No. 747,508. PATENTED DEC. 22, 1903.

A. N. THORIN.

# REGULATING DEVICE FOR ELECTRIC ARC LAMPS.

APPLICATION FILED AUG. 2, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

*Fig. 1.*

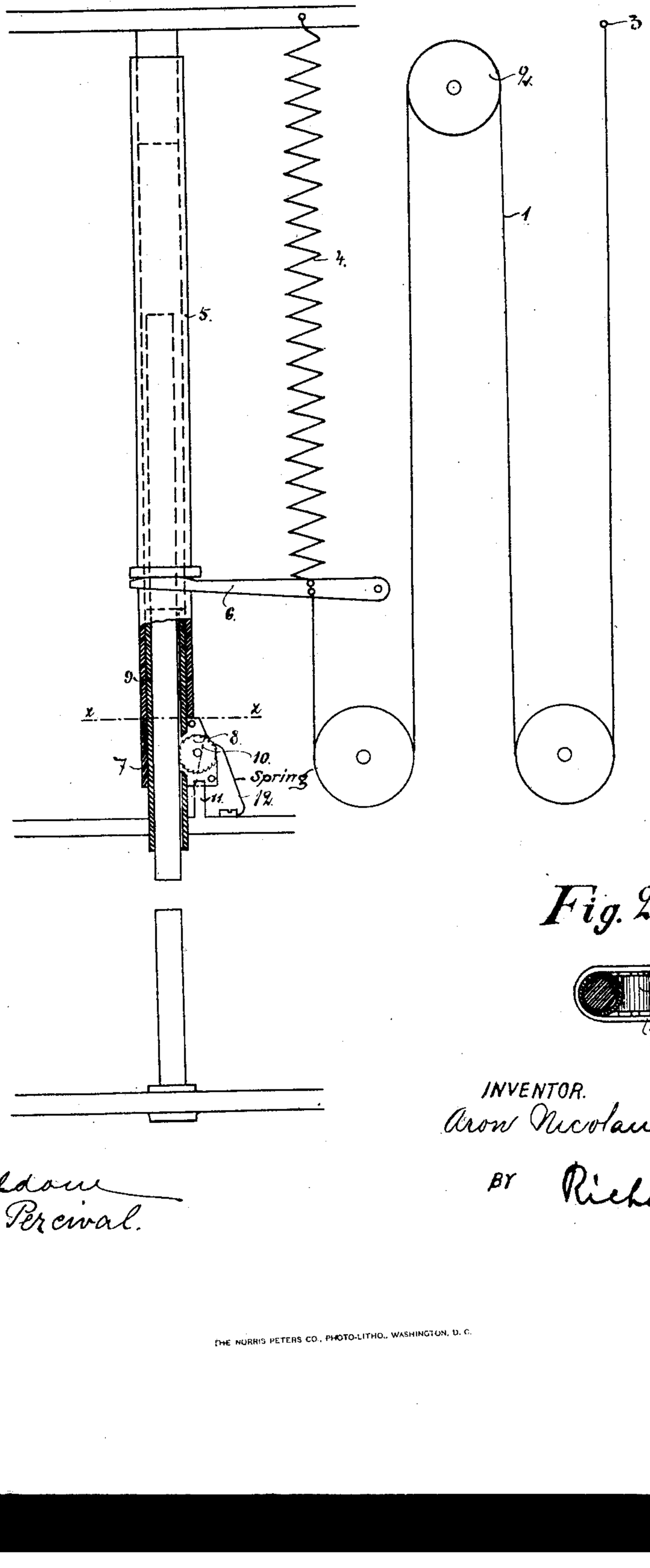


*Fig. 2.*







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APPLICATION FILED AUG. 2, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

