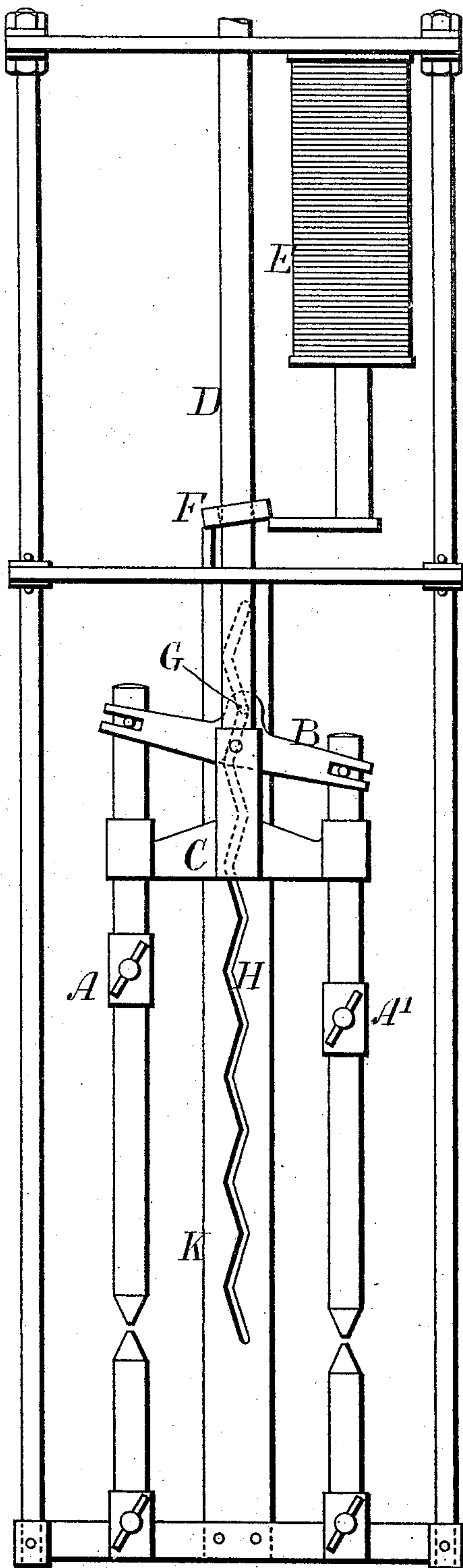


(No Model.)

J. BROCKIE.  
ELECTRIC ARC LAMP.

No. 529,240.

Patented Nov. 13, 1894.



Witnesses;  
G. W. Rea,

Dennis Sully.

Inventor,  
James Brockie,  
By James L. Norris  
att'y

# UNITED STATES PATENT OFFICE

JAMES BROCKIE, OF LONDON, ENGLAND.

## ELECTRIC-ARC LAMP.

**SPECIFICATION** forming part of Letters Patent No. 529,240, dated November 13, 1894.

Application filed June 19, 1894. Serial No. 515,035. (No model.) Patented in England January 19, 1893, No. 1,198.

*To all whom it may concern:*

Be it known that I, JAMES BROCKIE, a citizen of England, residing at Fairview, Tyson Road, Forest Hill, London, in the county of Surrey, England, have invented certain new and useful Improvements in Multiple-Carbon Arc Electric Lamps, (for which I have received Letters Patent in Great Britain, No. 1,198, dated January 19, 1893,) of which the following is a specification.

My invention relates to the construction and arrangement of an arc electric lamp in such a manner that a single regulating mechanism serves to control the movements of two pairs of carbons, one of which pairs burns for a certain time, such as an hour, and is then extinguished, the other pair then burning for a like time, and so on alternately. Both pairs of carbons thus become consumed by equal or approximately equal stages, the lamp continuing to operate as long as if it had a single pair of carbons of length equal to that of the two pairs added together.

In the accompanying drawing the figure is a side elevation of sufficient of a lamp to illustrate my invention.

I connect the two upper carbon holders A A' to the equal opposite arms of a horizontal lever B which is pivoted on a crosshead C. This crosshead is attached to a rod D which ascends and descends subject to the regulating mechanism. This mechanism may be of any known kind. As shown in the drawing, it consists of a solenoid E having its coil in the lamp circuit, and having its core arranged to hook under a clutch washer F tilting it so as to grip and raise the rod D when the core ascends and releasing it when the core descends. The lever B has a vertical arm, a stud G on which is engaged in an undulating groove H formed in the face of a stationary vertical bar K, so that, as the crosshead C with the lever B ascends and descends, the arm of the lever, according as its stud G is in one part or another of the undulating groove H is deflected to the one side or the other, and thus the one or the other of the two car-

bons carried by the lever is held in a relatively low position while the other is raised. The carbon which for the time is the lower of the two continues to form the arc with the carbon below it until the lever B becomes deflected in the opposite direction. As by this rocking movement of the lever the pair of carbons forming the arc are separated while the other pair are brought together, the arc between the former pair ceases and an arc is struck between the other pair, which continue to maintain the arc until another deflection of the lever throws them out of operation and brings the other pair again into operation.

Many existing lamps are constructed to consume two pairs of carbons, that is to say the second pair after the first is consumed, but these have separate regulating mechanisms such as solenoids, clutches or brakes for each pair. Such lamps can readily be altered so as to have the two pairs consumed alternately in successive stages according to this invention, only one set of regulating mechanism being required as above described. Obviously, each of the pairs thus arranged might be duplicated so that four pairs of carbons might be thus operated.

The alternating movement may be applied to the lower carbon holders, the upper carbon holders being in that case stationary.

Having thus described the nature of my said invention and the best means I know for carrying the same into practical effect, I claim—

For giving reciprocating movement such as is above referred to, to the carbons of an electric arc lamp, the combination of the carbon holders, the rocking lever and undulating groove, substantially as herein described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 8th day of June, A. D. 1894.

JAMES BROCKIE.

Witnesses:

GERALD L. SMITH,  
EDWARD GARDNER.