

(No Model.)

2 Sheets—Sheet 1.

A. WRIGHT.
MAST ARM.

No. 481,381.

Patented Aug. 23, 1892.

Fig. 1.

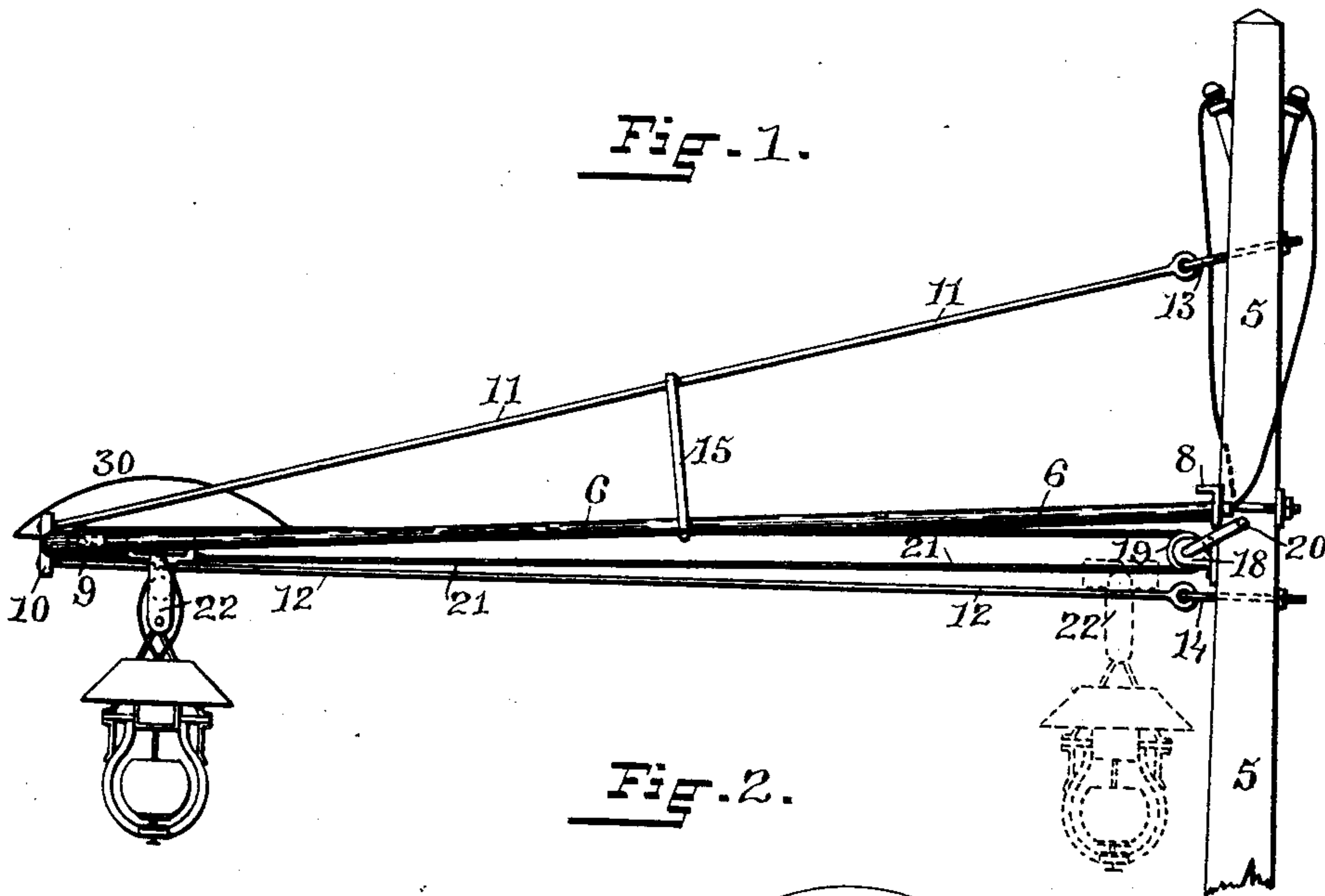


Fig. 2.