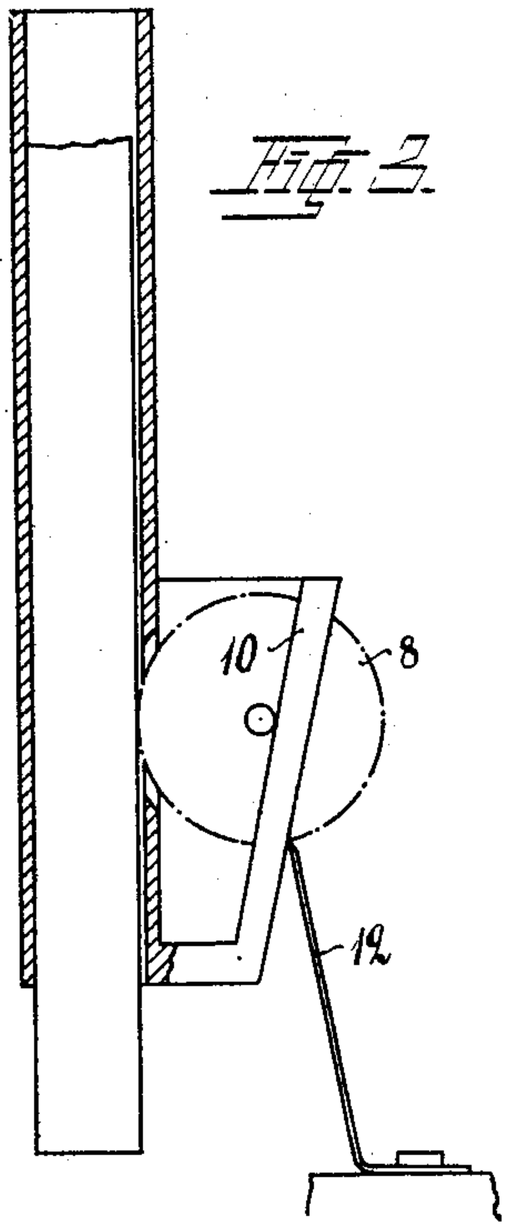



Fig. 4.

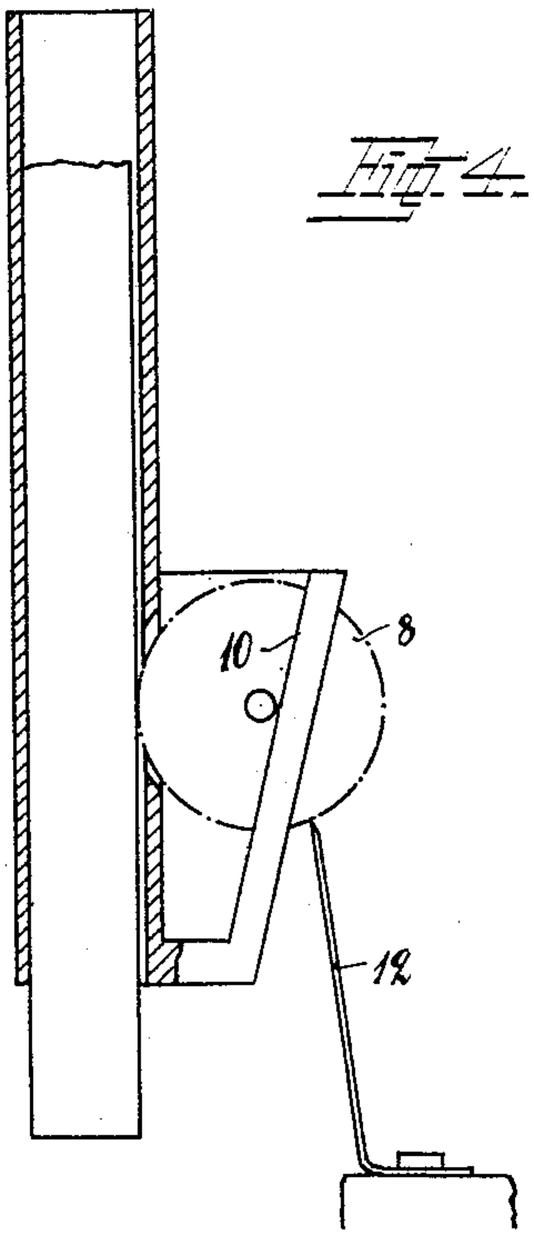
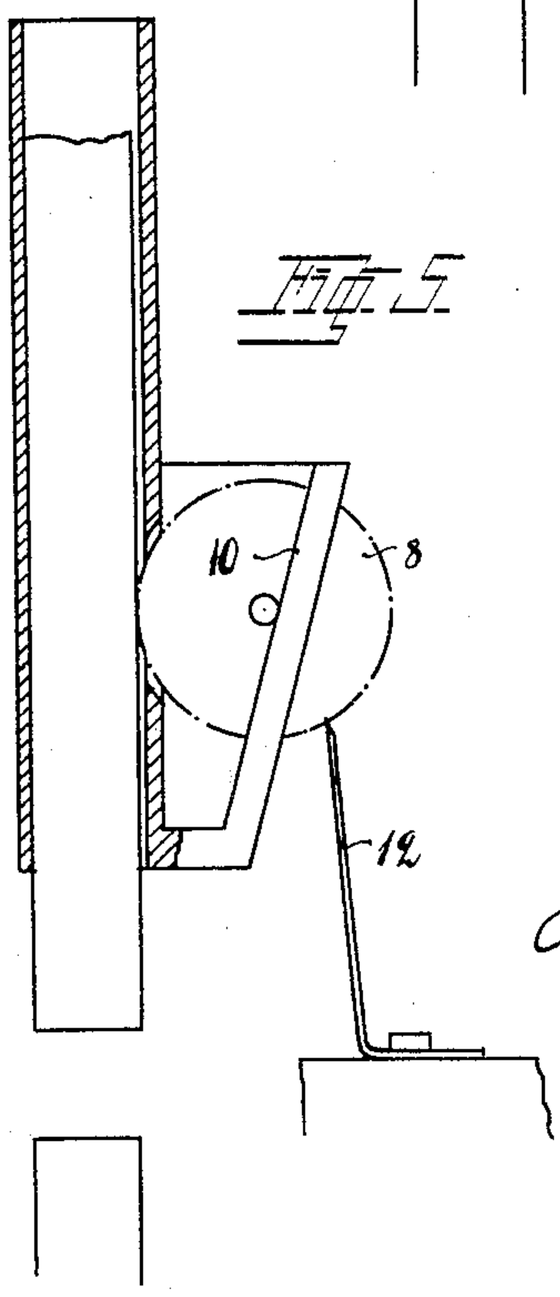



