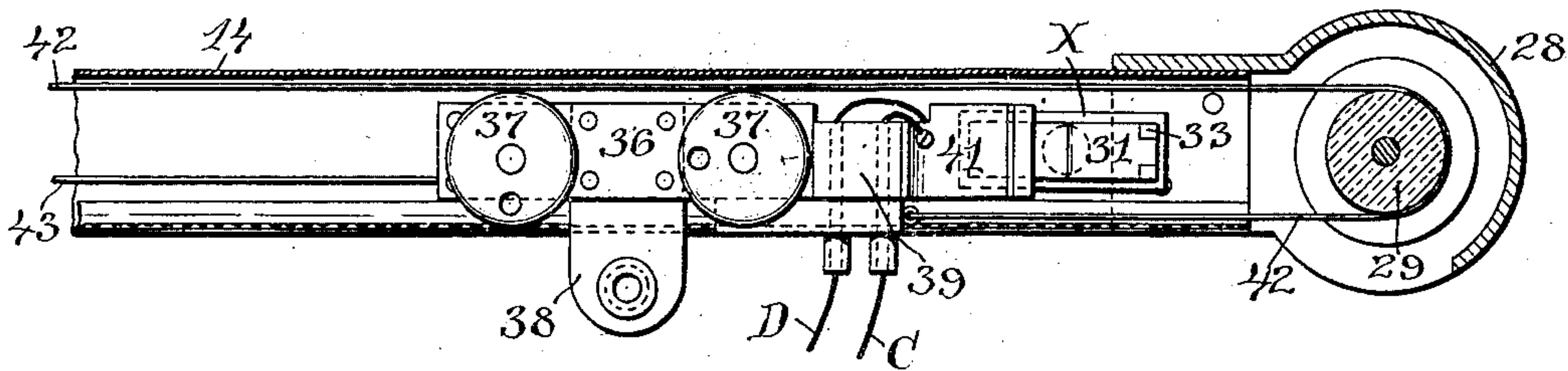


Fig. 7.

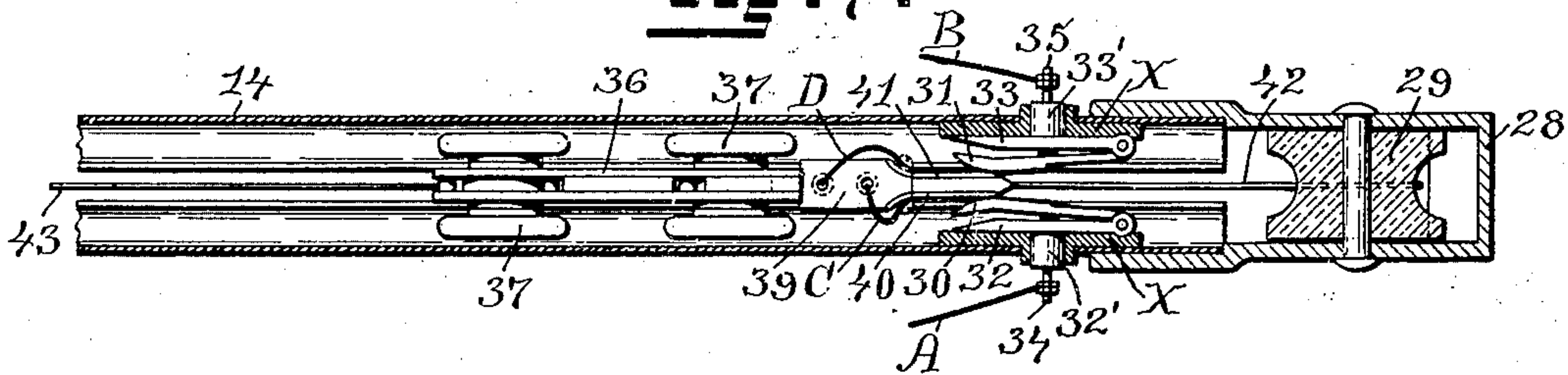


Fig. 8.

