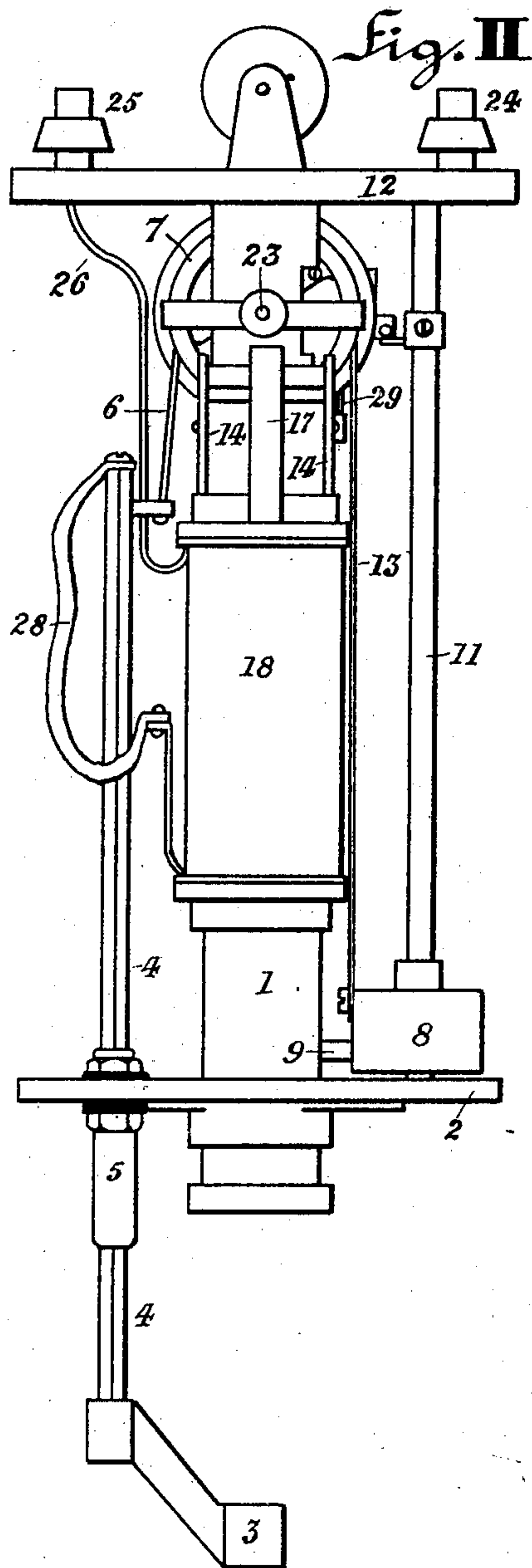
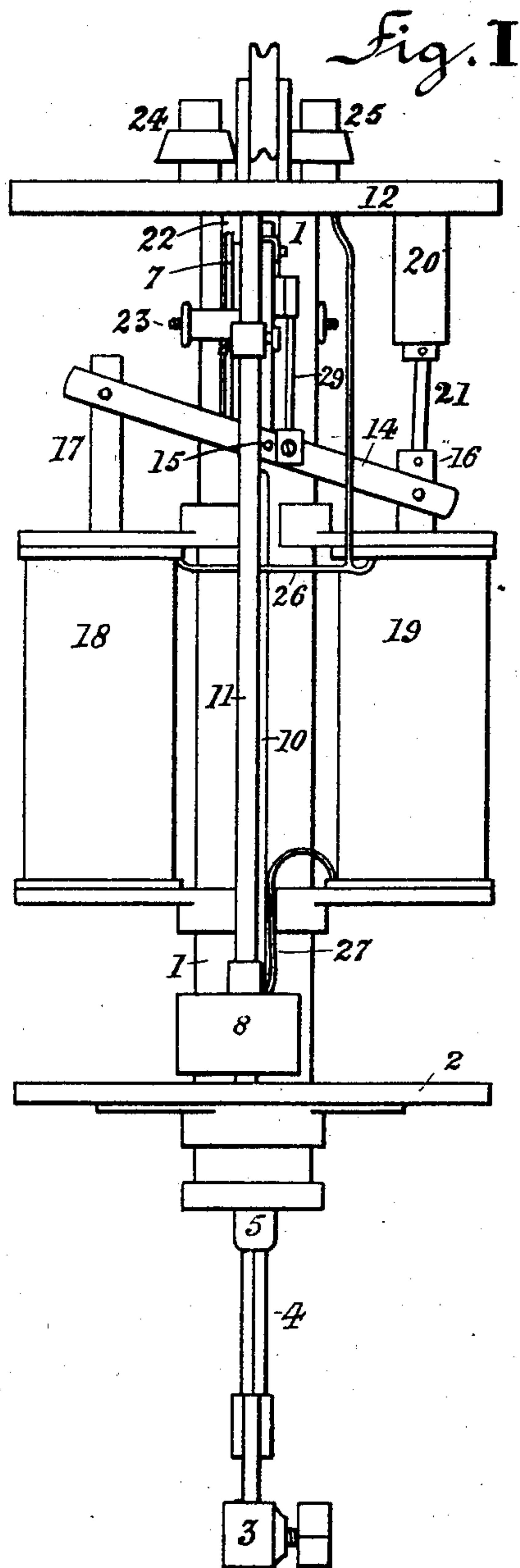


