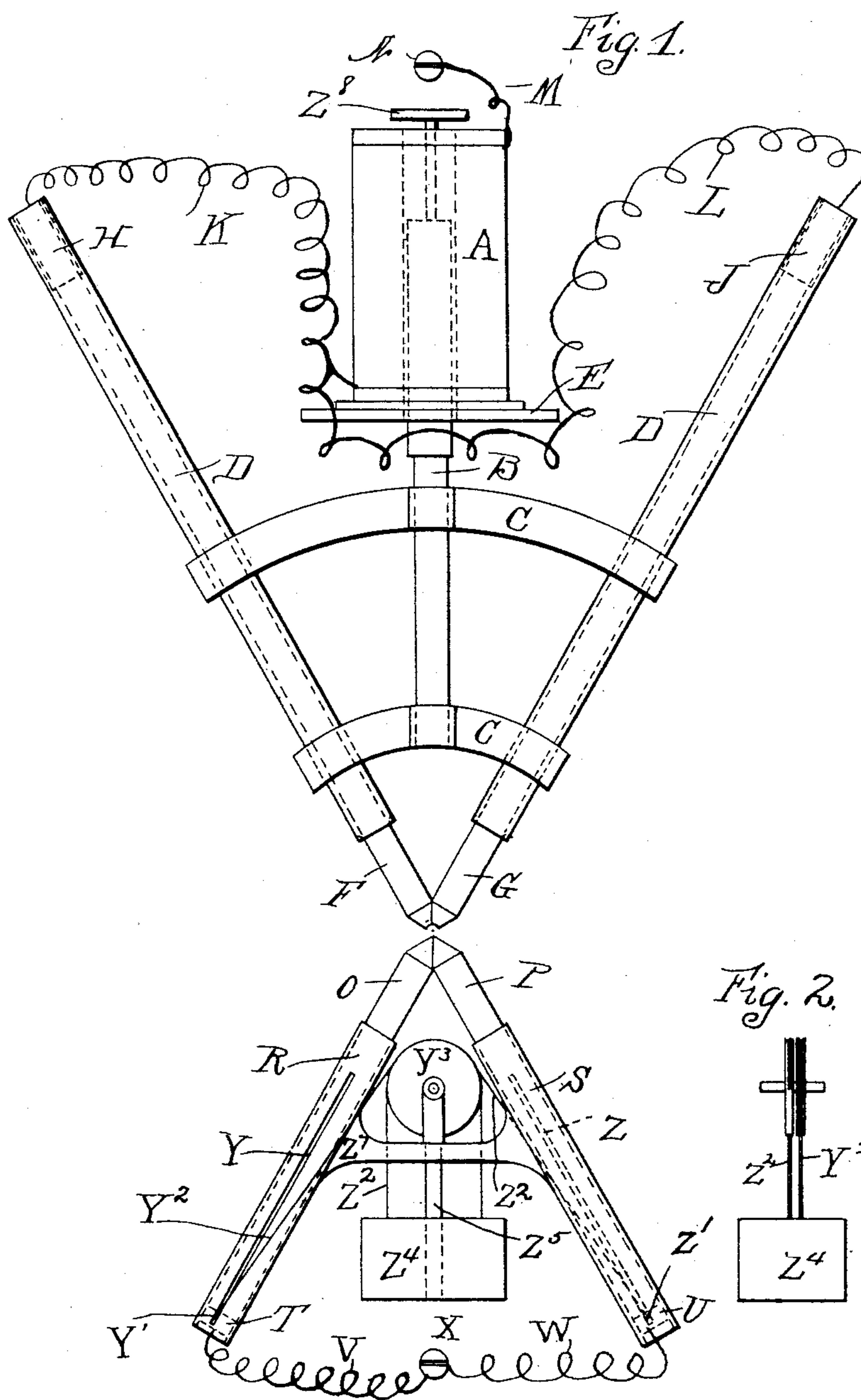


(No Model.)

C. A. PFLUGER.
ARC LAMP.

No. 539,392.

Patented May 14, 1895.



WITNESSES

Walter J. Gunthorp
Alice E. Giddes

INVENTOR
CHARLES A. PFLUGER

By Francis W. Parker,
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES A. PFLUGER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE STANDARD ELECTRIC COMPANY, OF SAME PLACE.

ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 539,392, dated May 14, 1895.

Application filed April 5, 1894. Serial No. 506,428. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. PFLUGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Arc Lamps, of which the following is a specification.

My invention relates to arc lamps and has for its object to provide a cheap, simple and convenient lamp, and particularly to avoid so far as may be possible the necessity of complicated mechanism and the like. It is illustrated in the accompanying drawings wherein my device is shown diagrammatically and conventionally.

The general subject of arc lamps is so well understood and has been so thoroughly investigated that I do not deem it necessary to more than show the material parts which are required for the illustration of my improvements.

Figure 1 is an elevation of the parts. Fig. 2 is a detail.

Like parts are indicated by the same letters in the figures.

It will be assumed of course that there is a suitable supporting frame and the like.

