(No Model.) 2 Sheets—Sheet 1.

W. R. POPE.

COIN OPERATED INDUCTION COIL.

No. 500,776. Patented July 4, 1893.

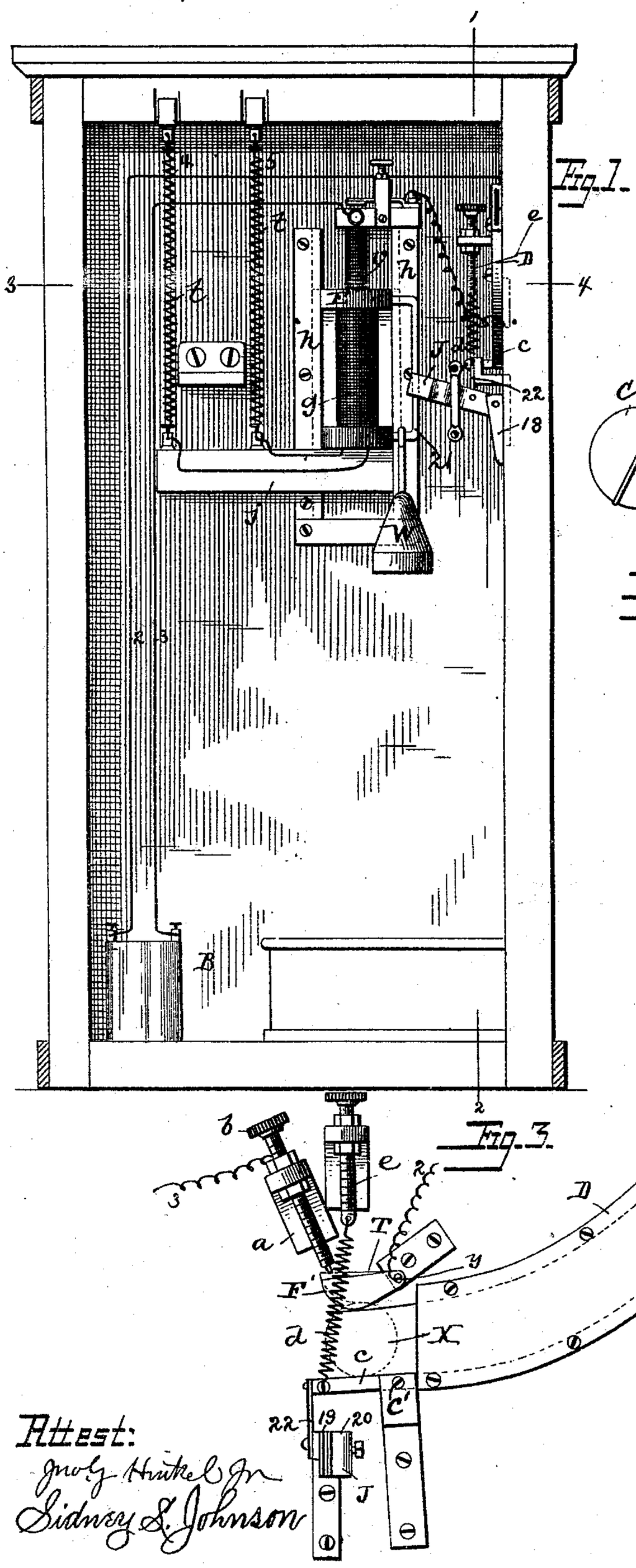

Fig. 1.