H. BAGGETT.
ELECTRIC ARC LAMP.
APPLICATION FILED DEC. 15, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



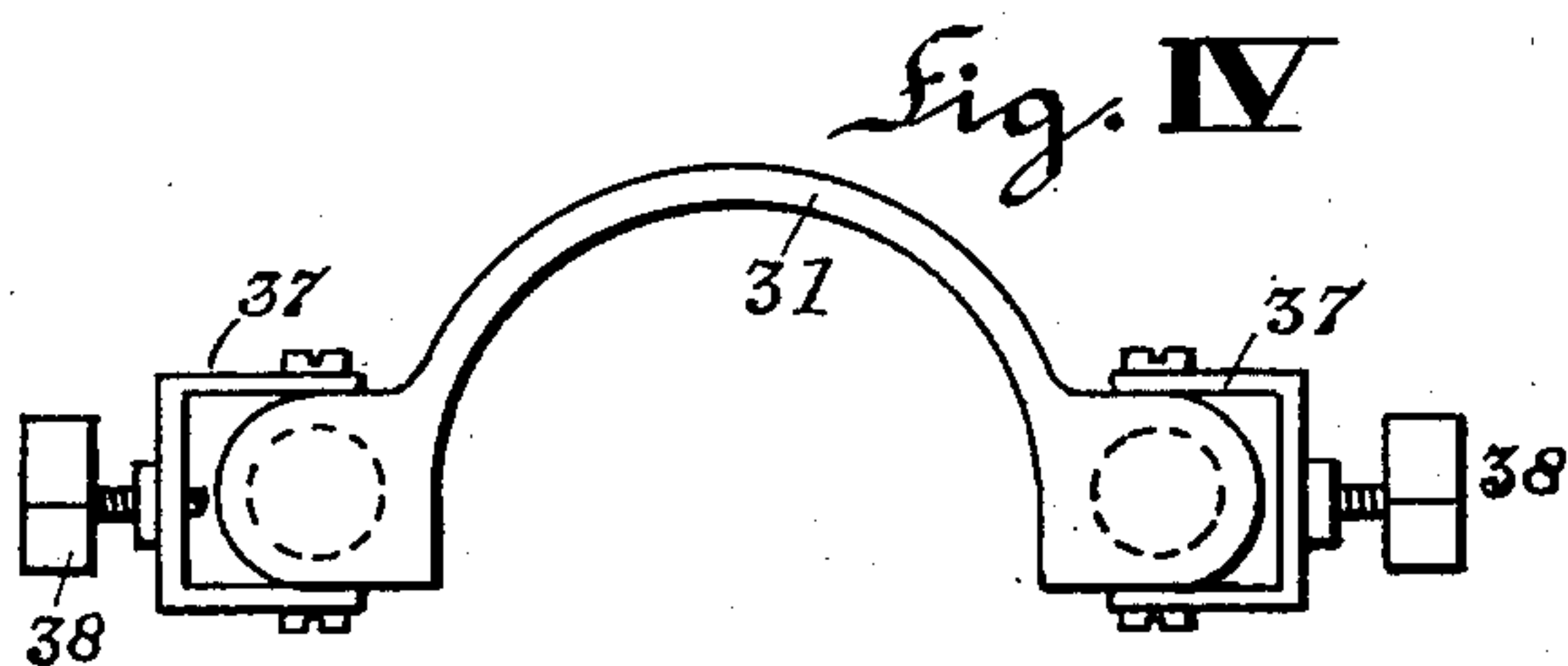
