

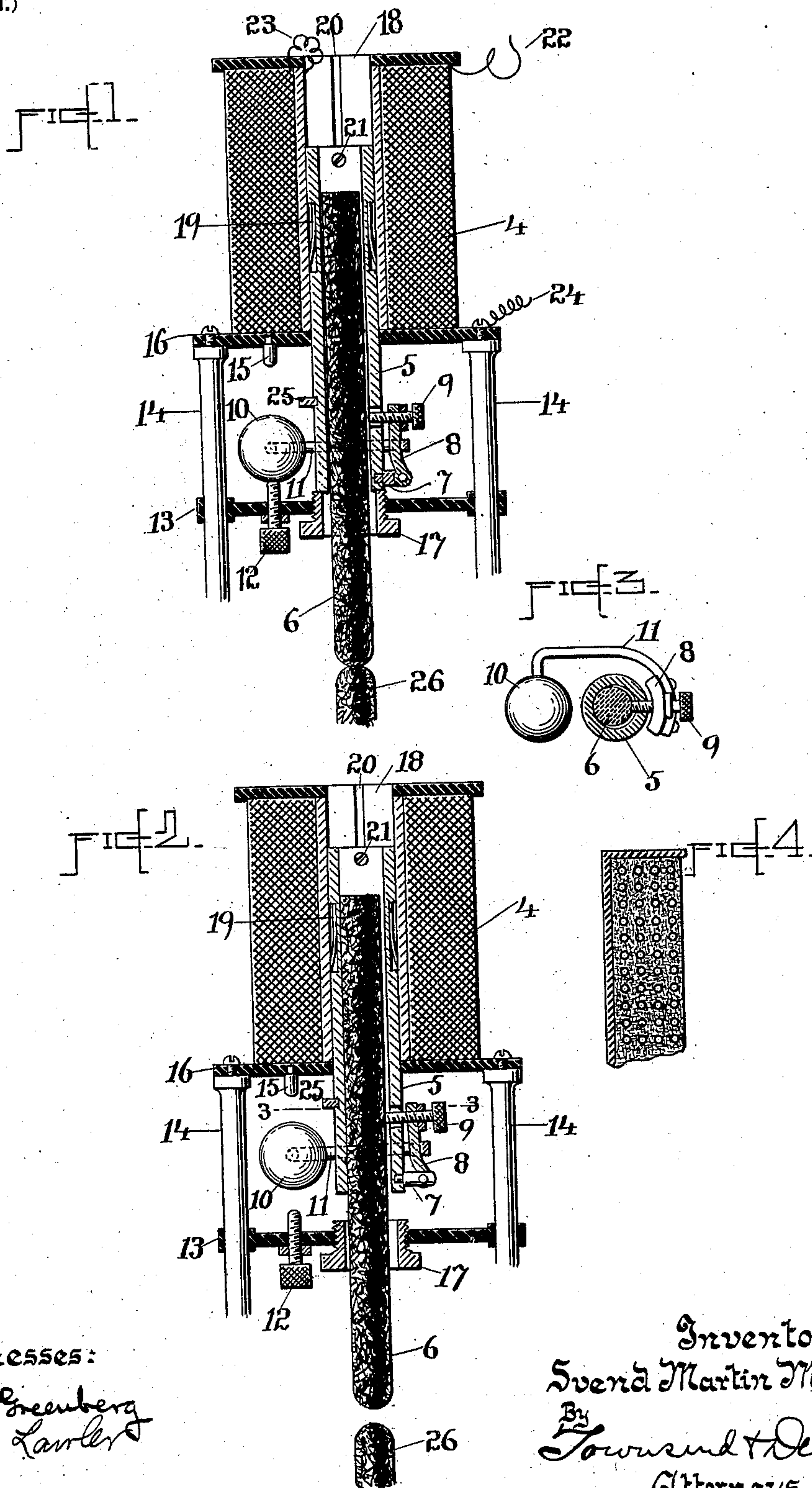
No. 693,663.

Patented Feb. 18, 1902.

S. M. MEYER.
ELECTRIC ARC LAMP.

(Application filed May 9, 1901.)

(No Model.)



Witnesses:

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SVEND MARTIN MEYER, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO FRANK C. KOHART, OF BROOKLYN, NEW YORK.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 693,663, dated February 18, 1902.

Application filed May 9, 1901. Serial No. 59,359. (No model.)

To all whom it may concern:

Be it known that I, SVEND MARTIN MEYER, a subject of the King of Denmark, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

This invention relates to an electric-arc lamp, and has for its object the formation of a lamp which shall be simple and economical in construction, accurate in operation, and durable.

With this object in view the invention consists in the construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, which form a part of this specification, the drawings illustrate so much of an arc-lamp only as is necessary to disclose the features of my invention, and therein said portion of the lamp is represented in vertical section in Figure 1 with the parts in idle position and in Fig. 2 with said parts in operating position, and Fig. 3 is a horizontal section taken in the plane of line 3 3, Fig. 2. Fig. 4 is a detail sectional view on a larger scale.

My improvement is best applied to an arc-lamp wherein the feeding of the carbons is controlled by a solenoid. In the drawings this solenoid is represented at 4. The core of said solenoid is indicated at 5 and is made hollow for the reception of the upper carbon, which is indicated at 6. The hollow core carries the clutch controlling the feed of the carbon 6. This clutch is mounted upon the core in any suitable way, as by means of a post 7, to which is hinged a plate 8, preferably of soft iron. Through the upper end of said plate a screw, as 9, projects and extends into the interior of the core 5 through an opening therein, so as to engage the carbon 6. This engagement is induced and maintained by means of a weight 10, which is secured to the plate 8 by means of an arm 11, which may be screwed to or otherwise attached to the plate 8, and preferably this arm 11 encircles the core, thereby placing the weight 10 at the side of the core opposite to the plate 8.