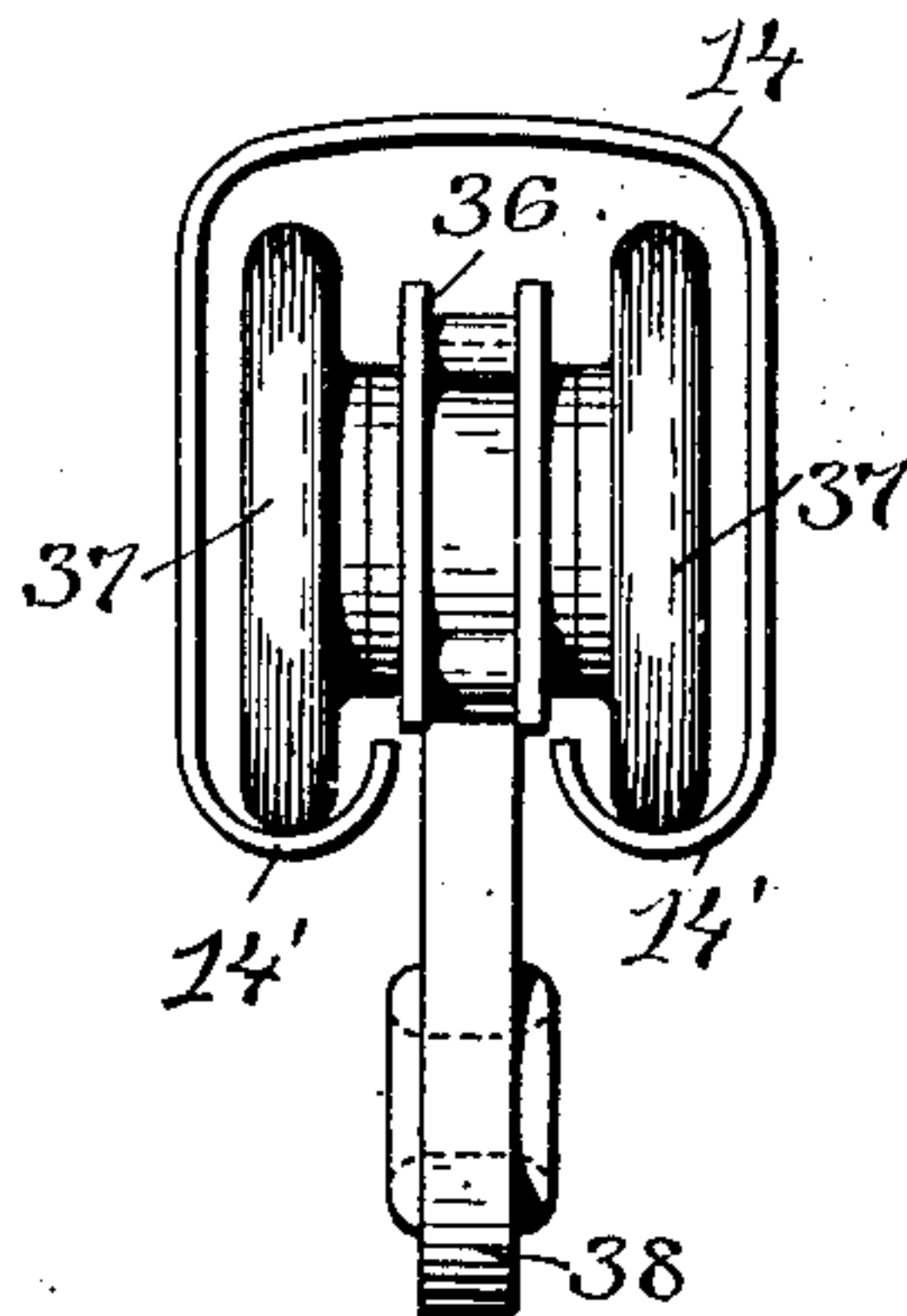


Fig. 9.

