

(No Model.)

C. COERPER.  
ELECTRIC ARC LAMP.

No. 484,530.

Patented Oct. 18, 1892.

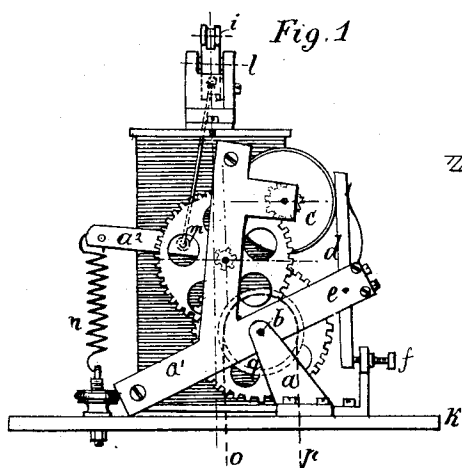


Fig. 2

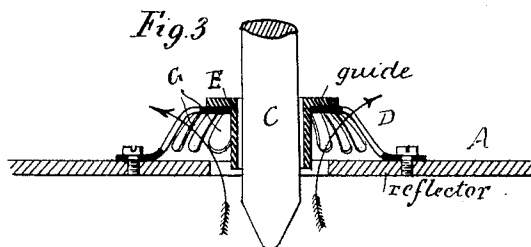
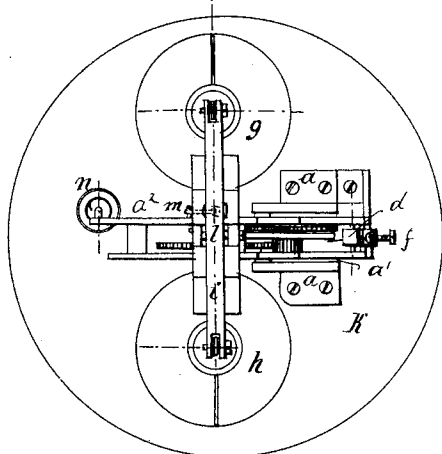


Fig. 4

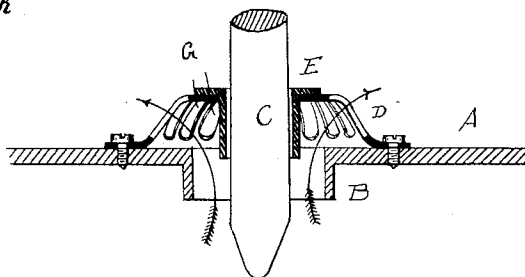
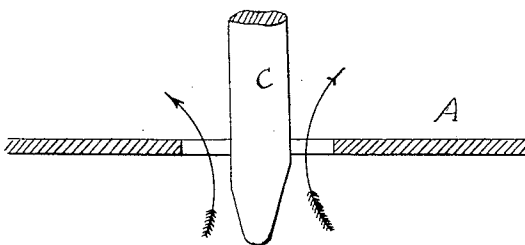


Fig. 5



Witnesses  
Marion Hall  
Chas. Kachmeier.

Inventor  
C. Coerper  
by *Samuel R. Coe*

ATTORNEY'S.

# UNITED STATES PATENT OFFICE.

CARL COERPER, OF COELN, GERMANY.

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 484,530, dated October 18, 1892.

Application filed June 18, 1892. Serial No. 437,145. (No model.)

*To all whom it may concern:*

Be it known that I, CARL COERPER, residing at Coeln, Germany, and a subject of the King of Prussia, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention relates to improvements in electrical-arc lamps; and the objects of the same are, first, to construct a simple driving-gear or feeding mechanism for the carbons, and, secondly, to provide an improved reflector which is not blackened by the carbons. I attain these objects by the mechanism and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a vertical elevation of the driving-gear of the lamp. Fig. 2 is a plan view of the same. Fig. 3 represents in a vertical sectional view the improved arrangement of the reflector. Figs. 4 and 5 illustrate two other modifications of the same in a similar view.

Similar letters of reference indicate corresponding parts.

I will now describe the driving-gear or feeding mechanism of my improved electrical-arc lamp. Upon the stationary support *a* is journaled the spindle or axle *b* of the regulating-mechanism frame *a'*, which is retained in a distinct position by means of a spring *n* or by a suitable weight until a stronger action effects a change of position. The running down of the driving-gear is effected by the movement of the brake-pulley *c*, which pulley is retained or released by the brake-lever *d*. The latter is pivoted upon the axle *e* of the frame *a* and is pressed by the movement of the driving-gear against the adjusting-screw *f*, or it is taken off from the same, so that during certain positions of the driving-gear the brake-lever *d* releases the brake-pulley *c*. Upon the plate *k* are fixed two solenoids or electro-magnets *h* and *g*, attracting the lever *i*. Said lever *i* turns about the axis *l* and is connected to the frame of the driving-gear by means of a link-rod *m* or by a cord. The coil or the electro-magnet *g* is a shunt-coil, whereas the other coil *h* is in the main circuit.