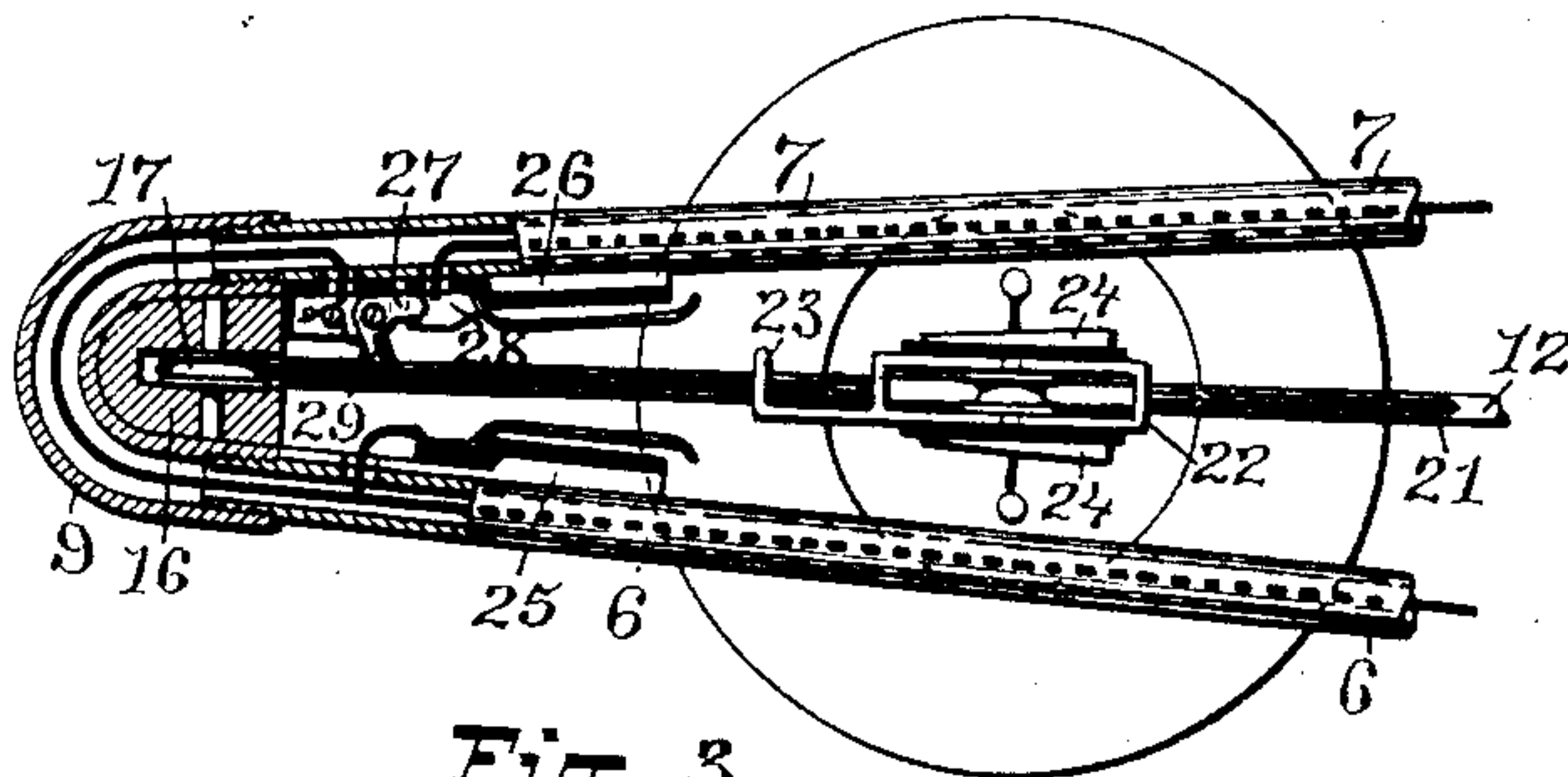
