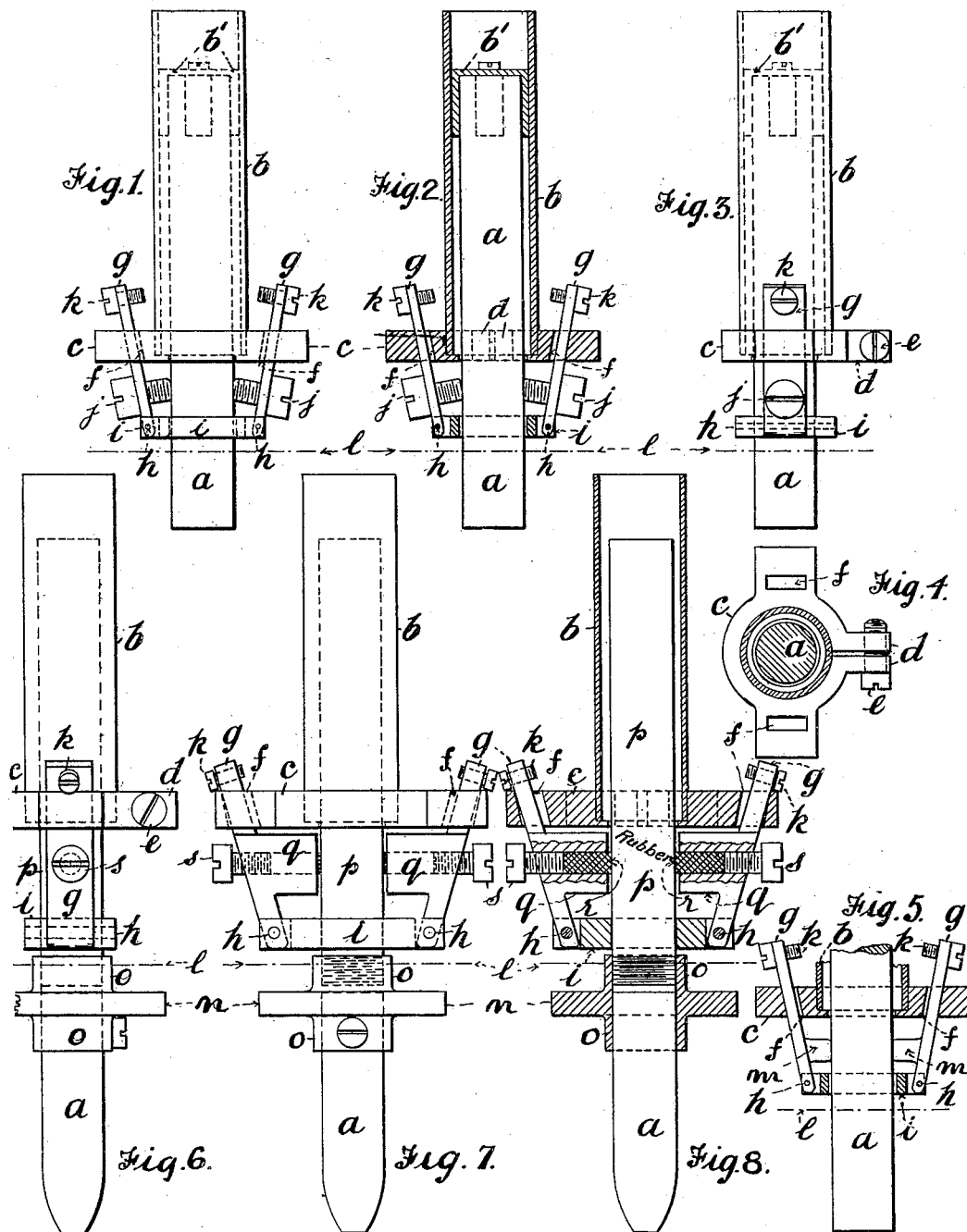


No. 648,625.

Patented May 1, 1900.

H. V. JAMES.  
ELECTRIC ARC LAMP.  
(Application filed Oct. 10, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY VINCENT JAMES, OF SALFORD, ENGLAND.

## ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 648,625, dated May 1, 1900.

Application filed October 10, 1899. Serial No. 733,222. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY VINCENT JAMES, electrical engineer, a subject of the Queen of Great Britain and Ireland, residing at West-

5 hill, Higher Broughton, Salford, in the county of Lancaster, England, have invented certain new and useful Improvements in Electric-Arc-Lamp Clutch and Feed Mechanism, of which the following is a specification.

10 This invention relates to an improved clutch and feed mechanism for electric-arc lamps of both the open and closed types and wherein the carbons are placed in a vertical line one above another, the object of the in-

15 vention being to enable an arc to be struck between the carbons and to maintain such arc at a constant current during working and to finally bring the carbons together when no electricity is passing through the lamp.

20 The invention will be fully described with reference to the accompanying drawings, in which—

Figure 1 is a front elevation of the improved clutch mechanism as applied to an electric-

25 arc lamp of the inclosed type; Fig. 2, a sectional elevation of same; Fig. 3, a side elevation; Fig. 4, a plan, and Fig. 5 a view showing a modification of clutch. Fig. 6 is a side elevation of clutch arranged for an electric-

30 arc lamp of the open type; Fig. 7, front view of same, and Fig. 8 a sectional elevation of same.

In all the drawings like parts are represented by the same reference-letters.