Fig. 5.




WITNESSES

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No. 747,508. Patented December 22, 1903.

# UNITED STATES PATENT OFFICE.

ARON NICOLAUS THORIN, OF STOCKHOLM, SWEDEN.

## REGULATING DEVICE FOR ELECTRIC-ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 747,508, dated December 22, 1903.

Application filed August 2, 1902. Serial No. 118,182. (No model.)

*To all whom it may concern:*

Be it known that I, ARON NICOLAUS THORIN, electrician, a subject of the King of Sweden and Norway, and a resident of Scheelegatan No. 16, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Regulating Devices for Electric-Arc Lamps, of which the following is a specification, reference being made to the accompanying drawings.

This invention relates to such feeding devices for electric-arc lamps in which a roller or the like is placed between one of the carbons of the lamp and surfaces running obliquely in relation to and situated close to the said carbon and which surfaces move with the carbon-holder, so that the carbon is in ordinary cases firmly held in the holder in consequence of the roller being clamped between the carbon and the oblique surfaces. In such feeding devices adjustment of the distance between the ends of the carbon is effected by the clamping of the roller between the carbon and the oblique surfaces being annulled in consequence of the movement of the carbon-holder, which movement is caused by too great an arc length, so that the clamped carbon becomes free and moves against the other carbon.

In the feeding device which forms the object of this invention the part which annuls the clamping of the roller between the carbon and the oblique surfaces is so arranged that the roller is held by the same against the carbon. By this is attained, that, when the carbon has become free and moves to occupy a new position, it tends to take the roller along with it, the roller accompanying the carbon unhindered, and is therefore immediately clamped anew, thereby clamping or gripping the carbon in the holder when it has moved only a very short distance.

The accompanying drawings illustrate a feeding device constructed in accordance with this invention.

Figure 1 shows the device as seen from the side upon the removal of one of the shanks of a bent piece between which the roller is situated. Fig. 2 shows the feeding device in plan, the carbon-holder and the carbon being cut along the line $x\,x$ in Fig. 1. Figs. 3, 4, and 5 are views of the parts in different positions.