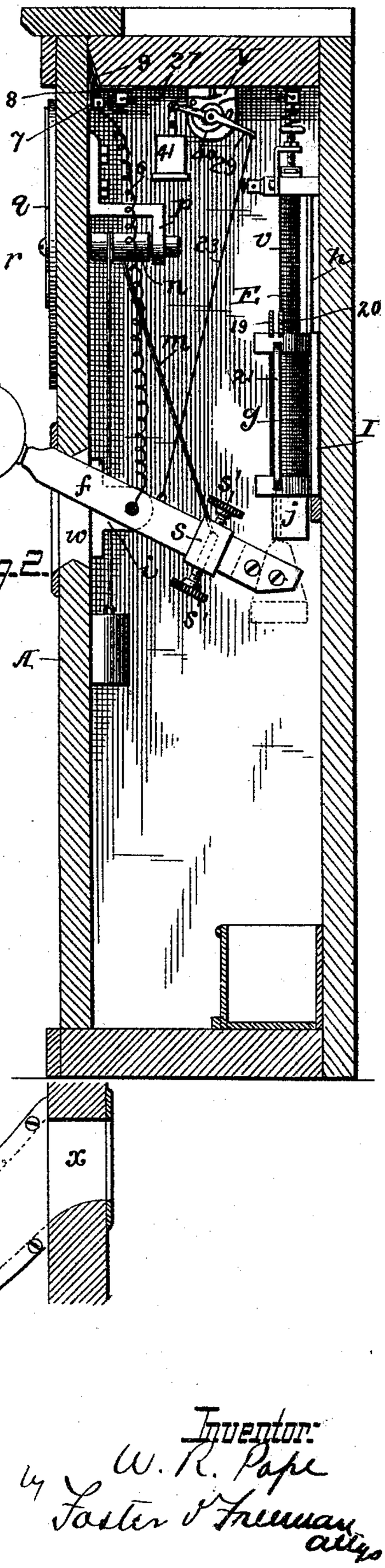

Fig. 2.

Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