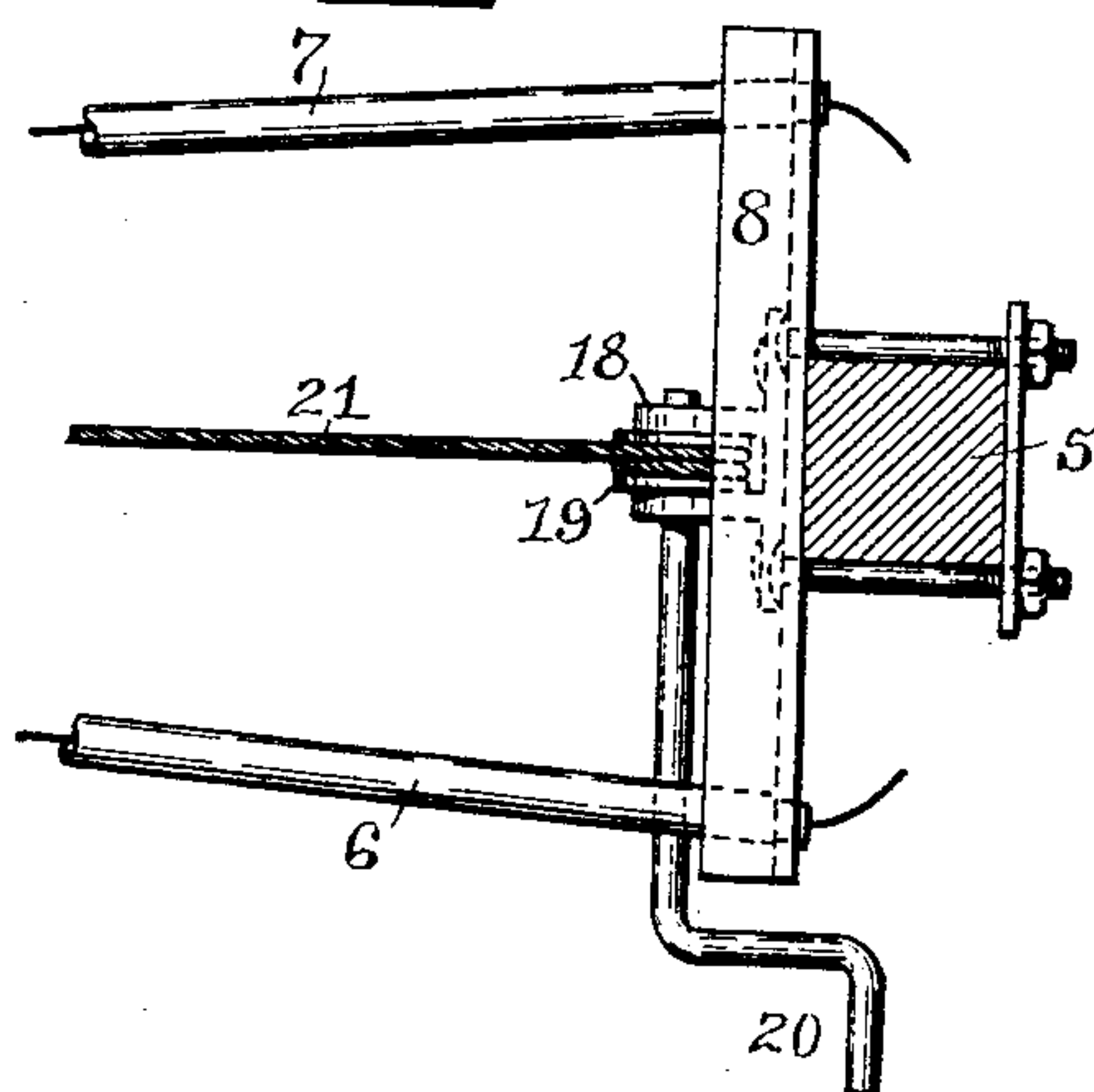