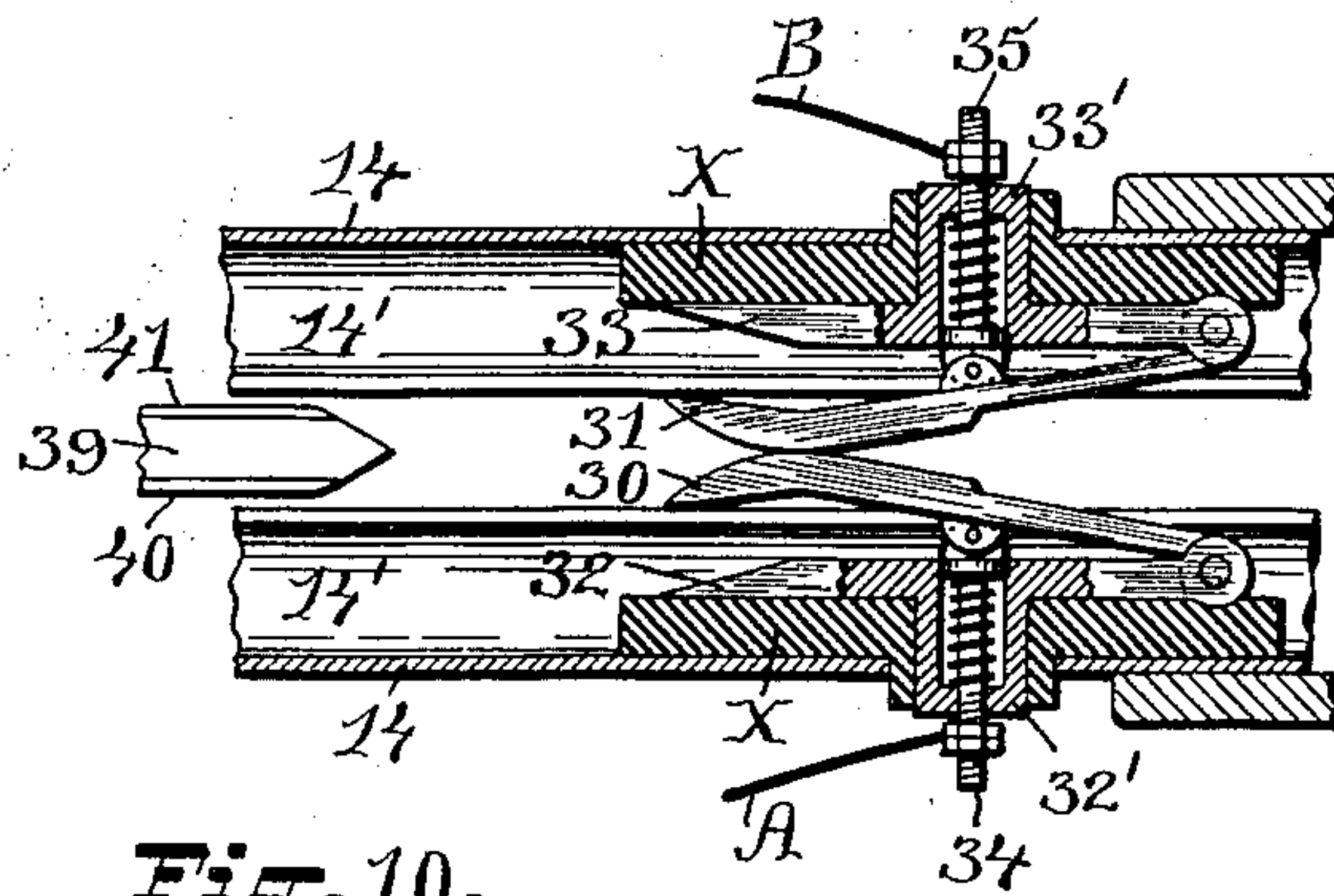