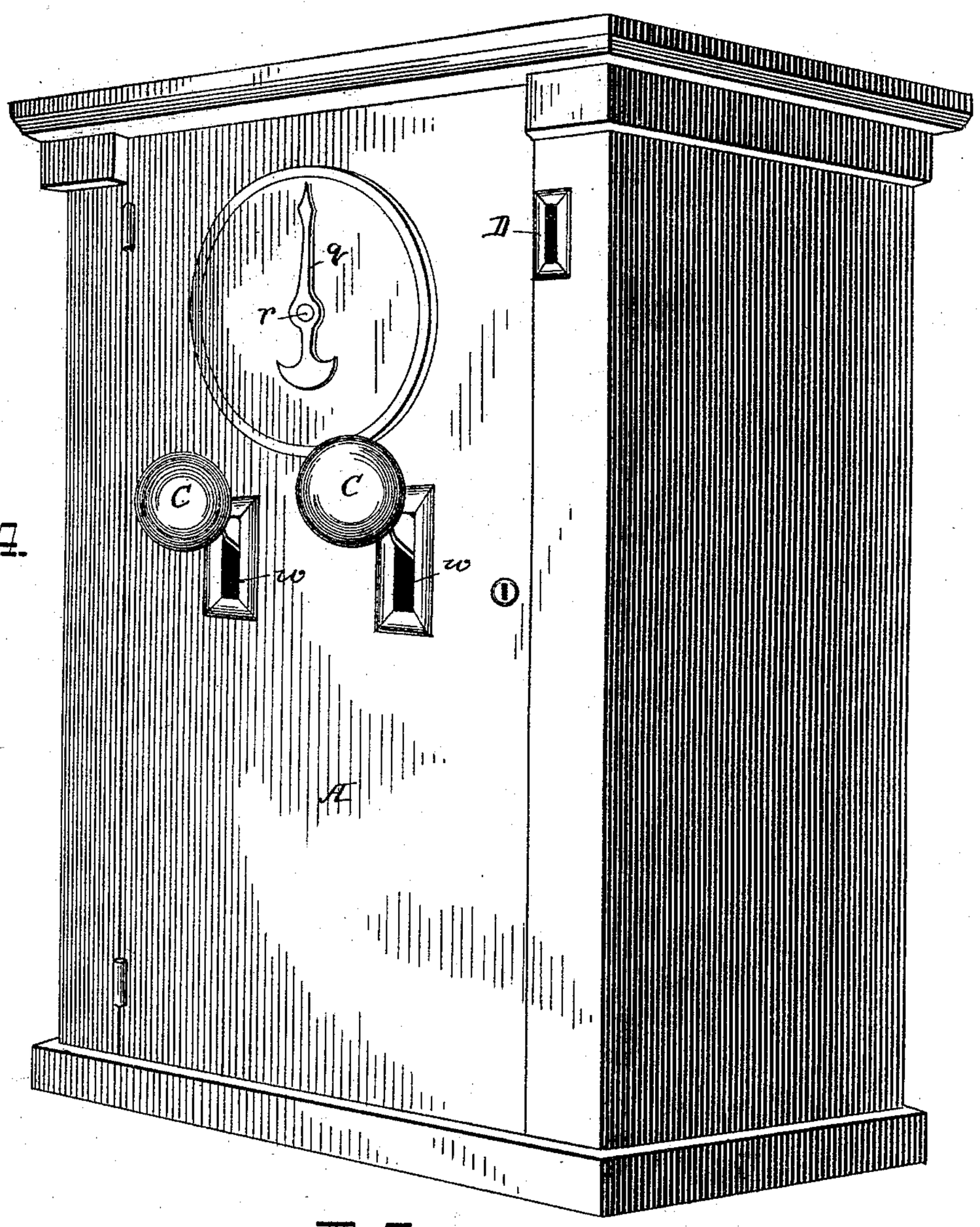
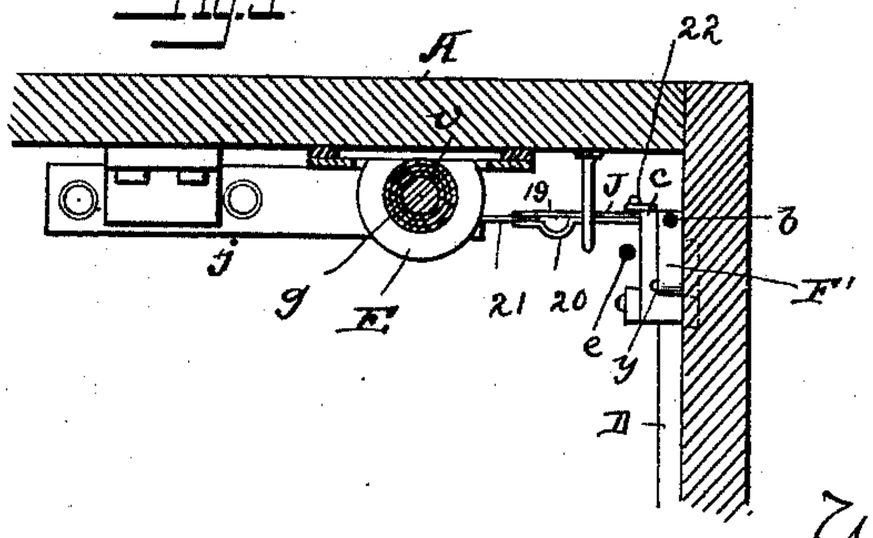


