No. 646,883. Patented Apr. 3, 1900.

P. H. F. SPIES.

ELECTRIC ARC LAMP.

(Application filed Nov. 1, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

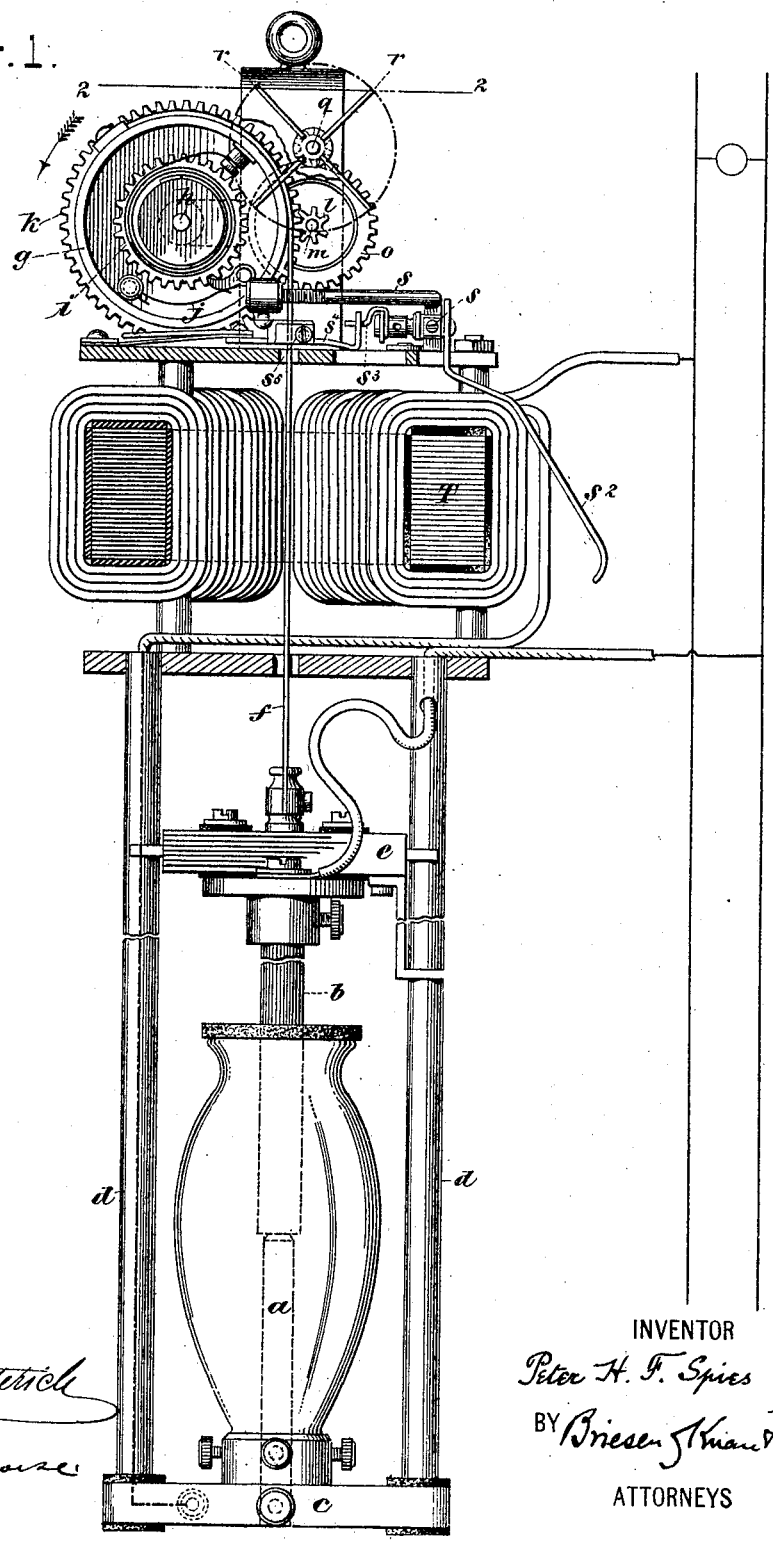

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Fig. 2.