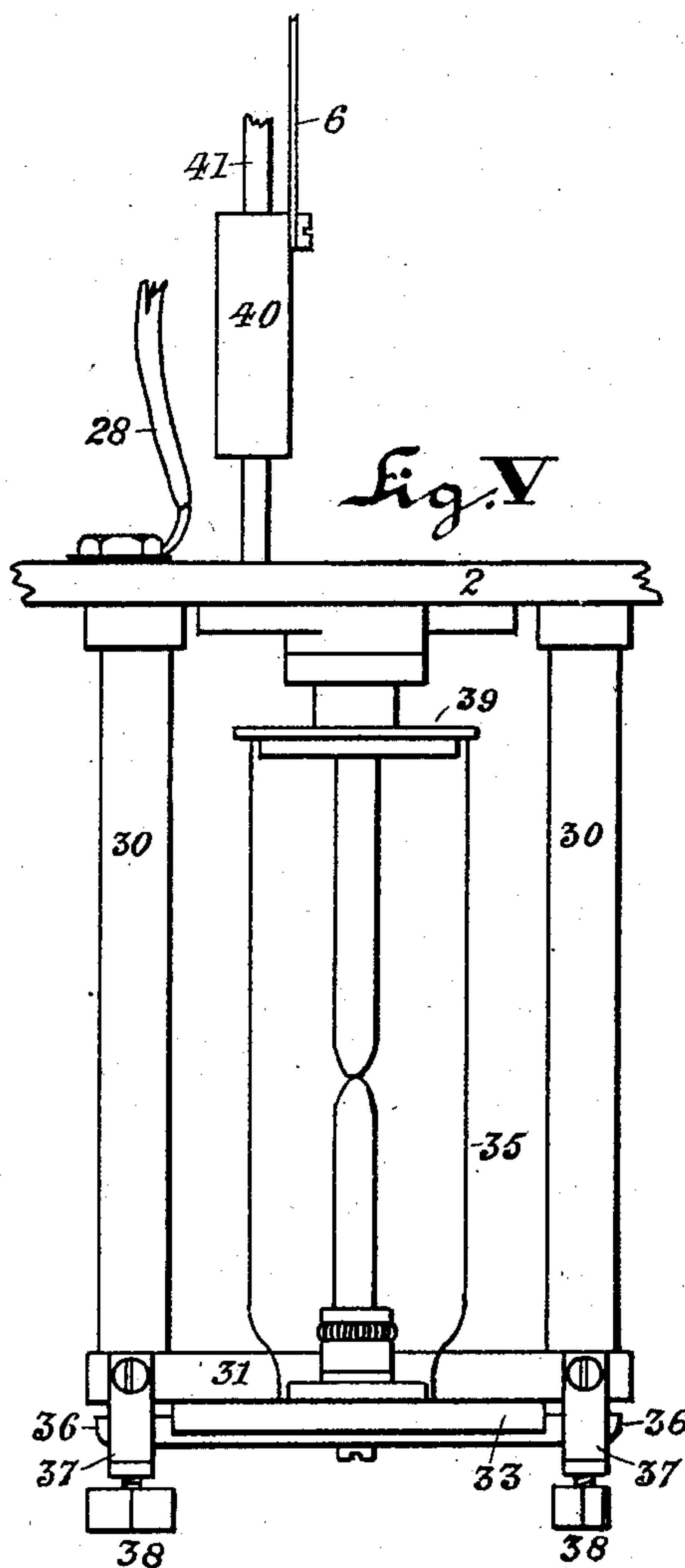
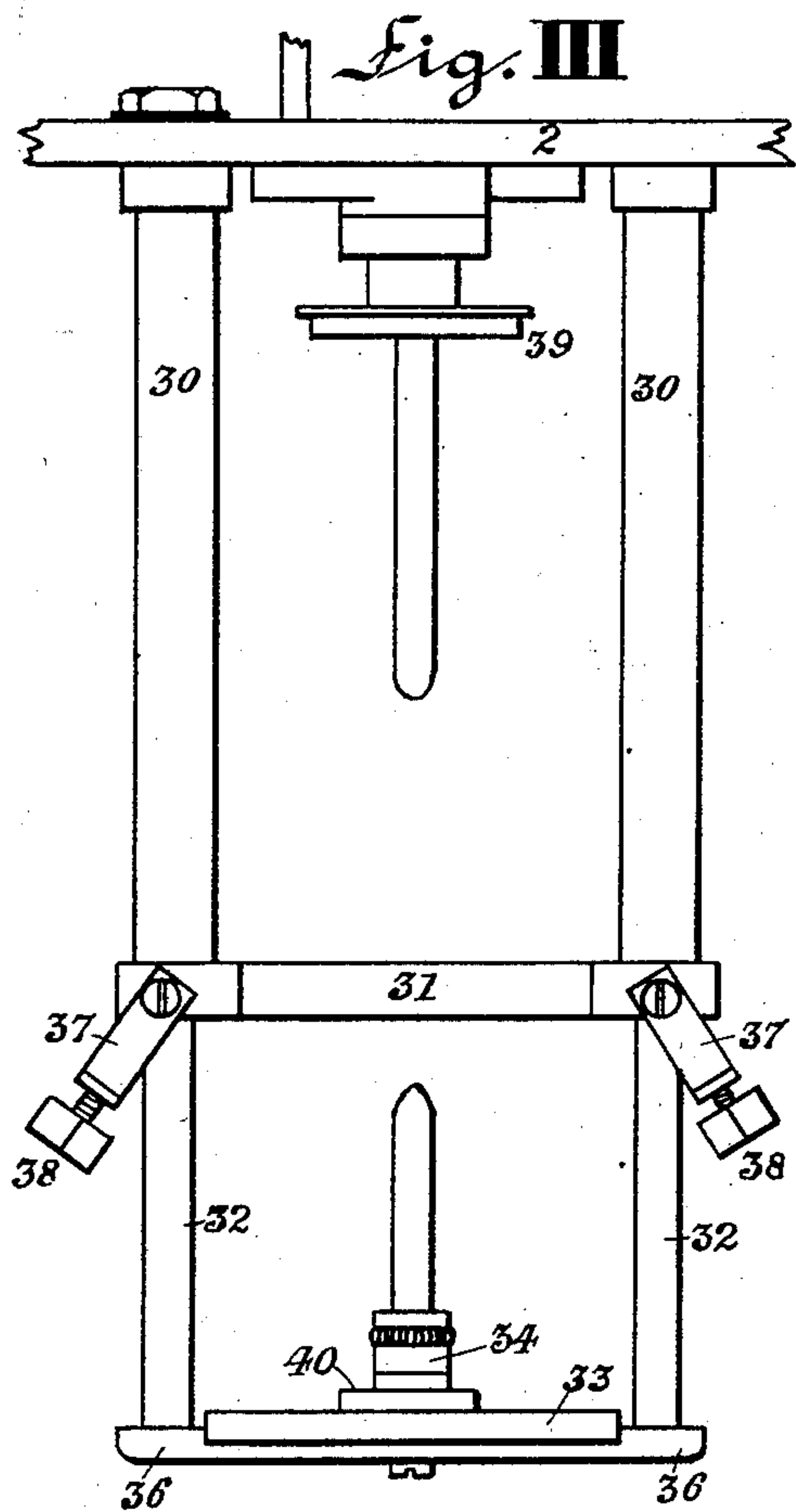
Witnesses:
Frank S. Ober
William H. Stein

