

G. S. WILLIAMSON.
ELECTRIC SWITCH.
APPLICATION FILED MAR. 10, 1910.

969,824.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.

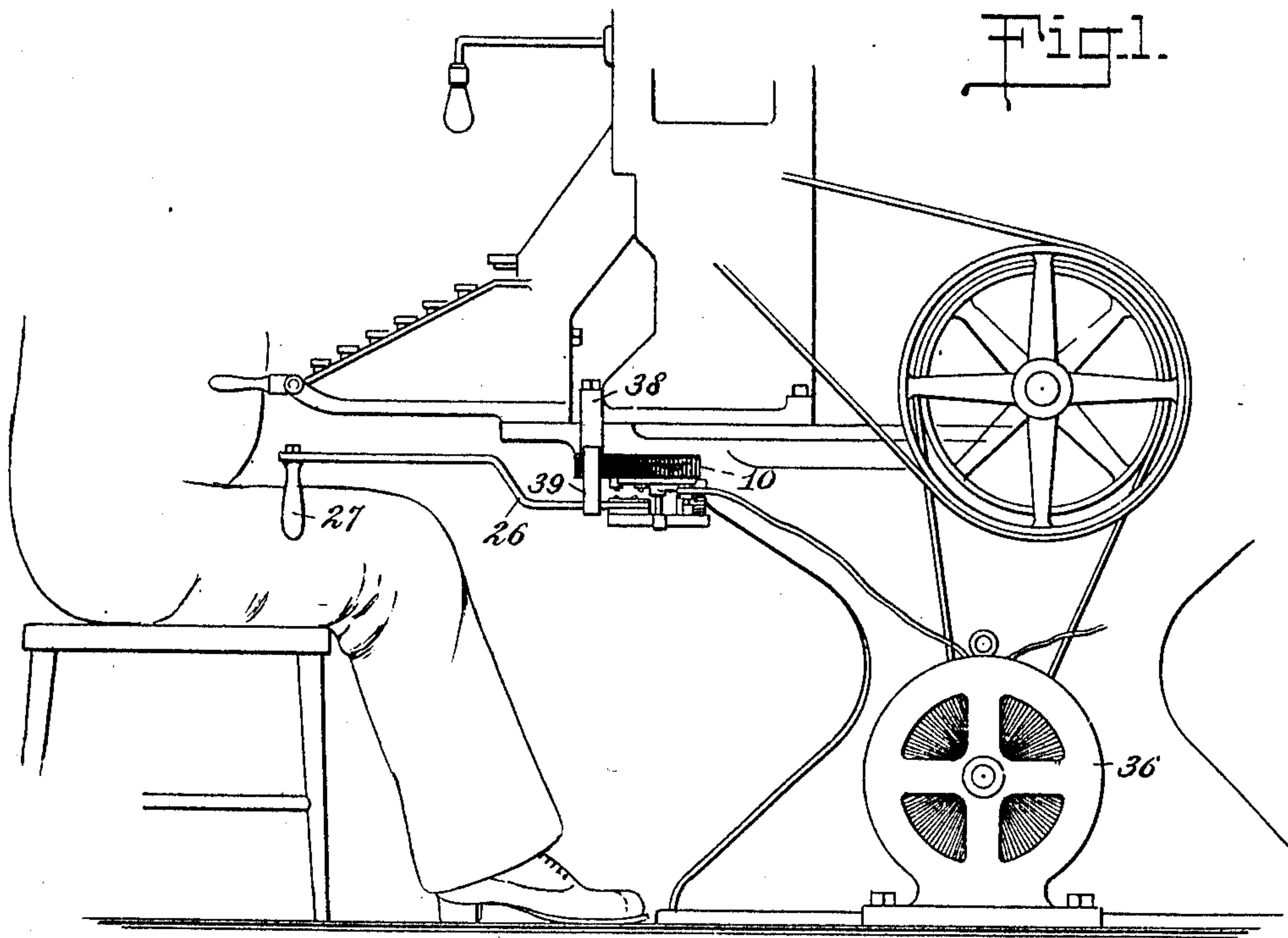
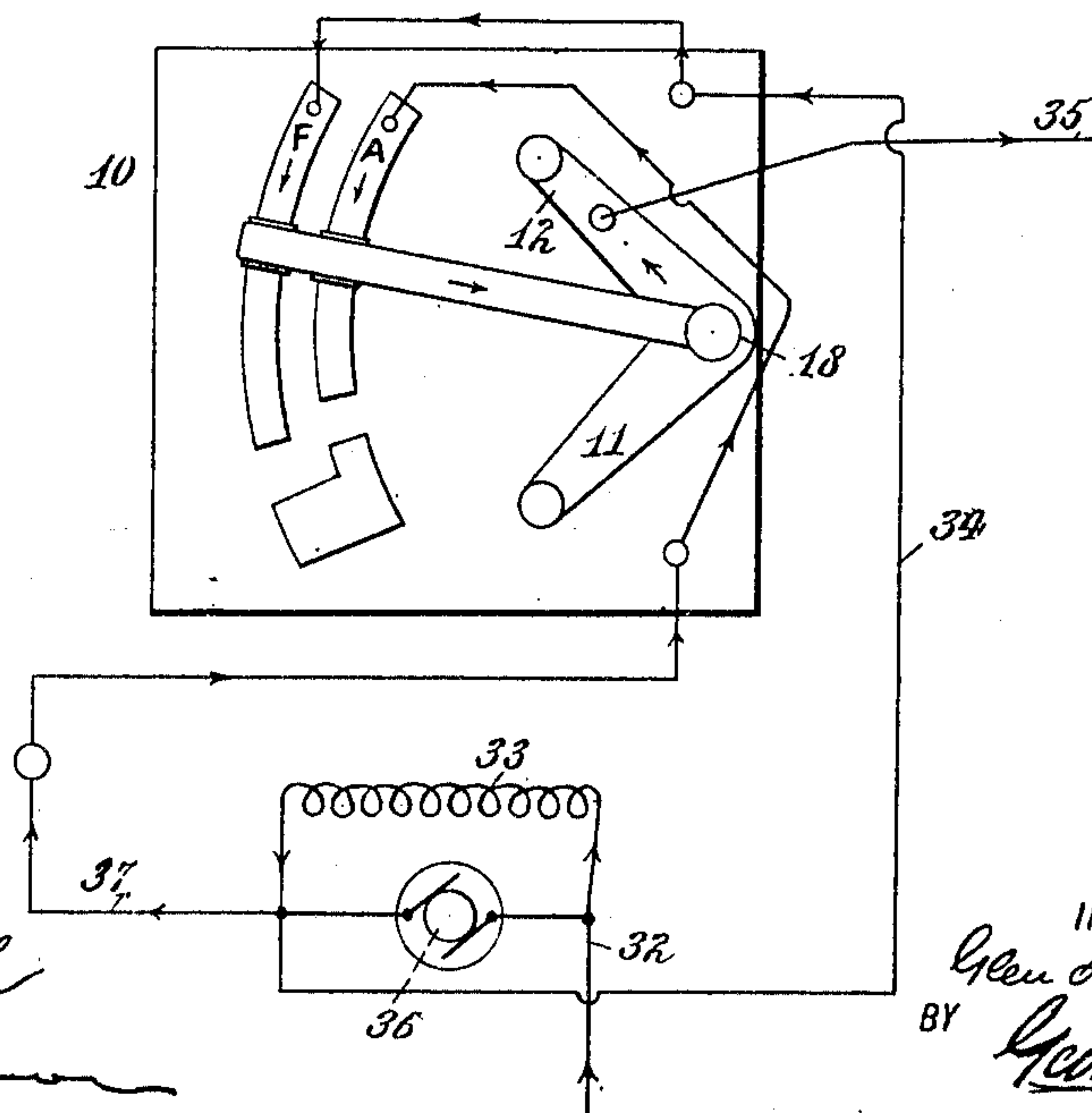


Fig. 2.