Fig. 3.



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Chas. H. Luther Jr.

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(No Model.)

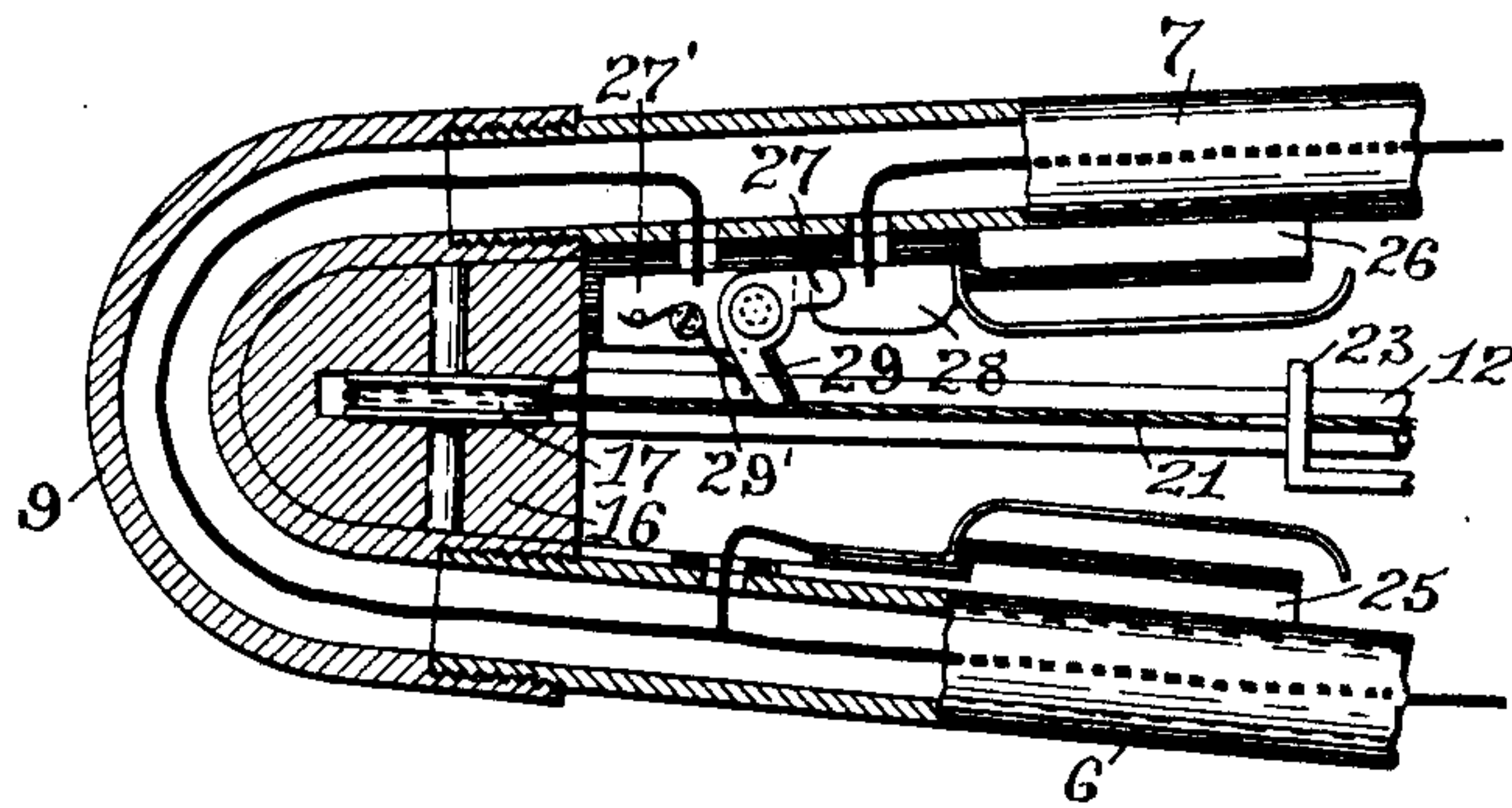
2 Sheets—Sheet 2.

