

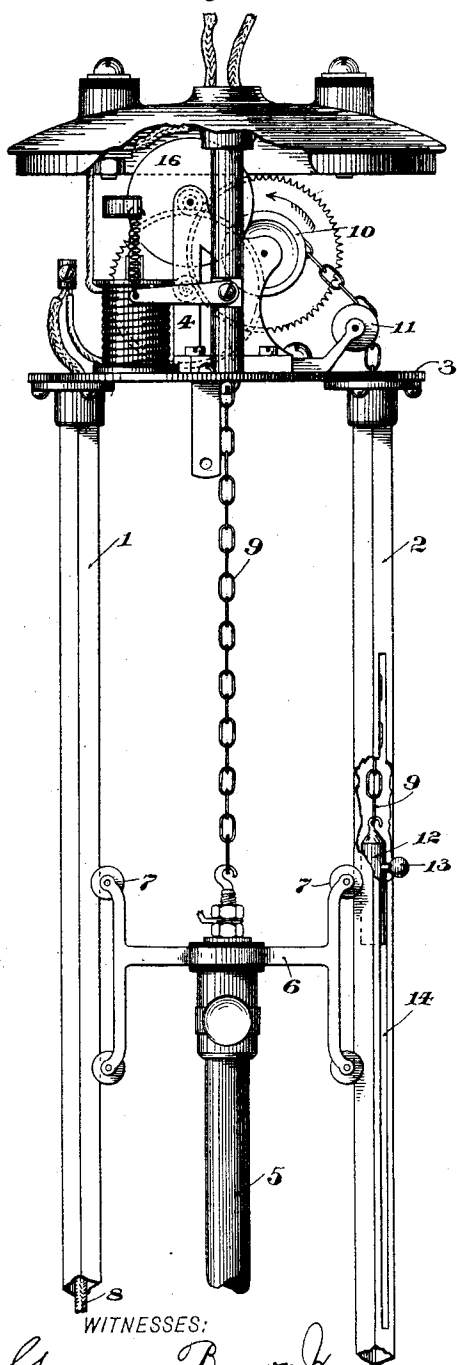
(No Model.)

H. P. DAVIS.
ELECTRIC ARC LAMP.

No. 535,051.

Patented Mar. 5, 1895.

Fig. 1.



WITNESSES:

George Brown
W. C. Tener

Fig. 2.

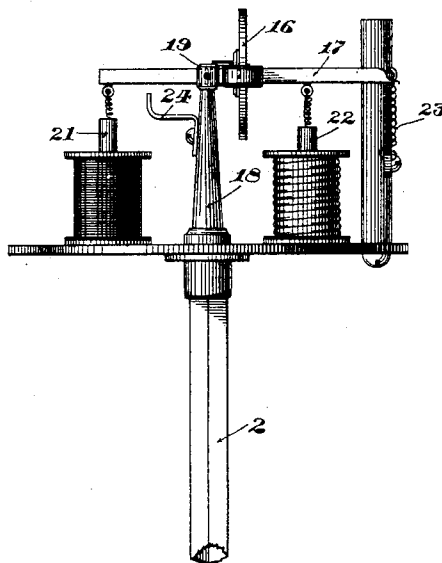
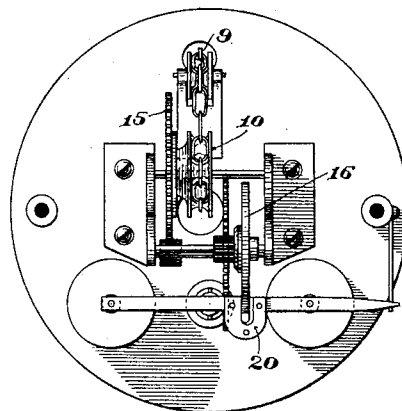


Fig. 3.



INVENTOR

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UNITED STATES PATENT OFFICE.

HARRY P. DAVIS, OF PITTSBURG, PENNSYLVANIA.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 535,051, dated March 5, 1895.

Application filed October 23, 1893. Serial No. 488,877. (No model.)

To all whom it may concern.

Be it known that I, HARRY P. DAVIS, a citizen of the United States, residing in the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Arc Lamps, (Case No. 559,) of which the following is a specification.

My invention has relation to mechanism for feeding in arc lamps, the object of my invention being the production of a form of feed which shall be practically continuous, noiseless, perfectly gradual and not easily gotten out of order.

Another object of my invention is to supply convenient means for moving the upper carbon of the lamp, which means shall not easily get out of place and shall always be available.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the upper portion of my improved lamp, showing a portion of one of the guide bars broken away and showing only a portion of the upper carbon, the lower carbon not being shown. Fig. 2 is a detail elevation of the feed clutch and coils controlling the same. Fig. 3 is a plan view of my feed train.

At 1 and 2 are shown the side rods or guide bars of an arc lamp attached at their upper ends to the base 3, supporting the feed mechanism 4, and carrying between them the movable upper carbon 5, which is guided in its movement up and down by means of the frame 6, whose notched wheels 7 engage with said side rods. These side rods, as usual, serve to support the lower carbon, which in my invention is provided with a series springing coil for pulling it down and springing the arc on first starting the lamp. I have not illustrated this feature, as it is already well known in the art. The series wire for feeding the lower carbon is shown at 8, as passing through one of said side rods. This I look upon as the most convenient method of disposing of the same.

