

A. BLONDEL & G. DOBKEVITCH.
ELECTRIC ARC LAMP.
APPLICATION FILED FEB. 1, 1905.

1,019,744.

Patented Mar. 5, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

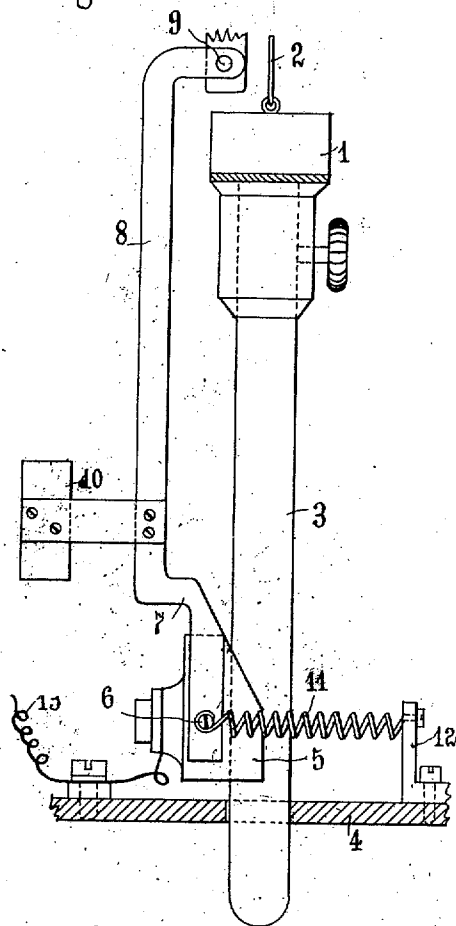
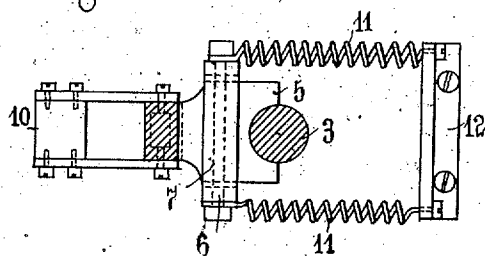


Fig. 2.



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Fig. 3.

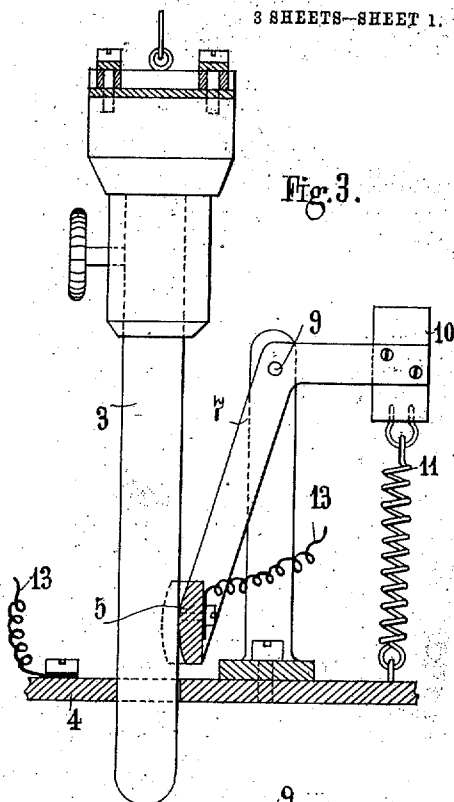


Fig. 4.

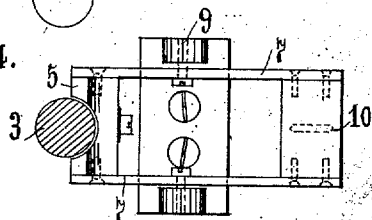
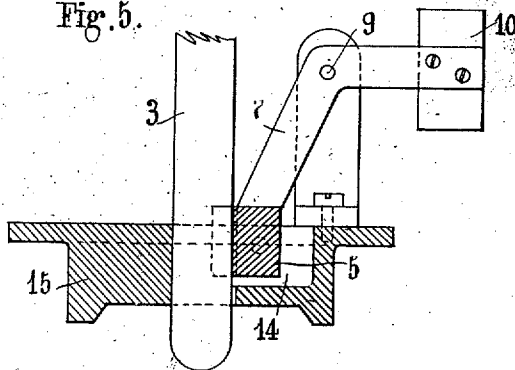