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Fig. 4.



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UNITED STATES PATENT OFFICE.

AUGUSTUS WRIGHT, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE
HOPE ELECTRIC APPLIANCE COMPANY, OF SAME PLACE.

MAST-ARM.

SPECIFICATION forming part of Letters Patent No. 481,381, dated August 23, 1892.

Application filed October 14, 1891. Serial No. 408,693. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS WRIGHT, 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; 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 mast-arms ordinarily used to support electric lamps.

The object of the invention is to produce a mast-arm having great strength and rigidity, while the weight of the same is greatly reduced.

A further object of this invention is to provide a mast-arm with a trolley rail or wire, along which the lamp-support is adapted to move, and mechanism automatically operated by the movement of the lamp carriage or support to cut the lamp into or out of the electric circuit and to close said circuit when the lamp is thus cut out.

The invention consists in the peculiar construction and novel arrangement of the stays forming the arm, together with the bridge or brace connecting the stays.

The invention also consists in the combination, with this peculiarly-constructed mast-arm, of an automatic switch and circuit-closing device adapted to be operated by the lamp carriage or support, as will be more fully described hereinafter, and pointed out in the claims.

Figure 1 represents a view of a portion of a mast, to the upper portion of which the improved mast-arm is shown as secured and indicating the method of moving the lamp from one end of the arm to the other. Fig. 2 represents an enlarged top view of the outer end of the arm, partly in section, showing the automatic switch and circuit-closing device and the circuits connecting therewith. Fig. 3 represents an enlarged top view of the cross-arm with the butt-ends of the side-stay tubes secured thereto and showing the bolts by which this cross-arm is secured to the mast. Fig. 4 represents an enlarged view of the outer end of the mast-arm, partly in section, to more

clearly show the construction and to indicate the operation of the circuit-breaking device.

Similar numbers of reference designate corresponding parts throughout.

As mast-arms for supporting electric lamps are supported on masts at considerable distances from the ground and are subjected to great strains from the pressure of the wind in addition to the weight of the lamp, it has been found that these arms should be of great rigidity, but of extreme lightness. The flexible cables connecting the lamps with the main circuits, as heretofore constructed, owing to the constant wear from the movement of the lamp or from rubbing against the metal work of the arm, are a source of expense and continual source of danger to the operatives when handling the lamps. In order to produce an arm having great resisting power from pressure exerted in any direction and to avoid the elements of danger to which operatives have heretofore been liable, I have invented the mast-arm and switching devices which I shall now more particularly describe.

In the drawings, 5 indicates the mast on which the arm is secured and supported. The arm is formed by the side-stay tubes 6 and 7, secured at their inner or butt ends to the cross-arm 8, which is provided with bolts, by which it is fastened to the mast 5. The side-stays tubes 6 and 7 extend outward and downward at angles with the cross-arms 8, approaching each other, and are connected at their outer ends by the bent pipe-fitting 9, having a block 10 secured thereto. The upper stay-rod 11 and the trolley-stay 12 are secured at their outer ends to the block 10, the stay-rod 11 extending upward and its inner end being secured to the mast 5 by the adjustable eyebolt 13, while the trolley-stay 12 is also secured to the mast 5 by the adjustable eyebolt 14 at a point on the mast practically on a level with the outer end of the mast-arm. The upper stay-rod 11 and the side-stay tubes 6 and 7 are also braced and connected by the bridge 15 through perforations in which they extend.

Inclosed within and secured to the bend of the pipe 9 is a block 16, in which a grooved pulley 17 is movable on a shaft, while on the mast 5 and immediately below the cross-arm 8 is secured a bracket 18, in which the grooved

pulley 19, operated by the crank 20, is journaled. Over these grooved pulleys 17 and 19 is stretched the endless rope or band 21, secured to the upper portion of the lamp-carriage 22, which is provided with a trolley-wheel adapted to travel on the trolley-stay 12 when moved by the rope or band 21. The forward end of the lamp-carriage is also provided with the bent arm 23, while the sides of this carriage are provided with the contact-plates 24 24, properly insulated therefrom and connected with opposite poles of the lamp.

