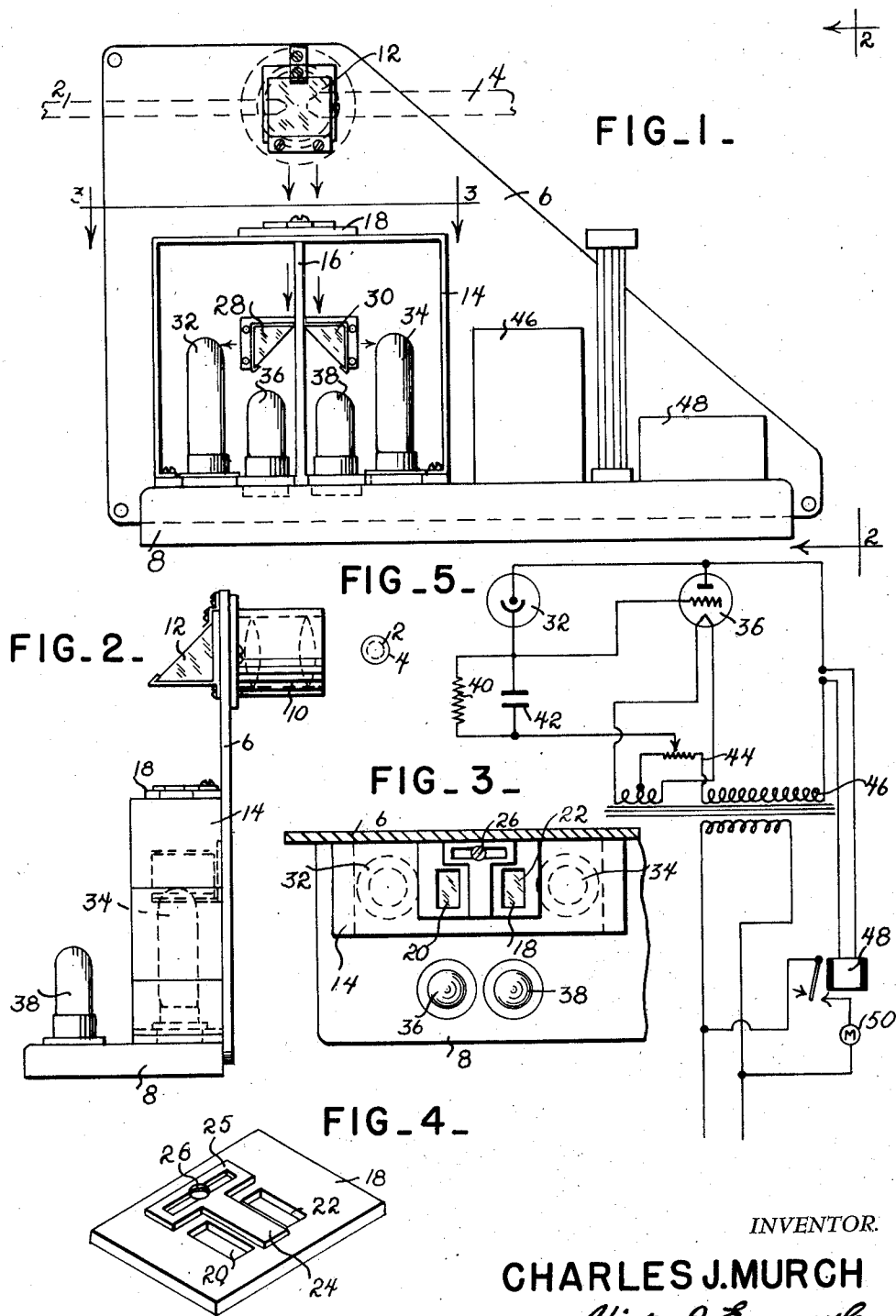


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CARBON ARC CONTROL
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CARBON ARC CONTROL

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1 Claim. (Cl. 250—41.5)

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My present invention relates to an improved carbon arc control and more especially to an automatic photo-electric cell actuated control operable by the movement of the arc from a previously determined position.