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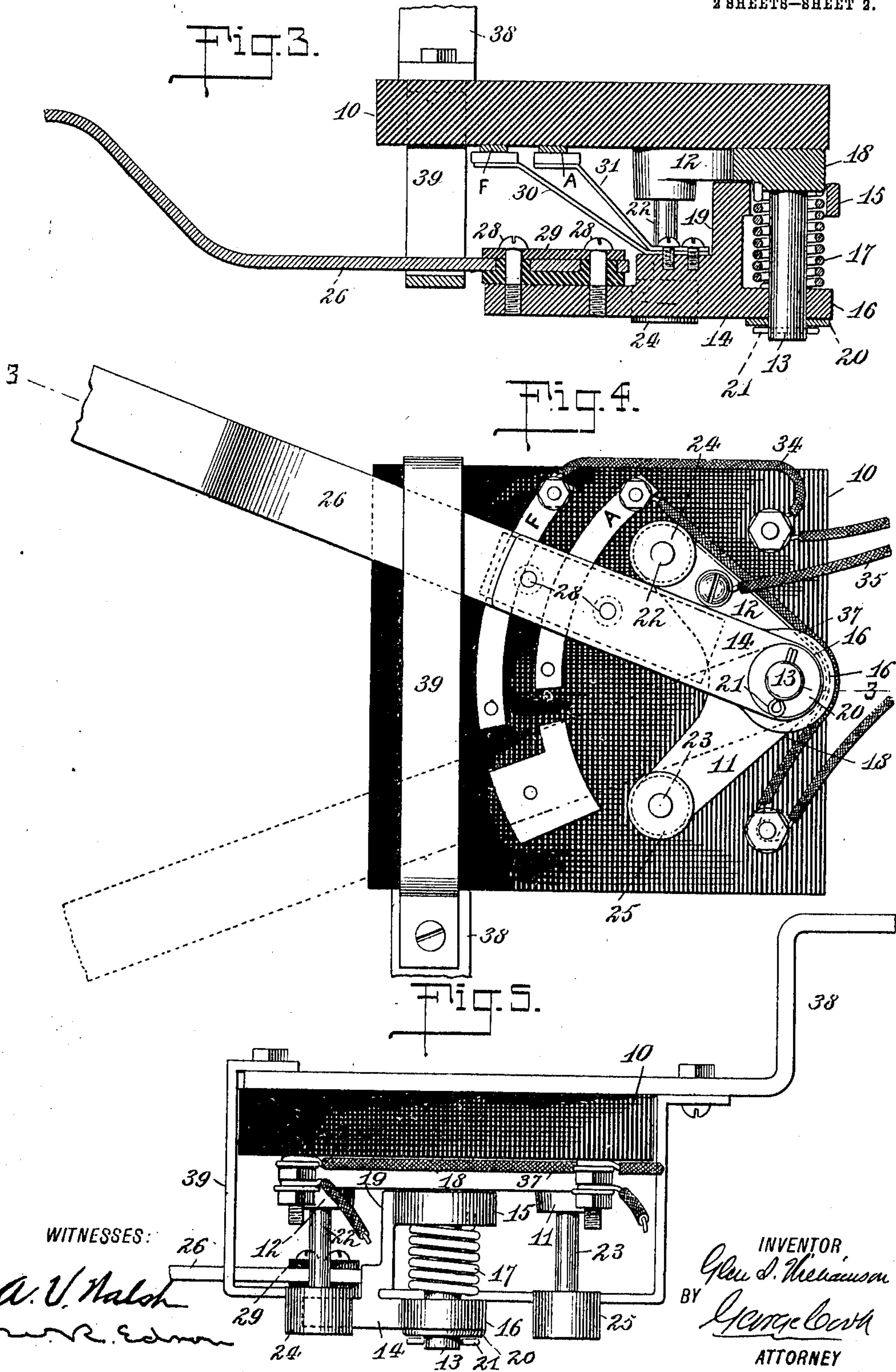
ATTORNEY

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WITNESSES:

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UNITED STATES PATENT OFFICE.