Near the outer ends of the side-stay tubes 6 and 7 are secured the insulating-blocks 25 and 26, carrying spring contact-plates, which are connected with the main circuit by conductors extending through the tubular side stays. The conductor extending through the tubular stay 6 is continued through the bent pipe-fitting 9 and is connected with one post of a spring-closed switch, the other post of which is connected with the conductor in the stay-tube 7. This switch has a contact-arm 27, pivotally secured to the metallic blocks 27', carried by but insulated from the stay-tube 7 and connected with one end of the electric conductor, while connected with the other end of the electric conductor is a contact-plate 28, also carried by the stay-tube 7 and insulated therefrom, the contact-arm 27 being adapted to electrically connect the blocks 27' and 28 together.

Formed in part with the contact-arm 27 is an operating-arm 29, extending at an angle with said contact-arm and operated by the spring 29' to keep the free end of the contact-arm in electrical contact with the plate 28, except when sufficient pressure is exerted against the arm 29 to throw the same backward and move the free end of the contact-arm 27 away from the plate 28. As the lamp-carriage 22 is moved outward by the rope or band 21 the contact-plates 24 24 will be forced in between the spring-plates carried by the blocks 25 and 26 and a split circuit will be established through the lamp. The carriage 22 being moved still farther outward will cause the bent arm 23 to strike the operating-arm 29 of the switch and force this arm backward, which will move the free end of the contact-arm 27 away from the plate 28, breaking the connection between the ends of the conductor, and thus throwing the whole strength of the electric circuit through the lamp.

When it becomes necessary to trim the lamp, the crank 20 is turned backward, imparting motion to the carriage 22 through the rope 21 to move the carriage toward the mast. As the pressure of the bent arm 23 is removed from the spring-operated arm of the switch, this arm will be operated by the spring and

the switch closed, splitting the circuit. The movement of the carriage destroys the connection between the contact-plates on the carriage and those secured to the blocks 25 and 26. The lamp may now be trimmed by the operative without danger from receiving an electric shock, while the circuit is not broken by the removal of the lamp.

In securing the mast-arm in place the cross-arm 8 is first secured to the mast at a proper height. The upper stay-rod 11 is now adjusted by the eyebolt 13 to support the outer ends of the side stays practically on a level with the inner ends of the same. The trolley-stay is now tightened to bring the upper and side stays into the position shown in Fig. 1 of the drawings.

The outer end of the mast-arm and the switches may be protected from the weather by the hood 30, if desired.

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 tubular frame formed by the fitting 9 and the side stays 6 and 7 and a cross-arm 8, secured to the butt-ends of said stays, of an upper stay 11, secured to the outer end of said frame and supporting the same, a tension-trolley stay 12 for depressing the outer end of the mast-arm, adapted to support a lamp-carriage, and means for operating said carriage, as described.

2. In a mast-arm, the combination, with a tubular frame formed by the fitting 9 and the side stays 6 and 7, a cross-arm 8, secured to the butt-ends of said stays, an upper stay 11, secured to the outer end of said frame and supporting the same, and a trolley-stay 12, carrying the lamp support or carriage 22, and means for operating said carriage, of a switch secured to the outer end of said tubular frame, adapted to be operated by said carriage to cut the lamp into and out of circuit, as described.

3. In a mast-arm, the combination, with a tubular frame formed by the tubular stays 6 and 7 and the fitting 9, suitably supported and containing electric conductors, the insulating-blocks 25 and 26, secured to said stays and provided with spring contact-plates connected with said conductors, and a spring-operated circuit-closing device also connected with said conductors, of a lamp-carriage 22, moving on a trolley-stay 12 and provided with the contact-plates 24 24, connected with opposite poles of the lamp, and a forwardly-extending bent arm 23, adapted to operate said circuit-closing device, as described.

AUGUSTUS WRIGHT.

Witnesses:

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