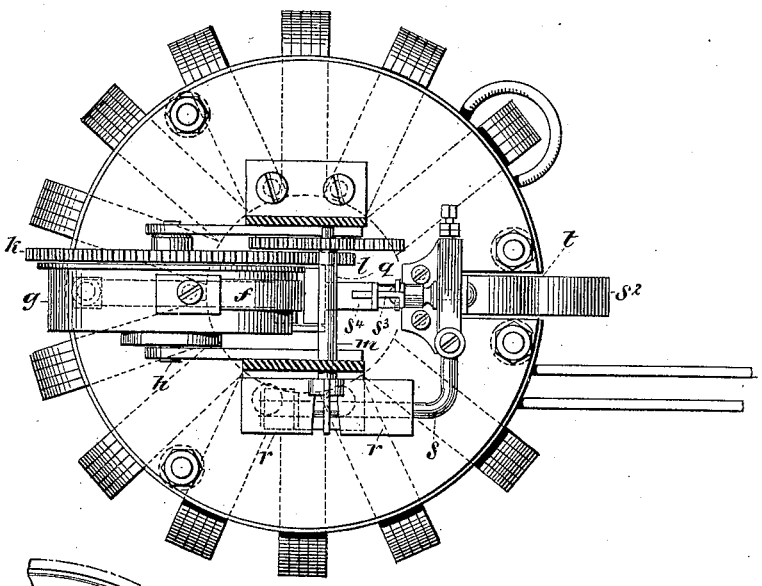
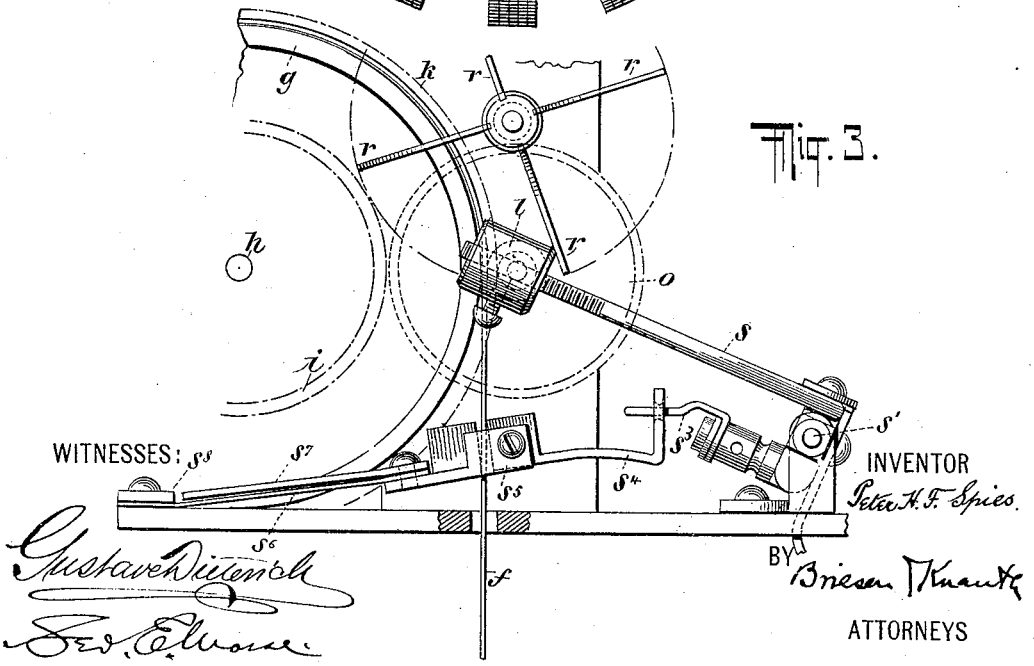


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 646,883, dated April 3, 1900.