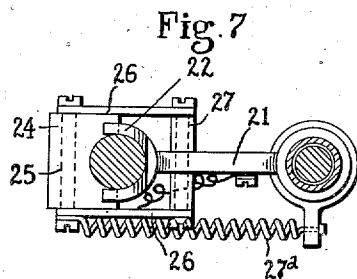
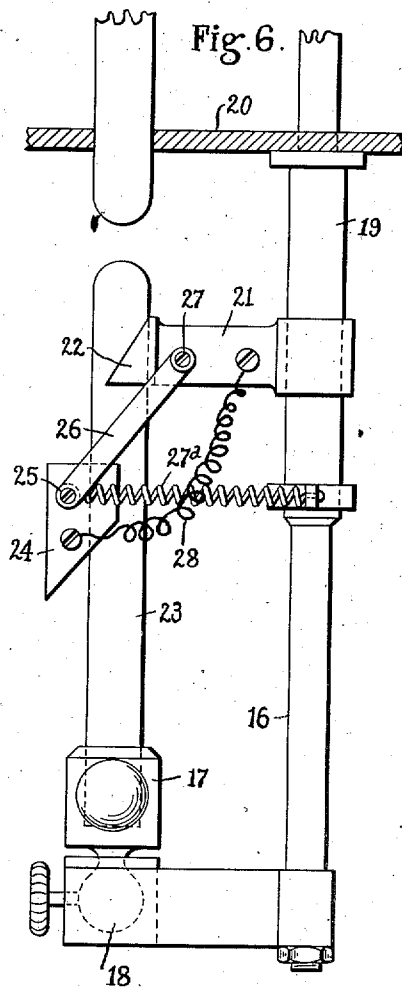
Fig. 5.



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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 8.

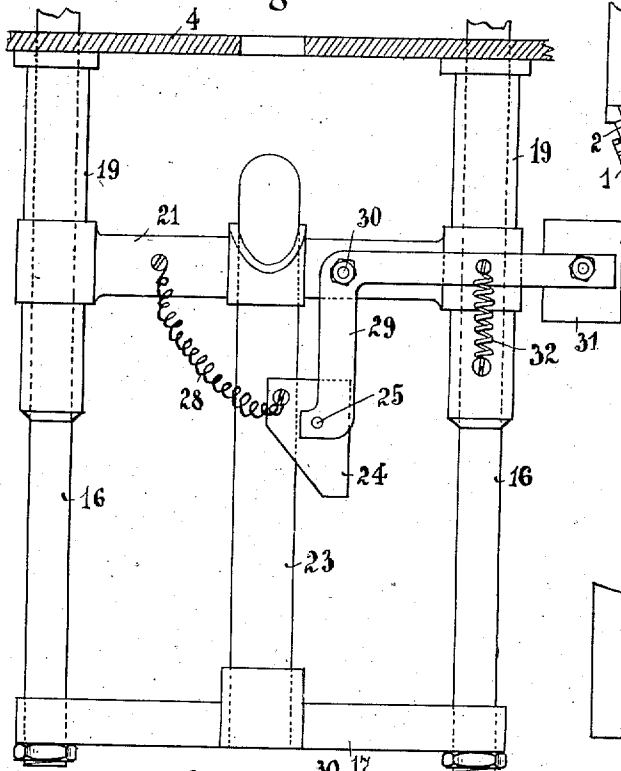


Fig. 10.

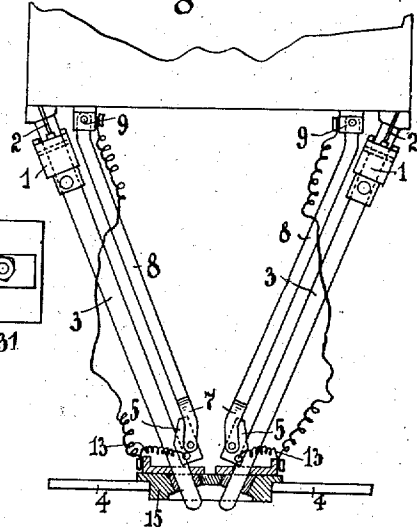


Fig. 11.

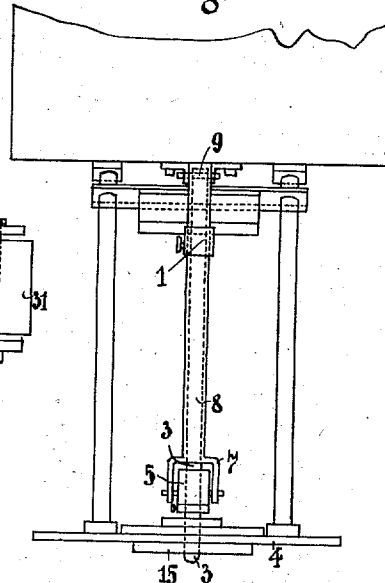
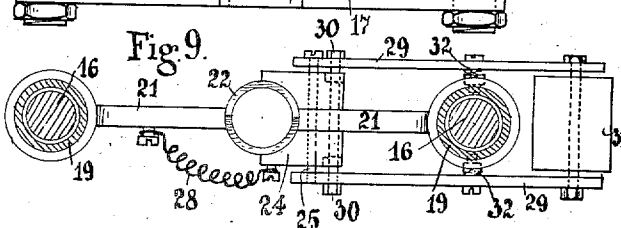


Fig. 9.