A is a lifting magnet or solenoid in the main circuit and acting upon the rod B which has secured to it the arc-shaped frame pieces C C, upon which the upper carbon tubes D D are placed. The magnet A is rigidly supported on the platform E, which is rigid on the frame.

F G are the upper carbons which are loosely placed in the tubes D D and approach each other at an angle, their lower ends being normally in contact.

H J are plugs which move somewhat freely in the upper ends of the tube and which are recessed to snugly receive the upper ends of the carbons F G. To these plugs lead the coiled conductors or conductor cords K L which join at one extremity of the coil of the magnet or solenoid A. From the other extremity leads the conductor M to the binding post N. This constitutes the upper electrode and it may obviously be used with many kinds of lower electrodes, but I have indicated the form which I prefer to use.

O P are lower carbons approaching each

other at an angle with their points normally in contact and sliding loosely in the tubes R S. Each carbon is snugly fitted into a plug T U to which plugs are attached the coil conductors or cords V W which join at the binding post.

Y Z are slots in the tubes R S through which project pins Y' Z' to which pins are attached respectively the cords Y² Z². The cord Z² passes over the pulley Z³ and the cord Y² over the pulley Y³, and the two cords then pass downwardly to the weight Z⁴ adapted to move vertically to the guide Z⁵. The pulleys Y³ Z³ are supported on the shaft Z⁶ which is rigidly carried on the frame Z⁷, itself rigid with the cylinders or tubes R S. This constitutes the lower electrode and it is obvious that it may be used with many kinds of upper electrodes. I have preferred to join these two electrodes in one lamp, but I do not wish to be limited to the specific form or construction of apparatus here shown, for as before suggested I have only shown it as it were diagrammatically; and I do not wish to be limited to the claims which embrace all of the features, here shown when used together, for I may use some of them apart from the others.

The lamp of course may be fitted with the usual cut-outs, and other such devices, and the upper electrode might be of different form and might be fed in the usual way, and the lower electrode might be of different form and might be stationary, or might be fed by other means than those here shown, as for example, the usual electrode feeding devices of arc lamps, or by means of a spring or other equivalent device.

A stop Z⁸ limits the downward motion of the frame C C which carries the upper carbons and thus prevents the weight of said frame from causing said carbons to be forced upwardly into the tubes D D when the solenoid is not energized.

The use and operation of my invention are as follows: The current having been applied, the magnet or solenoid A is energized and the upper electrode is raised from its contact with the lower electrode so as to establish an arc. As the carbons consume, the feeding process proceeds as follows, referring first to the upper electrode: The two carbons D D

feed toward each other by gravity, and they may be assisted in this operation by the action of the plugs J H which, in that event, should be large enough to serve as weights.

5 The motion of the carbons of the upper electrode through their tubes might be enforced by other equivalents, as for example, a weight like the lower electrode, or springs and the like. The current is carried directly to the

10 carbons and to each of them by means of the plugs into which the upper extremities of such carbons set. Thus a good contact is made, and each carbon has an equally good contact so that the resistance of each is equal.

15 These upper carbons or the upper electrode, could of course be raised by hand or by the action of the current as desired. With the electrode here shown the frame assumes a definite and fixed position when it is raised

20 to establish the arc, though there might be occasions when it would seem desirable to have more or less of a feeding motion of the entire upper electrode, for instance, by the use of a shunt magnet, to compensate for any

25 possible variation in the arc.

Referring now to the lower electrode, it is composed as here shown of two carbons feeding together and resting in tubes. Each carbon is seated in a socket or plug, and the two

30 carbons are forced upwardly and together at the point where the arc is established by means of a weight or equivalent Z⁴. Of course a spring could be used if desirable. This weight is supported by two cords which pass

35 over the two pulleys in opposite directions and thence to the pins which project through the longitudinal slots in the two lower elec-

trode tubes. These pins being attached to the plugs or sockets, of course the carbons are forced upwardly. Where one lower carbon burns faster than the other, the cord attached to it slackens up and the weight has a tendency to tip on that side, but being guided by the center rod, the whole weight is changed to the other carbon. Therefore both

40 carbons are forced to burn equally.

I claim—

1. In an arc lamp the combination of two electrodes having each two carbons at an acute angle with each other, means of feeding the carbons of one electrode independent of each other and of separating the electrode to establish the arc, means of feeding the carbons of the other electrode comprising a cord attached to each carbon and passing over pulleys, and a weight attached to the ends of said cords, whereby the carbons of the said electrode are forced to burn equally.

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2. The combination in an arc lamp of two electrodes having each two carbons adapted to be fed toward each other at an acute angle, means for moving the upper carbons simultaneously to establish the arc, and a device for feeding the lower carbons comprising a weight, a rod upon which said weight is adapted to slide, cords connecting said weight and said carbons passing in opposite directions over two pulleys, the whole being arranged between the lower carbons, substantially as described.

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CHARLES A. PFLUGER.

Witnesses:

WALTER J. GUNTHERP,
ALICE H. GEDDES.