Inventor:
Henry Baggett
by his Attorney Willis Porter

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2 SHEETS—SHEET 2.



Witnesses:
Frank J. Ober
William H. Stein

Inventor:
Henry Baggett
by his Attorney *Willie Tomlin*

UNITED STATES PATENT OFFICE.

HENRY BAGGETT, OF LONDON, ENGLAND.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 720,772, dated February 17, 1903.

Application filed December 15, 1902. Serial No. 135,301. (No model.)

To all whom it may concern:

Be it known that I, HENRY BAGGETT, a subject of the King of Great Britain, and a resident of London, England, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention, which embraces certain features of novelty, relates to improvements in arc-lamps whereby certain advantages are obtained.

In the annexed drawings, which illustrate in what manner my invention is to be or may be carried into effect, Figure I shows in elevation an arc-lamp constructed according to my invention. Fig. II is another elevation of the before-mentioned arc-lamp, taken at an angle of ninety degrees to the view shown in Fig. I. Fig. III shows in elevation a means for sealing the globe when it is desired that the arc shall be inclosed, the apparatus being shown in the open or unsealed position. Fig. IV shows a detail in plan. Fig. V shows in elevation a means for sealing the globe, the apparatus being in the closed or sealed position.

Referring now to Figs. I and II, the lamp is provided with a central tube 1, within which slides the upper carbon and its holder and carries near its lower end the circular base-plate 2. The lower-carbon holder 3 is carried by a square rod 4, which slides freely through a sleeve 5, carried by and insulated from the base-plate 2. To the upper end of rod 4 is attached one end of a silk cord 6, the other end of which is fastened to the brake-wheel 7. A weight 8, which balances the weight of the lower-carbon holder and rod and furnishes the motive power for feeding the carbons together, is placed outside the tube 1, as shown, and is attached to the upper-carbon holder by an arm 9, projecting through the vertical slot 10. (See Fig. I.) Weight 8 is guided in its up-and-down movement by sliding on the guide-rod 11, which is fixed to the base-plate 2 and upper plate 12 of the lamp. A flexible copper cord 13 connects the weight 8 to the brake-wheel 7, so that the upper-carbon holder within the tube 1 is mechanically connected to the lower-carbon holder 3 by pin 9, copper cord 13, brake-wheel 7, silk cord 6, and rod 4. By thus

placing the weight 8 outside the central tube 1 instead of fixing it above the upper-carbon holder within the tube, as is generally done, the said tube may be made shorter than is usually the case, thus allowing the lamp to be made short and compact. The brake-wheel 7 and the mechanism for locking and releasing the said wheel are of the type described in the specification accompanying my United States Letters Patent No. 688,575, granted December 10, 1901. This mechanism is controlled by the movements of a rocking lever 14, pivoted at 15 to the tube 1 and carrying pivoted at each end the iron cores 16 and 17, which can move freely within the series sucking-coil 18 and the shunt sucking-coil 19, respectively. A dash-pot 20, fixed to the upper plate 12, is provided for the purpose of damping the movements of the rocking frame 14, to which it is connected through core 16 by the rod 21. A slot 22 is provided in the upper part of tube 1 above the highest position of the upper-carbon holder, the said slot passing transversely from side to side of the tube in which is placed the brake-wheel 7, supported on the shaft 23. By this arrangement a separate frame or support for the brake-wheel is rendered unnecessary. The terminal 24 is in electrical connection with the upper plate 12 and framework of the lamp, and terminal 25, which is insulated from plate 12, communicates by wire 26 with the terminal of both the sucking-coils. The other terminal of the shunt sucking-coil 19 is connected by a flexible wire 27 to the weight 8, and is therefore in connection through the frame of the lamp with terminal 24. The other terminal of the series sucking-coil 18 is connected by an insulated flexible lead 28 with the rod 4 of the lower-carbon holder.