In my invention the upper carbon is supported by means of the chain 9 passing over the pulley 10 in the feed gear. This pulley is preferably a sprocket pulley provided with points for engaging the chain 9, and thus pre-

venting its sliding over the surface of the pulley. The same result may, of course, be obtained with a fine chain and a large pulley, by winding the chain around the periphery of the pulley, but more ease and sureness of motion is obtained by the construction indicated.

From the pulley 10 the chain passes over the guide pulley 11, and down the side rod 2, said chain being provided with a small weight 12 to keep it tight, and said weight having a knob 13 projecting through the slot 14 in said side rod. If desired the weight 12 may be dispensed with, but I have found it most convenient to use the same in this connection. The pulley 11 merely serves to guide the chain and any other means for this purpose may be employed. The pulley 10 is mounted on the same axle with the crown wheel 15 and rotation may be communicated from the pulley 10 to the gear 15 in the direction of the arrow in Fig. 1 by means of the usual ratchet attachment common in clocks. Rotation of the pulley 10 in the opposite direction to the arrow is not so transmitted. By means of a system of pinions and wheels the rotation of the pulley 10 in the direction of the arrow may be communicated through the gear 15 and such further gears and pinions to the brake wheel 16, which serves to regulate the feed.

The motive power for the feed is the weight of the upper carbon, and said carbon is prevented from falling to its lowest position where it is supported by the lower carbon by means of a brake or clutch 17, preferably pivoted to the post 18 at 19. This brake 17 is provided with a notch 20 on one side of the pivot, and is movable by means of the two cores 21 and 22, actuated respectively by the shunt and series coils of the feed. If found necessary the spring 23 may be employed to produce fine adjustment in the movement of the clutch.

The operation of my invention is as follows: When current is first turned on the springing coil will start the arc by drawing down the lower carbon, and at the same moment the series coil will exert violent action upon the core 22, thus drawing the longer end of the clutch 17 well down and clutching the brake wheel 16 between the two sides of the

notch 20 and thus preventing the weight of the upper carbon from causing it to run down and follow the lower carbon. It is evident that if the workman who has adjusted the
 5 carbons has left them separated, the current will be forced to pass through the shunt coil, which will release the feeding mechanism as described hereinafter, and cause contact of the carbons, thus establishing circuit through
 10 the springing coil and the series feeding coil. As through the shortening of the carbons, their points retreat farther apart, the resistance will increase and at length a sufficient current will pass through the shunt coil, draw
 15 down with sufficient force upon the core 21 and oppose the action of the core 22 and release the braking pressure upon the wheel 16. The weight of the upper carbon will immediately cause it to descend and almost as
 20 instantly the decrease of resistance due to this approach of the points will cause the series coil to again overcome the shunt coil and by drawing down the clutch stop the motion of the upper carbon. By proper adjustment
 25 this feed may be made so fine as to be almost continuous and owing to the smooth nature of the brake wheel the movements may be made as small as desirable.

When it is desired to adjust new carbons
 30 to the lamp, the upper carbon may be quickly drawn to its highest position by simply drawing down on the knob 13, and thus pulling on the chain and revolving the pulley 10. By incasing the weight and chain in one of the
 35 guide rods, all danger of entangling the chain is obviated, and it is permanently kept in convenient position for shipping or for use. The stop 24, or its equivalent, is preferably employed in order to prevent excessive move-
 40 ment of the lever 17 under the influence of the superior attraction of the core 21. If it were not for some device of this kind the excessive action of the shunt coil, instead of properly releasing the movable carbon would

throw the notch 20 into its principal clipping 45 position and thus arrest the movement of the carbon permanently.

Certain details of my invention are capable of modification by mere mechanical skill, and I do not desire to limit myself to the exact 50 details herein shown and described.

What I claim is—

1. The combination with a carbon feed gearing comprising a brake wheel, of a pivoted brake lever embracing the edge of said 55 brake wheel, a series coil normally holding said lever in engagement with both faces of said wheel and a shunt coil for actuating the lever to release the brake wheel, substantially as described. 60

2. In an arc lamp, a movable carbon, a chain for supporting the same, and a feed gear comprising a wheel for receiving said chain at one end, and a brake wheel at the other, in combination with a clutch lever pivoted between its ends, a clutch attached to 65 said lever and adapted to engage with the opposite surfaces of said wheel, a series coil and core therefor cooperating to draw down one end of said lever, and a shunt coil and core 70 therefor co-operating to draw down the opposite end of said lever.

3. In an arc lamp, a feed train for the movable carbon comprising a smooth brake wheel in combination with a pivoted brake lever 75 having a notch, the sides of which are adapted to clip said brake wheel, and a series and shunt coil adapted to cause said notch to hold and release said brake wheel respectively. 80

In testimony whereof I have hereunto subscribed my name this 18th day of October, A. D. 1892.

HARRY P. DAVIS.

Witnesses:

HAROLD S. MACKAYE,
 HUBERT C. TENER.