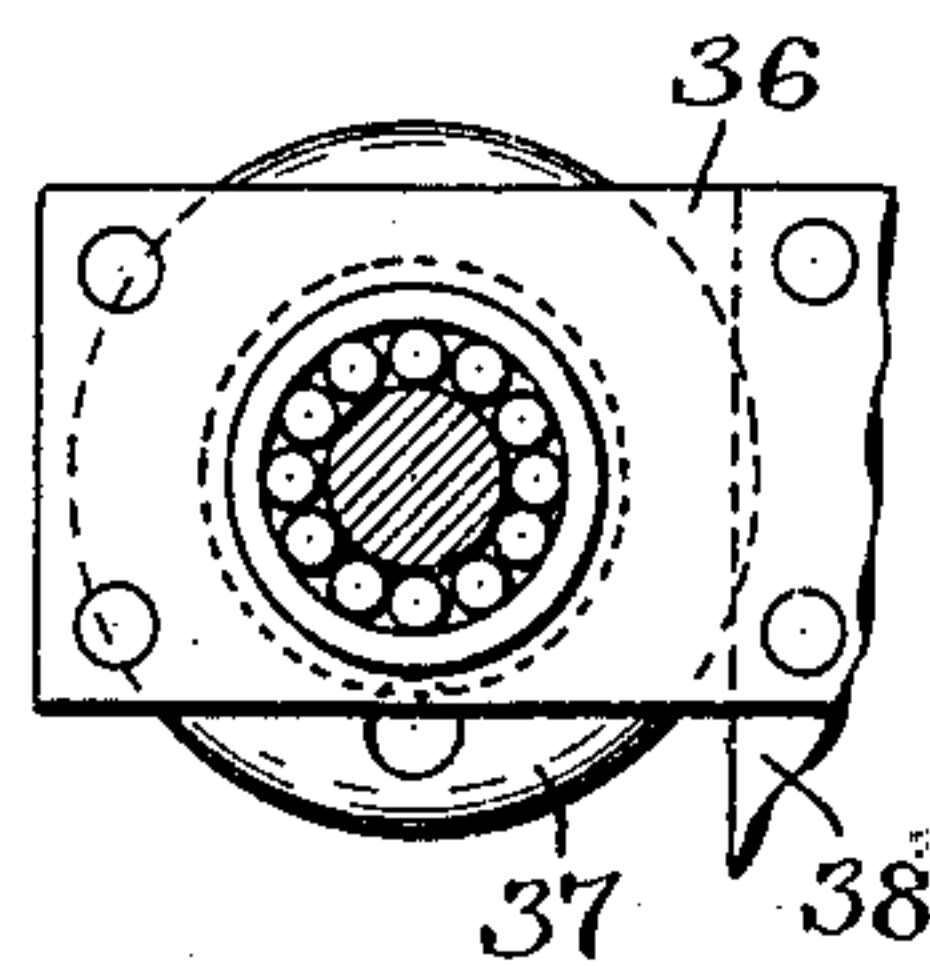