The function of the driving-gear is as follows: The carbons are suspended on cords *o* and *p*, leading over the pulley *q*, and when at

rest they touch each other. When a current passes through the lamp, the electro-magnet *g* is without any current, as the carbons shunt the circuit. The main-circuit electro-magnet *h* receives, however, much current, so that its core or armature is strongly attracted. The resulting movement of the lever *i* effects a lifting or raising of the driving-gear frame *a'*, and as at the same time the brake-lever *d* is lifted off from the adjusting-screw *f* the driving-gear or clock mechanism cannot run down; but the latter turns, together with the cord-pulley *q*, and separates the carbons—that is to say, the arc is formed. When the arc is too long, then, owing to the augmented resistance of the main circuit, the shunt-coil *g* receives so much current that the lever *i* is attracted more toward the magnet *g*, so that the driving-gear or clock-mechanism frame lowers as far as that the brake-lever *d* pushes or bears against the adjusting-screw *f*. Hereby the brake-pulley *c* is released from the lever *d* and the carbons can approach until the proper length of the arc is re-established.

The improved reflector of my improved electrical-arc lamp is constructed as follows: The reflectors of electrical-arc lamps arranged as near as possible above the center of light had the inconvenience that they grew dull in a short time, partly caused by the action of the chemical products of the process of combustion, partly caused by the ash particles, so that such a reflector had a good effect but for a short time. The reflector is soon blackened and fulfills its object very badly. I obviate this inconvenience by giving no guide to the carbon in the reflector itself, as it was the case heretofore; but I leave a free space or an opening around the carbon, so that the products of combustion can discharge at the top of the reflector. The simplest form of construction is represented in Fig. 5; but it is preferable to guide the carbon *C* above the arc center and to provide the reflector *A* with a short collar or neck *B*, as represented in Fig. 4. The blacking of the reflector is thus totally prevented. The arrangement shown in Fig. 3 has given, also, a good effect. In this construction the collar of the reflector is omitted; but the cap or top piece *D*, carrying the guide *E* for the carbon, is also provided with slots or openings *G* for the discharge of the

products of combustion. In the constructions illustrated in Figs. 3 and 5 a small part of the reflector surrounding the carbon is still blackened, whereas in the construction 5 represented in Fig. 4 all products of combustion pass through the short chimney-like collar of the reflector, so that the latter is by no means blackened or blinded.

Having thus described my invention, what 10 I claim as new, and desire to secure by Letters Patent, is—

1. In an electric-arc lamp, the combination, with a driving-gear, of a frame pivoted on the fixed plate of the lamp and supporting said 15 gear, two electro-magnets on said plate, of which one is in the main circuit and the other in the shunt-circuit, a pivoted armature-lever above said magnets, which lever is connected with the swinging frame supporting the gear, 20 a brake-wheel forming part of the gear, a brake-lever pivoted on the pivoted frame and engaging the brake-wheel, a screw on the fixed base bearing against one end of said brake-lever, a pulley forming part of the gear, 25 and a cord passed over said pulley, from which cord the carbons are to be suspended, substantially as set forth.

2. In an electric-arc lamp, the combination, with a fixed plate, of a frame pivoted on the 30 same, a train of gearing mounted on said pivoted frame, a spring acting on said pivoted frame, a brake-wheel forming part of said

gearing, a lever pivoted on the pivoted frame and bearing against said brake-wheel, a screw on the fixed plate, against which screw one 35 end of the brake-lever can bear, two magnets on the fixed plate, of which one is in the main circuit and the other in the shunt-circuit, a pivoted armature-lever for said two magnets, which lever is connected with the swinging 40 frame carrying the gearing, a pulley forming part of the gear, and a cord passed over said pulley, from which cord the carbons are to be suspended, substantially as set forth.

3. In an electric-arc lamp, the combination, 45 with a reflector having an opening, of a slotted piece secured on the reflector over said opening and a guide-collar on said slotted piece, substantially as set forth.

4. In an electric-arc lamp, the combination, 50 with a reflector having an opening and a downwardly-projecting flange along the edges of said opening, of a slotted piece secured on the top of the reflector above said opening and a guide-collar held on said slotted piece, 55 substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL COERPER.

Witnesses:

FR. SCHRÖDER,  
SIBILLA LANG.