GLENN S. WILLIAMSON, OF NEW YORK, N. Y.

ELECTRIC SWITCH.

969,824.

Specification of Letters Patent. Patented Sept. 13, 1910.

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To all whom it may concern:

Be it known that I, GLENN S. WILLIAMSON, a citizen of the United States, and a resident of New York, borough of Manhattan, in the county of New York and State of New York, have made and invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to an improvement in electric switches, and more particularly to what I term a knee shift, the same being especially adapted for use in connection with electrically operated machines of various kinds, as for instance, a linotype machine in front of which the operator sits and moves the switch in one direction to complete the circuit by his knee or leg, the switch automatically operating in the opposite direction to break the circuit.

The object of my invention is to produce a switch or shift of this kind which will be simple and economical to construct, and which may be easily, readily and conveniently operated by a person upon taking his position in front of the machine to which the switch is attached for the purpose of driving the machine, and which will automatically shift to break the circuit when the operator leaves his seat, and with these and other ends in view, the invention consists in certain novel features of construction and combinations of parts as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of a portion of a linotype machine having my improved switch applied thereto. Fig. 2 is a diagrammatic view showing one way of wiring the switch. Fig. 3 is a vertical sectional view through the switch, and taken on the line 3—3 of Fig. 4. Fig. 4 is an inverted plan view of the switch. Fig. 5 is an end view of the switch, a portion of the operating lever being broken away.

Referring to the drawings, 10 represents a base or support formed of fiber, hard rubber, or other insulating material, and to which is secured a V shaped plate 18 comprising the two arms 11, 12, and the post 13 extending downwardly from the angle of the plate 18. On this post 13 is mounted the plate 14 provided with the disk or sleeve 15 encircling a downwardly projecting flange on the angle plate 18 and the projecting end 16, through which passes the post 13,

the spring 17 being coiled around the post 13 between said disk 15 and end 16, one end of the spring being secured in the angle plate 18, and the opposite end against the vertical plate 19, connecting the disk or sleeve 15 with the projecting end 16. The tendency of this spring is to keep the lever in the position shown in dotted lines in Fig. 4, that is, in a position wherein the circuit will be broken.

To hold the plate 14 in position upon the post 13, I provide the washer 20, through which the post 13 passes, and which bears against the under side of the projecting end 16, and the set pin 21 passing through the extreme end of the post.

At the outer extreme ends of the arms 11, 12 are formed the downwardly projecting posts 22, 23, provided at their lower ends with the rubber disks 24, 25, against which latter strikes the plate 14 when shifted to complete the circuit, as illustrated in full lines in Fig. 4, and to break the circuit, as illustrated in dotted lines, Fig. 4, said disks 24, 25 acting as stops to limit the throw of the lever in either direction. To the plate 14 is secured the lever 26 provided with the downwardly projecting handle 27, the length of the lever 26 being such that the handle 27 thereon may be conveniently manipulated by the knee or leg of the operator when occupying his position in front of the machine. The lever 26 is secured to the plate 14 by means of the screws 28, hard rubber, or other insulating material 29, being employed to prevent contact of said lever and plate.

To secure the switch to the machine, I provide the bracket 38, bent or shaped in accordance with the position it is to occupy with relation to the machine to which it is attached, said bracket being secured to said base plate, and to assist in supporting the lever 26 and guiding the same in its movements, I provide the downwardly extending bracket 39, the ends of which, as illustrated in Fig. 5, are secured to the bracket plate 38.