Fig. 10.



WITNESSES:

M. F. Bligh.
Chas. H. Luther.

INVENTOR:

John I. Drake,
Joseph Miller & Co.,
Attys.

UNITED STATES PATENT OFFICE.

JOHN I. DRAKE, OF PROVIDENCE, RHODE ISLAND.

MAST-ARM FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 547,246, dated October 1, 1895.

Application filed February 21, 1895. Serial No. 639,181. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. DRAKE, of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Mast-Arms for Electric Lamps; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in devices for supporting electric lamps.

The object is to so construct the pole-bracket, the hollow arm, and the head at the outer end that they may be more readily secured together, and that when so secured the torsional strain on the arm will be more fully resisted by the pole-bracket.

Another object of the invention is to provide the tubular mast-arm herein described with a peculiar automatic switch.

The invention consists in the peculiar features of construction and novel combination of parts, as hereinafter described, and pointed out in the claims.

The invention likewise consists of such other peculiar features of construction and combination of parts as may hereinafter be more fully described, and pointed out in the claims.

Figure 1 represents a side elevation of a pole with the improved arm secured thereto and supporting an electric lamp. Fig. 2 represents an enlarged vertical section of the pole-bracket and the inner portion of the tubular arm. Fig. 3 represents a bottom view of the same. Fig. 4 represents a perspective view of a portion of the improved tubular arm, showing its preferred cross-sectional shape. Fig. 5 is a similar view showing a modified cross-section. Fig. 6 represents an enlarged vertical section of the outer end of the arm and the head with the lamp-carriage. Fig. 7 represents a horizontal sectional view of the same. Fig. 8 represents an end view of the tubular arm with the head removed, showing the carriage in the arm. Fig. 9 represents an enlarged detail sectional view of portions of the arm, showing the switch at the outer end thereof and the carriage-contact. Fig. 10 represents a portion of the

lamp-carriage, showing the ball-bearing for the axle.

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 11 represents a mast or pole of any ordinary construction which is adapted to sustain a mast-arm and to fixtures on which, such as a cross-bar, the main-circuit wires may be secured. Near the upper end of the mast is fastened the pole-bracket 12, somewhat in the shape of a hood, open at its lower side and having the squared socket 13, adapted to receive the rectangular tubular arm 14 and to prevent the turning of the same, the arm being fastened in the socket by means of the bolt 15 passing through the sides of the socket and through the arm at this portion. In the sides of the bracket is journaled a shaft on which is mounted the drum 16, the shaft being furnished with a removable crank. In front of the drum a pin is secured in the bracket, on which is journaled the sleeve 17, and below this pin is journaled the guide-pulley 18 on a shaft also secured in the bracket.

The tubular arm 14 is of generally rectangular cross-section, so that it may be secured in the socket 13 without danger of rotation therein and by the aid of the socket to better resist the torsional strain to which it is subjected by the swinging of the lamp. By the use of this squared shape the size of the carriage and its wheels may be increased and the wheel shafts or axles may be furnished with more durable bearings, as is indicated in Fig. 10 of the drawings. The lower face of the arm is formed by the inwardly and upwardly turned edges or ways 14' 14', between which a slot is left which extends for the length of the arm from the socket 13 to the outer head and allows the depending arm of the carriage to traverse along the same. Where it is desired to use wheels for the carriage having flat instead of rounded treads, it is sometimes advisable to form the ways as is shown in Fig. 5, in which the ways 14² 14² are simply bent inward but not upward. When the proposed length of the arm exceeds the length at which the tubular portions can be economically drawn, I unite two of the sections by a yoke-piece 19, having the depend-

ing clamps 19' 19', adapted to closely embrace the tubular sections, including a portion of the ways 14' or 14², and secured by bolts. This yoke-piece is sustained by the guy 20, secured to the pole above the bracket 12. In like manner to prevent the side movement of the arm I secure the side stays 21 and 22 to the side clamps of the yoke and to laterally-extending brackets 23 and 24, secured to the pole, the outer end of the arm being sustained by the guy 25, secured to the upper end of the pole, and to a clamp 26, similar in construction to those marked 19' and secured by a bolt passing through the upper portion of the clamp and bearing on the material of the arm. To take up slack on this guy 25, I include a turn-buckle therein.

At the outer end of the arm I secure the hooded head 28, having a socket to fit the end of the arm to which it is bolted. This head being entirely independent of the supporting means may be readily removed for repairs to the arm without lowering the arm. In the head is journaled a sheave 29, preferably of some non-corrodible material, such as porcelain, to prevent its sticking, by corrosion, to the sides of the head.

Within the outer end of the tubular arm 14 I locate automatic switch-plates 30 and 31, which are hinged to the base-plates 32 and 33, these being supported by the insulating material X X out of contact with the arm. The base-plates are furnished with sockets 32' and 33', which extend through openings in the side walls of the arm. To the switch-plates 30 and 31 are pivoted the plungers 34 and 35, which extend through the sockets 32' and 33' and are connected by the local electric conductors A and B with the respective arms of the main circuit. On these portions of the plungers 34 and 35, within the sockets of the base-plates, are mounted springs, which tend through their action on the plungers to press the switch-plates inward until by their coming in contact the circuit to the main lines is completed.