The regulating movement of the carbon-holder 5 is effected in a usual manner—viz., by the aid of the device schematically shown in the drawings. This device consists of the balance resistance 1 of the lamp, which resistance passes around wheels 2 from one of the binding-posts 3 of the lamp onto a fork-like lever 6, acted upon by a spring 4 and supporting the carbon-holder 5.

The arrangement by means of which the upper carbon in the carbon-holder 5 is fed toward the lower carbon is carried out as follows: A bent piece or clamp 7 is mounted around a tube 9, fitted in and constituting a part of the carbon-holder and immediately inclosing the upper carbon. Between the shanks of the said clamp a toothed roller 8 is mounted, reaching the upper carbon through an opening in the tube 9. The roller 8 is provided with pivots, for which there are surfaces 10 at the inner sides of the shanks of the clamp 7, said surfaces converging with the upper carbon toward the arc-generating end of the same. It is obvious that the carbon when the roller 8 is in contact with the same and the pivots of the roller simultaneously are in contact with the surfaces 10 is securely held in the carbon-holder, in the movements of which it then participates. A spring 12 is mounted on a fixed part of the lamp, the free end of said spring engaging between the teeth of the roller 8 at a suitable point on that side of the roller which is turned from the carbon. When the ends of the carbons have been consumed so much that the distance between them needs to be adjusted and the carbon-holder 5, together with the parts carried by the same, has consequently sunk in a corresponding degree, the spring 12 brings the roller-pivots out of contact with the surfaces 10, with the result that the upper carbon becomes free and begins to descend against the lower carbon; but as the spring on account of the position of its point of engagement still holds the roller resting against the upper carbon and as there is nothing to prevent the roller from moving downward the upper carbon takes the roller along with it, in consequence whereof the

roller, pressing the end of the spring to one side, is immediately again clamped between the surfaces 10 and the upper carbon, which is thus again connected with the carbon-holder when it has descended only a very short distance. By this arrangement so-called "blinking" or a similar unsteadiness, which is a great drawback in a great number of arc-lamps, is thus obviated, and the arc length required is immediately obtained. When the lamp becomes extinguished, the carbon-holder descends so far that the roller becomes supported on a fixed part 11, in consequence of which the upper carbon becomes free and, as is necessary for the relighting of the lamp, rests on the lower carbon.

This feeding device may obviously be employed in other arc-lamps than those having an upper and lower carbon—*e. g.*, in arc-lamps with the one carbon inclined toward the other. At every carbon there may be two or more rollers with accessory parts instead of one roller.

Fig. 3 shows the relative positions of the parts immediately after a movement of regulation has taken place. Fig. 4 shows the relative positions of the parts immediately before a regulation—that is to say, when the clamping of roller against the oblique surfaces 10 has been annulled by the spring 12, so that the carbon and the roller are about to move down—while Fig. 5 shows the relative positions of the parts at the moment when the roller has moved down with the carbon and has become clamped between the carbon and the oblique surfaces. Immediately thereupon the carbon-holder ascends somewhat, so that the parts will again occupy the initial relative positions. (Shown in Fig. 3.)

I claim—

1. A feeding device for carbons, comprising a carbon-holder, a roller resting against the carbon, an inclined supporting-surface for the roller movable with the carbon-holder and arranged to direct the roller against the carbon and means on the side of the roller opposite that upon which the carbon is located, for freeing the said roller from the carbon when the carbon-holder moves down, the freeing means acting on the roller on that side of the same which is turned away from the carbon, substantially as described.

2. A feeding device for carbons, comprising a carbon-holder, a roller resting against the carbon, an inclined supporting-surface for the roller movable with the carbon-holder and arranged to direct the roller against the carbon and means on the side of the roller opposite that upon which the carbon is located, for freeing the said roller from the carbon when the carbon-holder moves down, the said freeing means for the roller consisting of a spring mounted on a fixed part of the lamp and having its free end engaging the roller, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ARON NICOLAUS THORIN.

Witnesses:

HANS B. OHLSSON,

KARL A. SVENSSON.