To the base plate 10 are secured the contact plates F and A, the former being somewhat longer than the latter, as clearly illustrated in Figs. 2 and 4, and to the plate 14 are secured the contacts 30, 31, the end of the former contacting with the plate F, and the latter with the plate A. The switch may be wired in one of various ways, the method which I have adopted in practice

being illustrated in Fig. 2, wherein is shown a contacting wire 32 leading from any suitable source of electricity to the field 33 of a motor from which the conductor 34 leads to the contact plate F. When the lever 26 is shifted from its position, as illustrated in the dotted lines, Fig. 4, to contact with the plate F, the current will flow through the conductor 32, energize the field 33, through the conductor 34, plate F, contact 30, plate 14, angular plate 18, and through the conductor 35 back to the source of supply. As also illustrated in Fig. 2, the contact plate A is in circuit with the armature 36 of the motor, and as the lever 26 and plate 14 are continued to be moved, the plate 31 will contact with the plate A, whereupon a current will flow through the conductor 32, armature 36, conductor 37, plate A, contact 31, plate 14, plate 18, conductor 35 to the source of supply. By thus wiring the switch, it will be understood that the field of the motor is first energized and subsequently the motor started, thereby avoiding any sudden jump of the motor or machine driven by it upon first throwing the switch. It will of course be understood that the switch may be wired in any other desired manner, such forming no part of my invention.

From the foregoing it will be seen that my invention is exceedingly simple in construction, of but few parts easily and readily assembled, that upon taking a seat in front of the machine to which the switch is attached, the operator with his knee or leg moves the lever from the position as indicated in dotted lines, Fig. 4, to that indicated by full lines, same figure, and there holds it as long as he remains upon the chair or seat. Upon rising from his seat the lever automatically moves to its normal position, thereby breaking the circuit and stopping the motor and machine.

If desired also, a lamp or lamps may be wired in circuit with the motor which, when the switch is thrown by the operator, will light, and which when the switch is automatically thrown to its normal position will be cut out, thereby economizing current which in many instances heretofore has been wasted.

What I claim is.

1. In an electric switch of the character described, the combination with a base plate of insulating material, of an angular plate secured to the under side of said base and provided with stops, a lever pivoted to said plate and arranged to engage said stops on said angular plate, contacting plates secured to said base and to said lever, and a spring secured to said lever and said angular plate for holding said lever in its normal

position against one of said stops and the plates on said lever out of contact with the plates on said base, substantially as described.

2. In a switch of the character described, the combination with a base plate of insulating material, of an angular plate secured to said base plate and provided with two stops and a post, a lever mounted on said post the movement thereof being limited by said stops, a spring coiled around said post and engaging with said angular plate and with said lever for holding the latter in its normal position against one of said stops, contact plates secured to said base plate, and plates secured to said lever to contact with said plates on the base when said lever is shifted, substantially as described.

3. In a switch of the character described, the combination with a base plate of insulating material, of an angular plate secured to said base plate and provided at its two ends with stops and at the angle thereof with a post, and having a conductor leading from said plate to a suitable source of electricity, a lever mounted on said post and adapted when shifted to engage said stops, contact plates secured to said base plate, plates secured to said lever and adapted to contact with said plates on said base plates, and a spring coiled around said post and engaging said angular plate and lever whereby to hold the latter in its normal position and the plates secured thereto out of contact with the plates on said base, substantially as described.

4. In a switch of the character described, the combination with a base plate of insulating material, of a V shaped plate secured to the under side of said base and provided at the angle thereof with a post, a plate 14 mounted on said post and having a lever secured thereto and insulated therefrom, a stop formed at each end of said V shaped plate protected by insulating material to limit the movement of said lever, a contact plate secured to said base, a shorter contact plate secured to said base plate, plates secured to the plate 14 and contacting with said contact plates on the base, and a coil spring encircling said post, one end thereof secured to the V shaped plate and the other end to the plate 14 whereby to hold said lever in its normal position, substantially as described.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 9th day of March, A. D. 1910.

GLENN S. WILLIAMSON.

Witnesses:

W. P. EDSON,
A. V. WALSH.