The lamp-carriage is formed by a framework 36, in which the wheel-shafts are journaled. By reason of the peculiar shape of the tubular arm it becomes practical to construct this frame of sufficient size to accommodate ball-bearings for the shafts and to allow the wheels 37 37 to be of sufficient size to provide an easy movement for the carriage. Depending from the carriage is the lamp-supporting tongue 38 to an insulated bushing in which the lamp is secured. At the forward end of the carriage is a wedge-shaped projection 39, of insulating material, provided with contact-plates 40 and 41, which, by insulated wires C and D are connected with the respective terminals of the lamp. To the forward end of the carriage is secured a cable 42, which passes over the sheave 29, then through the tubular arm and under the roller 17 to the drum 16, to which it is attached, while to the rear of the carriage is fastened the cable

43, which extends back through the arm and is fastened to the bracket 12. By the rotation of the drum 16 the cable 42 is wound thereon and the carriage is drawn outward through the arm, the lamp-tongue 38 moving through the slot between the ways 14' 14' and carrying the lamp with it. As the projection 39 on the carriage is brought between the beveled ends of the switch-plates 30 and 31, it tends to separate them until the contact-plates 40 and 41 are brought into electric contact with these switch-plates, and the circuit is established through the lamp by means of the wires C and D, connected with the contact-plates, while beyond the switch-plates connection is had with the main lines through the conductors A and B.

When it becomes necessary to trim the lamp, the carriage is drawn inward by means of the cable 43, and as the extension 39 passes from between the switch-plates 30 and 31 the springs on the plungers 34 and 35 exert an inward pressure on the plates to close them together and thus complete the circuit.

I do not claim the use of a tubular slotted mast-arm in combination with a carriage traversable therein, as I am well aware that this was shown and described in Patent No. 392,228, issued to Charles W. Russell November 6, 1888, one-half of which patent was assigned to me.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a mast-arm, the combination with a mast, the bracket 12 having the socket 13 secured to the mast, the drum 16 and the pulley 18 journaled in the bracket, the tubular mast-arm 14 secured in said socket, guys for sustaining the outer portion of the mast-arm, clamps to which the guys are secured, the head 28 mounted on the outer end of the arm, and the sheave 29 journaled in said head, of a carriage, contained within the tubular portion of the mast-arm, provided with wheels adapted to travel on the ways thereof and furnished with means for supporting a lamp, and a cable, secured to the forward portion of the carriage, passing over the sheave 29, thence through the mast-arm and secured at the other end to the drum 16.

2. In a mast-arm, the combination with the pole, the bracket 12 having the socket 13 secured to the pole, the drum 16 and the pulley 18 journaled in the bracket, the tubular-arm 14 having the ways 14'—14' secured in the socket 13, guys for sustaining the outer end of the arm, the head-piece 28 secured to the outer end of the arm, the sheave 29 journaled in the head, the base-plates 32 and 33 secured within and insulated from the outer end of the mast-arm and having the sockets 32' and 33', the switch-plates 30 and 31 pivoted to the base-plates, the plungers 34 and 35 pivoted to the switch-plates and extending through the sockets 32' and 33', springs for exerting an in-

ward pressure on the plungers, and electric
conductors for connecting the plungers with
the respective arms of the main-circuit, of a
carriage contained within the arm having
5 wheels traversable on the ways, the exten-
sion 39 on said carriage, the contact-plates 40
and 41 on the extension, a tongue depending
from the carriage, and electric conductors
connected with the respective contact-plates

and adapted to be electrically connected with 10
an electric lamp supported by such tongue.

In witness whereof I have hereunto set my
hand.

JOHN I. DRAKE.

Witnesses:

HENRY J. MILLER,

JOSEPH A. MILLER, Jr.