35 Referring principally to Figs. 1 to 4, *a* is the upper carbon of the lamp, and *b* is a tubular guide up which the carbon passes and which acts as a steady agent for the travel of the latter, the carbon being electrically

40 connected with the tube *b* at its upper end by any usual form of thimble *b'*, as indicated in Figs. 1 to 3. This tube is raised or lowered by the magnets of the controlling coil or coils of the lamp. The clutch proper consists of

45 a plate or ring *c*, coupled to the lower end of tube *b*, the attachment being accomplished by slitting the plate and forming on it two lugs *d*, which can be nipped together by the screw *e*, so as to securely fix the tube and

50 plate together. On two sides the plate is provided with slots *f*, through which are passed the upper ends of two similarly-constructed

levers *g*, the lower ends of which are pivotally connected by pins *h* to a second plate or ring *i*, through the center of which the carbon *a* passes. The pins *h* are arranged nearer the center of the carbon than the slots *f*, so that the levers *g* are at an acute angle to each other. At a suitable point between the two plates *c* and *i* the levers *g* have each passed through them a screw *j*, arranged to engage with the carbon *a* to hold it in position, and at the upper ends the levers have also passed through them screws or pins *k* to limit the travel and prevent the levers becoming dis-

55 engaged from the plate *c*, though after removing the carbon the levers can be readily disengaged by withdrawing the screws when required.

The clutch, as described, operates as follows: The raising and lowering of the tube *b* is effected by the usual controlling coil or coils of the lamp, and this being so it will be seen that if the bottom plate *i* rested upon the rigid frame of the lamp, which is represented by the dotted line *l*, any downward movement of the tube *b* would cause the slots *f* in the plate *c* to push the upper ends of the levers *g* outward, thus disengaging the screws *j* from the carbon and allowing the latter to fall by gravity, so as to feed the lamp. On the other hand, an upward movement of the tube *b* and ring *c* would pull the levers *g* together, and the screws would move inward to grip the carbon. Any further upward motion of the tube *b* other than that necessary to grip the carbon causes the whole clutch and carbon to be raised simultaneously to a height controlled by the regulating-coils. It will thus be seen that the clutch is not only very simple in construction, but that it is very powerful and so arranged that no vibration of the lamp when working will cause it to slacken its grip of the carbon.

In Fig. 5 the screws *j* are dispensed with, and the levers *g* have formed integral with them or affixed thereon lugs or projections *m*, which bear against the carbon in the same manner as the screws, though, unlike the latter, they are not adjustable. For the open type of lamp the arrangement shown in Figs. 6 to 8 is adopted. In this case the upper end of the carbon *a* is fixed to a holder consisting of a circular disk *n*, provided with a cen-

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tral hollow boss *o*, to the lower end of which the carbon is attached, while to the upper end is screwed or otherwise suitably attached a tube *p*. The levers *g* grip this tube instead of the carbon, and as the tube is smoother than the latter modified means are adopted to effect a tight grip. To this end the levers *g* are provided with bosses *q*, preferably on their inner sides, which are drilled with holes for the reception of india-rubber or like pads *r*, the inner ends of which abut against and hold the tube *p*. As the rubber pads wear they are fed forward by screws *s* in the opposite ends of the holes. In other respects the clutch in Figs. 6 to 8 is similar to that first described and its action is exactly the same.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. In a clutch and feed mechanism for an electric-arc lamp of the inclosed type the combination with a carbon *a* and a tubular guide or holder *b*, raised and lowered by the magnets of the usual controlling coil or coils of the lamp, of a plate or ring *c* located at the lower end of the tube *b* and provided with lugs *d* and screw *e* to couple it to tube *b* and with slots *f* through which levers *g* are passed, levers *g* passing through slots *f* and pivotally connected to a second plate or ring *i* located below plate or ring *c* and encircling the carbon *a*, screws *j* passed through levers *g* and engaging with carbon *a*, and screws *k* for limiting travel of levers *g*, substantially as described.

2. In a clutch and feed mechanism for an electric-arc lamp of the inclosed type the combination with a carbon *a* and a tubular guide

or holder *b*, raised and lowered by the magnets of the usual controlling coil or coils of the lamp, of a plate or ring *c* located at the lower end of tube *b* and provided with lugs *d* and screw *e* to couple it to tube *b* and with slots *f* through which levers *g* are passed, levers *g* passing through slots *f* and pivotally connected to a second plate or ring *i* located below plate or ring *c* and encircling the carbon *a*, and lugs or projections *m* formed integral with or attached to levers *g* substantially as described.

3. In a clutch and feed mechanism for an electric-arc lamp of the open type the combination with a carbon *a* and a tubular guide or holder *b*, raised and lowered by the magnets of the usual controlling coil or coils of the lamp, of a plate or ring *c* located at the lower end of tube *b* and provided with lugs *d* and screw *e* to couple it to tube *b* and with slots *f* through which levers *g* are passed, levers *g* passing through slots *f* and pivotally connected to a second plate or ring *i*, plate or ring *i* located below plate or ring *c* and encircling the carbon *a*, bosses *q* formed integral with levers *g*, rubber pads *r* located in said bosses and engaging with tube *p*, screws *s* for advancing pads *r* toward tubes *p* passing through rings *c* and *i*, disk *n* with boss *o* located at the end of tube *p*, and screws *k* for limiting travel of levers *g*, substantially as described.

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

HENRY VINCENT JAMES.

Witnesses:

WILLIAM H. TAYLOR,  
JAS. STEWART BROADFOOT.