Application filed November 1, 1899. Serial No. 735,478. (No model.)

To all whom it may concern:

Be it known that I, PETER H. F. SPIES, a subject of the Emperor of Germany, residing at Yonkers, Westchester county, State of New York, have invented certain new and useful Improvements in Arc-Lamps, of which the following is a specification.

My invention relates to arc-lamps, as will be fully described hereinafter, and the novel features pointed out and claimed.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a lamp embodying my invention. Fig. 2 is a sectional plan view thereof, the section being taken on the line 2 2 of Fig. 1. Fig. 3 is an enlarged detailed view of the clutch.

In the drawings, *a* is the lower carbon or electrode, and *b* is the upper carbon or electrode, which are suitably insulated, the lower carbon being carried by the lower cross-bar *c*, which is insulated from the side bars of the frame *d*, and the upper carbon being carried by the sliding cross-bar *e* and suitably insulated therefrom. The upper carbon, with its cross-bar or carrier *e*, is supported by a flexible band *f*, which passes through the upper story of the lamp and is wound upon a drum *g*. This drum is carried loosely upon a shaft *h*, which carries a pawl-and-ratchet mechanism *i j*, which enables the drum to be rotated freely in the direction of the arrow independently of the gear-wheel *k* and to be connected up with the said gear-wheel when moving in the opposite direction, the said gear-wheel being rigidly fixed upon the shaft *h* and gearing with a pinion *l*, carried upon a shaft *m*, which shaft likewise carries a gear *o*, meshing with a pinion *p* on a shaft *q*, carrying vanes *r*. Mounted in proximity to the vanes *r* is a weighted lever *s*, pivoted at *s'* and provided with a downwardly-depending rigidly-secured armature s^2. The lever *s* is adapted to come into the path of the vanes *r* when the armature is attracted by the core of the choking-coil T. This choking-coil T, as clearly indicated in Fig. 2, is slotted at *t* and serves as the magnet for controlling the armature s^2, which regulates the travel of the vanes *r*. This armature s^2 is located outside of the periphery of the core of the choking-coil and not being traversed by a strong rapidly-alternating flux when alternating currents are employed will not be subjected to heat. The swinging lever *s* is connected to a clutch by pivotal or open connection formed by the arm s^3, carried thereby, entering an aperture in an arm a^4, carried by the clutch s^5. This clutch is supported by a leaf-spring s^6, secured to the body of the lamp, which spring is overlapped or covered by a rigid arm s^7, secured to the clutch, so that as the free end of the armature s^2 is attracted by the core of the choking-coil it will raise the clutch, the said clutch fulcruming on the end s^8 of the arm s^7 and the arm *s* being brought into the path of the vanes *r*. The clutch s^5 embraces the ribbon *f*, so as to operate to strike the arc. The choking-coil operates as the lamp-magnet to regulate the feed of the movable carbon *b*.

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

1. In an arc-lamp, the combination of a slotted choking-coil, feeding mechanism for controlling the feed of a movable carbon or electrode and an armature for controlling the feeding mechanism, the said armature being located outside of the perimeter of the choking-coil and in operative relation to the pole-pieces thereof bounding the slot.

2. In an arc-lamp, the combination of a slotted choking-coil, escapement mechanism for controlling the feed of a movable carbon or electrode and an armature for controlling the escapement, the said armature being located outside of the perimeter of the choking-coil and in operative relation to the pole-pieces thereof bounding the slot, and a clutch actuated by the said armature to strike the arc.

3. In an arc-lamp, the combination of a gravity-actuated movable carbon-carrier, an escapement governing the movement thereof, an arm governing the movement of the detent and an armature controlling said arm combined with a ring-shaped slotted choking-coil, the said armature being located adjacent to the slot of the said coil and outside of the periphery of the said coil, substantially as described and for the purposes set forth.

PETER H. F. SPIES.

Witnesses:
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