The action of the apparatus is as follows: When no carbons are in the lamp, the various parts occupy the positions shown in Figs. I and II, the upper-carbon holder being pulled into its lowest position and the lower-carbon holder into its highest position by the weight 8, which constantly tends to force the two carbon-holders toward one another. When carbons are placed in the lamp, this action of the weight 8 keeps the upper and lower carbons in contact until a current is passed through the lamp. Assuming a current to

enter at terminal 24, it will pass by plate 12, guide-rod 11, weight 8, and pin 9 to the upper-carbon holder, thence through the upper to the lower carbon, and by rod 4 and wire 28 through the series coil 18 to terminal 25 by the wire 26. The series coil being thus energized sucks in its core 17, thus lowering the corresponding end of the rocking lever 14 and lifting the connecting-rod 29, which first locks the brake-wheel 7 and then moves it through a certain angular distance, thereby separating the carbons and striking the arc. When the arc gets too long and the carbons require feeding, the current diminishes in the series coil 18 and increases in the shunt-coil 19, and core 17 is raised and core 18 lowered, thus lowering connecting-rod 29 and allowing the brake-wheel to turn (impelled by the weight 8) in such a direction as to allow the carbons to approach one another, as will be more fully understood from my said Letters Patent No. 688,575.

In Figs. III and V is shown a means for carrying and sealing the glass or cylinder when it is desired to inclose the arc. The former figure shows the device in the open and the latter figure shows it in the closed or sealed position. The device comprises two vertical guide-tubes 30, fixed to the under side of the base-plate 2 and insulated from the said plate. At the lower ends of these guide-tubes a light frame 31 keeps them at their proper distance apart. This frame is seen more clearly in the plan in Fig. IV. In the guide-tubes 30 slide vertical rods 32, attached at their lower ends to a circular plate 33, which carries the lower-carbon holder 34 and also abuts against the lower end of the glass globe 35. (See Fig. V.) The circular plate has projections 36 opposite the fixed guide-tubes adapted to engage in hinged frames 37, carried by the said guide-tubes, and the frames have each a set-screw 38 so placed that when the hinged frames are turned downward to engage with the said projections, as shown in Fig. V, the set-screws come beneath the projections and serve to clamp the glass between the circular plate 33, above mentioned, and another plate 39, which is fixed at a suitable height above the top of the globe. In order to seal or inclose the arc, a suitably-shaped glass—such, for example, as that shown at 35 in Fig. V—is placed over the lower carbon when it has been lowered to its lowest position, as shown in Fig. III, so that the lower part of the glass rests on the circular plate 33, where it is kept in a central position by the rim 40 on the said plate. The plate 33 is now lifted, so that rods 32 slide into the guide-tubes 30 until the said plate is stopped by coming against frame 31, when the top of globe 35 will rest against the circular plate 39, thus inclosing the arc. The hinged frames 37 will now have dropped under the projections 36 of the plate 33, and by screwing in the screws 38 the globe is clamped in position.