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UNITED STATES PATENT OFFICE.

ANDRÉ BLONDEL AND GAËTAN DOBKEVITCH, OF PARIS, FRANCE, ASSIGNORS, BY
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ELECTRIC-ARC LAMP.

1,019,744.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed February 1, 1905. Serial No. 243,774.

To all whom it may concern:

Be it known that we, ANDRÉ BLONDEL, a citizen of the Republic of France, and GAËTAN DOBKEVITCH, a subject of the Emperor of Russia, residing at Paris, France, have invented new and useful Improvements in Electric-Arc Lamps; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our present invention relates to electric arc-lamps, and more particularly to arc lamps having mineralized electrodes, the object being to avoid the loss of voltage caused by the use of mineralized electrodes by reason of high resistance and large length thereof. This object is attained by means of improved simple and economical devices arranged to bring the current to the electrodes near the points thereof and without hindering by undue friction the operation of the usual regulating mechanism, so that the current is not obliged to pass through the entire length of the electrodes, whereby nearly all loss of voltage is avoided; said devices being combined with suitable means protecting the same against the fumes produced by the mineralized electrodes.

The invention consists of the construction, combination and arrangement of parts, fully described and claimed hereinafter.

In order to facilitate the comprehension of our present invention, we have shown several forms of embodiments thereof in the accompanying drawings, wherein:

Figure 1 shows a side elevation of the upper carbon of an electric arc-lamp provided with an improved friction shoe bringing the current close to the point thereof. Fig. 2 is a plan view of same. Fig. 3 shows another form of friction-shoe. Fig. 4 is the plan view of this arrangement. Fig. 5 shows a modification of the arrangement shown in Figs. 4 and 3. Fig. 6 shows the lower carbon of an arc-lamp provided with my improved friction-shoes for bringing the current close to the point thereof. Fig. 7 is a plan view of same. Fig. 8 shows a modified

arrangement of the friction shoe for the lower carbon. Fig. 9 is a horizontal sectional view of same. Fig. 10 shows the front elevation of an arc-lamp embodying inclined electrodes provided with our improved friction-shoes. Fig. 11 is a side elevation of same.

Like numerals refer to like parts throughout all the views.

Referring to the drawings and more particularly to Figs. 1 and 2, 1 represents the upper carbon-holder suspended by means of a chain or rod 2; 3 is the carbon carried by said holder and passing freely through an opening in the horizontal protecting plate 4, attached in any suitable way to the lamp-frame and under which the electric arc is produced. The lower portion of the carbon 3 is frictionally engaged by a concave shoe 5, the concavity of which corresponds to the convexity of the carbon. The friction-shoe 5 or contact piece is pivotally arranged on a horizontal pin 6 carried by a yoke 7, made integral with a vertical rod 8 pivotally arranged at its upper end on a horizontal pin 9, attached to the top of the lamp-frame. Arranged at the lower end of the vertical rod 8 is a balance-weight 10, intended to slightly press the friction shoe 5 against the carbon 3. By this arrangement the rod 8, acts like a pendulous lever and the friction contact shoe is free to turn independently of the lever in the plane of the swing of said lever, and thereby to adapt itself to make good contact with the electrode irrespective of irregularities of the surface of the latter. The weight 10 may be assisted by one or more coiled springs 11, one end of which is attached to a suitable bracket 12 secured on the protecting plate 4, while the opposite end of said spring or springs is attached to the pivotal pin 6. The electric current is brought to the shoe 5 by means of a conducting wire 13. The pressure of the friction shoe upon the carbon, causes the latter to engage the opposite edge of the opening in the protecting plate 4, so that current is supplied to the carbon both through the friction shoe 5 or contact piece and the pro-

tecting plate 4. The pivotal arrangement of the friction shoe prevents the carbon from being wedged. As shown in Fig. 1, the friction-shoe 5 is beveled at its upper end for the purpose of clearing the passage for the carbon holder 1, whereby nearly the entire length of carbon may be utilized.