My invention generally comprises an optical system aligned with the arc of the carbons operable to pass the arc rays through a selected prism arrangement to actuate one of two photo-electric cells and electric circuits therefore to actuate the carbon movement control when the arc moves either way from the determined center.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised but it will be understood that various changes and alterations may be made in the exemplified structure within the scope of the appended claim.

In the drawings—

Figure 1 is a front elevational view of the control of my invention.

Figure 2 is an end elevational view thereof.

Figure 3 is a partial top plan view showing the aperture plate.

Figure 4 is a perspective view of the aperture plate.

Figure 5 is a diagrammatic view of the electrical circuit embodying the elements of the control of my invention.

Referring now to the drawings wherein like parts are indicated by like characters, I have illustrated the arc control of my invention as embodied in the two spaced carbon electrodes 2 and 4 of conventional design and structure.

The control of my invention is mounted on a wall 6 supported from the base 8 and on the outer side of the wall 6 I have utilized a lens casing 10 in which are secured suitable lenses for conveying the arc rays to the prism 12 on the inside of the wall 6. The prism is so located as to receive the horizontal rays from the arc and to reflect the rays vertically downward toward the frame 14 mounted on the base 8.

The frame 14 is formed with an intermediate wall 16 and above the wall on the frame I have located the aperture plate 18 which has spaced rectangular openings 20 and 22 therein on either side of the vertical extension of the plane of the wall.

A T-shaped cover 24 is located on the aperture plate and this cover is fashioned with a lateral slot 25 through which extends the screw 26 for securing the cover in adjusted position. The cover is so formed that it may be moved laterally of

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the plate to cut off a part of either aperture in the plate and thus provide a means for adjusting the relative fixed position of the arc.

Also on the wall 6 and on opposite sides of the intermediate wall 16 I have located a pair of oppositely directed prisms 28 and 30 which receive the arc rays when the arc moves from its determined position.

These latter prisms will respectively convey and reflect the rays passing through the aperture thereabove to one of the photo electric cells 32 and 34. With the arc centered in its determined position however, the rays through the lens and the prism 12 will fall on the leg of the T-shaped cover and will not pass through the apertures. The rays only pass through an aperture when the position of the arc moves from the burning of the electrode.

The photo-electric cells are of normal and conventional design and each is included in a circuit which energizes a motor to move the short carbon electrode back to center position. The circuit includes an amplifying tube 36 and 38, a grid resistance 40 which is in parallel with the condenser 42, and the amplifier tube in each circuit connects with a potentiometer 44 and thence to transformer 46. The transformer is connected with the conventional power lines and supplies reduced current for the circuit. The circuit also includes a relay actuated switch 48 for the motor 50 which is mechanically connected with the electrode moving mechanism, so that if the arc moves either to the right or to the left in Figure 1, longitudinally of the electrodes, the rays from the arc will be directed through the aperture plate to either one of the photo-electric cells 32 or 34 to activate the light sensitive cell and affect the circuit which in turn will energize the motor to move the arc by movement of the electrode until the arc is again centered and the rays are no longer directed to the cell but fall on the center portion of the aperture plate, and the leg of the cover.

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

In a photo-electric arc control device, the combination, which comprises, a base, a vertically disposed plate extending upwardly from one side of the base, a rectangular-shaped frame having a pair of spaced openings in the upper horizontal surface and a vertical centrally disposed partition mounted on the base and positioned against the face of the plate, spaced photo-electric cells mounted on the base and positioned in the frame

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on opposite sides of the partition, a pair of prisms positioned on the partition in the frame for receiving rays of light from the openings in the upper surface of the frame and bending the rays toward the photo-electric cells, a plate having a pair of spaced apertures therein mounted on the upper surface of the frame above the openings therein, a slide on the plate for adjusting the size of the apertures, a prism positioned on a medial line above the apertures and mounted on the upper end of the vertically disposed plate, and a lens system mounted on the opposite face and at the upper end of the vertically disposed plate and also positioned on the medial line between the

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apertures and positioned to coact with the prism on the said medial line whereby rays of light passing through the lens system are bent downwardly by the prism passing through the apertures to the said pair of prisms.

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REFERENCES CITED

The following references are of record in the file of this patent:

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