It will be seen that in the device just de-

scribed the lower carbon is fixed—that is to say, it is not moved by the mechanism of the lamp when feeding takes place. When, therefore, it is desired to employ the sealing device just described with the lamp, (illustrated in Figs. I and II,) a slight modification of the lamp is necessary, because in that lamp the lower carbon is movable. This modification consists in removing the holder 3, rod 4, and sleeve 5 before attaching the globe-sealing device to the base-plate 2. When the said device is in position on the lamp, that end of the flexible wire 28 which was before connected to rod 4 is connected to one of the insulated guide-tubes 30, as indicated in Fig. V, and that end of cord 6 which was before attached to rod 4 is connected to a weight 40, which slides on a guide-rod 41 in a manner similar to that in which the weight 8, attached to the cord 13, slides on the guide-rod 11. The action of the lamp modified as described is similar to that already described with reference to the lamp illustrated in Figs. I and II except that the lower carbon is fixed and the cord 6 instead of moving the lower carbon moves the weight 40.

I desire it to be understood that the improvements hereinafter claimed are applicable not only to the form of lamp illustrated, but to other forms of lamp.

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

1. An electric-arc lamp having a tube, and an upper-carbon holder adapted to move in said tube, carbon-feeding mechanism including a wheel or pulley mounted in said tube above the upper-carbon holder, the said tube being provided with oppositely-arranged lateral openings through which openings said wheel or pulley projects, a movable lower-carbon holder, connections between the said wheel or pulley and each of the said carbon-holders, said connections lying to the outside of said tube, substantially as and for the purpose set forth.

2. An electric-arc lamp having a suitably-guided upper-carbon holder and carbon-feeding mechanism connected with and actuating said carbon-holder, a movable weight located at one side of the path of movement of said upper-carbon holder and a rigid connection between the two, and suitable connections between said weight and said carbon-feeding mechanism, substantially as and for the purpose set forth.

3. An electric-arc lamp having a tube provided with a longitudinal slot in the side thereof, a carbon-holder traveling within said tube, carbon-feeding mechanism connected with and actuating said carbon-holder, and a weight located upon the outside of said tube and connected with said carbon-holder through said longitudinal slot in the tube, substantially as and for the purpose set forth.

4. An electric-arc lamp having a tube, an upper-carbon holder adapted to move through

said tube and carbon-feeding mechanism connected with said upper-carbon holder for actuating the same, a weight located to one side of said tube to the exterior thereof and connected with said upper-carbon holder within the tube, a movable lower-carbon holder, and connections between the said weight and the said lower-carbon holder, substantially as and for the purpose set forth.

10 5. An electric-arc lamp having a tube, an upper-carbon holder adapted to move through said tube, a weight located to one side of said tube to the exterior thereof and connected with said upper-carbon holder within the tube, 15 a movable lower-carbon holder, carbon-feeding mechanism connected with said upper and lower carbon holders and also connected with said weight, substantially as and for the purpose set forth.

20 6. An electric-arc lamp having a fixed plate arranged above the arc for receiving the upper end of the arc-inclosing globe, a suitable

frame depending below said plate, and a laterally-extending yoke or brace connecting the lower ends of said depending tubes, a lower-carbon holder having a globe-holder including a plate attached thereto and adapted to cover and seal the lower end of said globe, the said lower-carbon and globe holder being provided with a suitable frame having upwardly-extending members taking into and telescoping with the said frame-tubes, and fastening devices mounted upon the said yoke or brace and adapted to engage the said lower frame when the same is moved into its highest position, substantially as and for the purpose set forth. 25 30

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

HENRY BAGGETT.

Witnesses:

CHARLES TAYLOR,
JAMES G. LORRAIN.