Coöperating with the weight 10 in the op-

eration of the clutch is an adjustable screw 12, located in a cross-bar or plate 13, of insulating material or of metal suitably insulated from the side rods 14 of the lamp. There is also, preferably, a stop, as 15, located in the upper plate 16 of the lamp in position to engage and limit the upward movement of the weight 10. There is also in the plate or cross-bar 13 an adjustable thimble, as 17, through which the upper carbon passes and upon which the core 5 may come to rest upon the lamps being cut out of circuit. This thimble also serves as a lower limit to the movement of the core 5 in the feeding operation of the lamp.

The solenoid 4 is preferably lined with metal, with which the core may engage and from which it may take current. This lining is indicated at 18. To insure good electrical connection between the core and said lining, suitable springs may be employed and located in any suitable way and upon one part or the other. One convenient location for such springs is indicated in the drawings at 19, wherein the springs are shown seated in recesses in the sides of the core 5.

To prevent the rotation of the core upon its axis, any suitable means may be employed—such, for instance, as a groove 20 in the interior surface of the lining 18 and a screw 21, located in the core and projecting into said groove 20.

The circuit of the lamp is as follows: Starting from the conductor 22, it passes through the solenoid-coil, thence to the lining of the solenoid, as by loop 23, thence to the core 5 and to the upper carbon by virtue of its contact therewith throughout the length of the carbon within the core, thence through the lower carbon and to the side posts 14, from which it may leave the lamp by conductor 24.

Suitable jam-nuts may be employed to fix screws 9 and 12 in the desired adjusted positions.

In the operation of the lamp the current when turned on flows through the path just indicated, thereby drawing the core into the solenoid until stopped by the projection 25 on said core coming into engagement with the plate 16. As said projection strikes the plate 16 the inertia of the ball 10 carries the

same up against the pin 15, thereby loosening the grip of the screw 19 from the carbon and allowing the carbon to ascend by its inertia slightly into the core. Immediately there-
 5 upon the weight 10 descends and brings the screw 9 again into engagement with the carbon, and the core 5, with the carbon, descends until the carbon 6 is at proper arcing distance from the lower carbon 26. Then
 10 as the carbons are gradually burned away the core descends until the weight 10 strikes the stop 12, when the carbon 6 is released and immediately runs into engagement with the carbon 26, thereby increasing the current through the solenoid and causing it to
 15 jerk the core 5 and carbon upward and bring it again into proper arcing position. The gripping action of the weight may be assisted and the tendency of the weight upon any
 20 sudden movement of the lamp to release the clutch from the carbon may be counteracted by making the plate 8 of soft iron, whereby it may be under the attraction of the core 5 so long as any current is flowing through the
 25 solenoid. The distance of travel of both the core and the weight is regulated by means of the collar 17 and screw 12, respectively, and to some extent by the screw 9, though the adjustability of the screw 9 is especially
 30 intended for accommodating the clutch to carbons of various diameters.

The turns of the solenoid 4 may be insulated in any suitable way; but I prefer to use a paste of infusorial earth for that purpose
 35 and to apply it as indicated in Fig. 4—namely, by spreading a layer of said paste on the spool, then winding on a layer of wire, then spreading another layer of said paste and winding on another layer of wire, and so on. This
 40 paste may be formed by mixing the earth with water or any suitable volatile liquid, and when dry it forms an excellent porous insulation.

Many variations may be made from the
 45 form and arrangement of parts illustrated and described without departing from the invention.

I claim as my invention—

1. In an electric-arc lamp, the combination
 50 with a solenoid, of a hollow core therefor

adapted to carry the upper carbon of the lamp, a lever pivoted to said core, a projection on said lever passing through an opening in the core into position to engage said carbon, a weight connected to said lever for effecting
 55 said engagement, and an adjustable stop for tripping the lever to release the carbon to effect the feed.

2. In an electric-arc lamp, the combination with a solenoid, of a hollow core therefor
 60 adapted to carry the upper carbon of the lamp, a lever pivoted to said core, a projection on said lever passing through an opening in the core into position to engage said carbon, a weight connected to said lever for effecting
 65 said engagement said lever being of iron whereby it may be attracted by the core to assist the weight in holding the carbon and to act against the weight in the release of the carbon, and means for tripping the lever to
 70 release the carbon.

3. In an electric-arc lamp, the combination with the solenoid, of the hollow core therefor, a clutch-lever carried on said core, a weight for actuating said lever, an adjustable stop
 75 for said weight and an adjustable stop for the core, substantially as set forth.

4. In an electric-arc lamp, the combination with the solenoid, of a hollow core therefor, a clutch-lever carried on said core, a weight
 80 for actuating said lever, a stop on the core for limiting the upward movement thereof, a stop limiting the upward movement of the weight, and an adjustable stop for tripping said lever to feed the carbon substantially as
 85 set forth.

5. A coil for an electromagnet or solenoid consisting of one or more layers of wire which together with the convolutions or turns thereof are insulated by a porous substance consisting of a paste of infusorial earth, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 27th day of April, A. D. 1901.

SVEND MARTIN MEYER.

Witnesses:

DELBERT H. DECKER,
 ETHEL L. LAWLER.