In the construction shown in Figs. 3 and 4, the contact piece 5, instead of being of a concave form, is made with a convex contacting surface and secured to the lower end of two double-armed levers 7, pivoted on pins 9 and actuated by means of a weight 10 connecting the upper ends of said levers. Said weight 10 may also be assisted by a coiled spring 11 attached thereto and to the protecting plate 4. Wires 13, 13 are arranged to bring the electric current to the contact piece 5 and the protecting plate 4, and thence to the lower portion of the carbon 3. The oblique arrangement of the arms 7 enables the shoe carrying levers to be swung laterally by the engagement of the carbon-holder 1, so that the latter may be lowered freely until it comes into contact with the protecting plate 4.

In the modified construction shown in Fig. 5, the contact piece 5, engages a suitable recess provided in the economizer 15.

The arrangements so far described are intended to bring the electric current to the upper carbon of the lamp. We will now proceed to describe similar arrangements for the lower carbon of the lamp.

Referring to Figs. 6 and 7, 16 indicates the vertical rod which supports the lower carbon-holder 17 through the medium of a swivel-joint 18. Said rod 16 is telescoped in a hollow rod 19 to which is attached the protecting plate 20 already described. Secured to the rod 19 is a horizontal arm 21 carrying a concave friction-shoe or contact piece 22 in engagement with the carbon 23 and cut away obliquely as shown, for the purpose of facilitating the dropping of cinder produced by the arc. The opposite side of the carbon 23 is engaged by another contact piece 24, pivotally arranged on a horizontal pin 25, carried by two link arms 26, 26 pivotally arranged on a horizontal pin 27, carried by said arm 21. The link-arms 26 are sufficiently set apart to clear the passage for the lower carbon and carbon-holder. The pivoted contact piece 24 is pulled against the carbon 23 by its own weight and by means of one or more springs 27^a as shown, or any suitable weight. Current is supplied in any suitable way to the arm 21 and the pivoted contact piece 24, so that the current is brought to the carbon 23 near the end thereof.

In the modification shown in Figs. 8 and 9, the arm 21 forms a cross-bar connecting two rods 19 and provided with a central

cylindrical hole 22 for the passage of the carbon 23. The contact piece 24 is pivotally arranged on the lower ends of bell crank levers 29, pivoted on studs 30 secured to the arm 21 and provided with a weight 31. The latter may be assisted by springs 32 to hold the contact piece 24 in engagement with the carbon 23. The current is supplied to the end of the latter through the arm 21 and the contact piece 24, electrically connected by means of a wire 28.

Figs. 10 and 11 show an arc-lamp embodying inclined mineralized electrodes, provided with our improvements. The inclined carbons 3, 3 are frictionally engaged at their lower ends above the economizer 15 and protecting plate 4 by friction-shoes or contact pieces 5, pivotally arranged on the lower end of arms 8, pivoted at 9, 9 on the top of the lamp.

It will be understood that many modifications and changes may be made in the minor details of construction and relative arrangement of the parts, without departing from the scope of the invention.

Having fully described our invention, what we claim and desire to secure by Letters Patent is:—

1. In an electric arc lamp, in combination with each electrode of a fixed guide for the same, a lever yieldingly biased toward contact with the electrode near its arcing end, a friction contact shoe mounted at the free end of the lever for contact with the electrode and holding it against the fixed guide, and flexible conductors in the lamp circuit connected with the contact shoes and guides, whereby the arc maintaining current is passed through a limited portion only of the electrodes.

2. In an electric arc lamp, in combination with each electrode of a lever yieldingly biased toward contact with the electrode near its arcing end, a friction contact shoe pivoted to the free end of the lever for independent movement in the plane of the swing of the lever, whereby its contact surface adapts itself to the surface of the electrode, and flexible conductors in the lamp circuit connected with the contact shoes.

3. In an electric arc lamp, in combination with each electrode of a fixed guide for the same, a lever yieldingly biased toward contact with the electrode, a pivoted friction contact shoe carried at the free end of the lever and bearing upon the electrode near its arcing end and thereby holding it against the fixed guide, and means for conveying the arc maintaining current between the contact shoes and the electrodes.

4. In an electric arc lamp, the combination with each electrode of a lever yieldingly biased toward contact with the electrode near its arcing end, a friction contact

shoe pivoted to the free end of the lever
formed with a contact surface matching the
surface of the electrode, and a flexible con-
ductor in the lamp circuit connected with
5 the contact shoe, whereby the arc maintain-
ing current is passed through a limited por-
tion only of the electrodes.

In testimony whereof, we have signed our

names to this specification in the presence
of two subscribing witnesses.

ANDRÉ BLONDEL.

GAËTAN DOBKEVITCH.

Witnesses:

JOSEPH FLANVIN,

JOSÉPHINE CORNET.