Fig. 5.



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Jno. J. Hinkel Jr.

Sidney L. Johnson

Inventor:

W. R. Pope

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UNITED STATES PATENT OFFICE.

WILLIAM R. POPE, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE NATIONAL ELECTRIC MACHINE COMPANY, OF NEW YORK, N. Y.

COIN-OPERATED INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 500,776, dated July 4, 1893.

Application filed April 3, 1888. Serial No. 269,421. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. POPE, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Coin-Operated Induction-Coils, of which the following is a full, clear, and exact specification.

My invention relates to a coin operated induction coil, and consists in constructing the same as fully set forth hereinafter so as to enable any one by the deposit of a coin in the apparatus to complete a circuit in such manner as to put himself into electrical connection with the induction coil of the apparatus.

In the accompanying drawings: Figure 1, is an elevation of the apparatus, the door thereof being open. Fig. 2, is a sectional elevation on the line 1—2, Fig. 1, the bar J, being removed. Fig. 3 is an enlarged detail view of the parts carried by one side of the case looking toward the right of Fig. 1. Fig. 4, is an external view of the apparatus. Fig. 5, is a plan view on the line 3—4, Fig. 1.

The main operating parts of the apparatus are inclosed within a case A, of any suitable construction, containing a battery B, which is in circuit through the wires 2, 3, with the induction coil E. The secondary circuit of the induction coil passes through wires 4, 5, to handles C, C, outside of the case, where the circuit can be completed by the operator who grasps the handles, as set forth in the Letters Patent granted to me December 6, 1887, No. 374,495. The battery circuit is not completed until a coin X, deposited in an inclined chute D, through a slit *x*, in the case, acts upon a circuit breaker T, which as shown consists of a plate or piece F′, which may either be of metal so as to conduct the current through it, or may carry a metallic piece by means of which the circuit can be completed.

As shown, the plate F′, is pivoted at *y*, to one side of the case above the chute D, and below a bracket *a*, carrying an adjustable screw pin *b*, which is connected with the battery wire 3, and the plate F′, or the metallic piece carried thereby is connected with the battery wire 2, so that when the coin passes through the chute D, it will lift the plate F′, into contact with the pin *b*, and complete the battery circuit. A section *c*, of the bottom of the chute D, below or adjacent to the plate F′, is movable so that it can be tilted to cause the discharge of the coin when the latter is between it and the plate F′; and a spring *d*, connected to an adjusting screw *e*, serves to raise the section *c*, which is connected with any suitable adjusting device so as to be drawn downward when it is necessary to permit the escape of the coin from the chute. As shown the section *c*, is pivoted at *c′*.

In the construction shown the handles C, are connected to bars *f*, extending through slots *w*, in the door of the case and one or both pivoted to studs *i*, at the rear of the door, the inner ends of the said bars being weighted or connected with springs so that they will normally occupy a depressed position with the handles elevated, as shown in Fig. 2. The circuit with the handles is completed through the medium of wires 6, passing from the handle bearings through binding screws 7, to spring plates 8, upon the inner side of the door, similar spring plates 9, upon the inside of the case being arranged to contact with the plates 8, when the door is shut, and being connected with the wires 4, 5, extending to the induction coil so that the circuit with the latter cannot be completed except when the door of the case is absolutely closed.

In order to regulate the strength of the current the magnet *g*, of the induction coil is secured to a slide I, moving between guides *h*, *h*, secured at the back of the case, and provided with a laterally extending arm *j*, suspended by springs *t*, *t*, from the top of the case, which springs form part of the conducting wires 4, 5, and are of such strength that a weight W, hung to the slide will distend the springs and normally keep the magnet in its lowest position. The arm *j*, is so arranged as to occupy a position above the inner ends of the bars *f*, so that when the latter are tilted by downward pressure upon the handles C, the slide I, with its magnet will be raised in proportion as the handles are depressed, enabling the operator to adjust the position of the magnet upon the core *v*, and thereby regulate the strength of the induced current, as desired.

In order to indicate the position of the parts and the relative strength of the current, a cord *m*, passes from one of the bars *f*, round a drum *n*, upon a shaft *r*, supported by a bracket *p*, at one end, the other end extending through the door of the case and carrying an index finger or pointer *q*, in front of a graduated plate upon the door, so that a complete downward vibration of the bars F will result in a complete revolution of the shaft *r*. The position of the pointer may be regulated by adjusting the attachment of the cord *m* to the bar, which may be effected through the medium of an adjustable block *s*, sliding upon the bar and provided with an adjusting screw *s'*. The downward movement of the inner ends of the bars *f*, resulting when the handles C, are released, may be made the medium of carrying downward the section *c*, of the chute D, and releasing the coin. This may be effected by different connections, but as shown the section is operated through the medium of a lever J, pivoted to a bracket 18, at the side of the case, and having spring clamping fingers 19, 20, between which extends a bar 21, carried by the magnet *g*, or by any part of the slide I. The lever J, is connected by a link 22, with the section *c*. The lever J is therefore engaged frictionally with the movable portion of the induction coil during its entire movement.

When the slide I is moved up upon the handles being grasped by the operator, the bar 21, moving with the slide and frictionally between the clamping fingers 19, 20, will tend to keep the lever J, in the position shown in Fig. 1, and to hold the section *c*, of the chute in its upper position, but when the slide I descends on the handles being released, the frictional contact of the lever J, with the bar 21, will cause it to be carried downward, thereby depressing the section *c*, and releasing the coin. Inasmuch as the connection between the lever J, and the bar 21, is a frictional one, any movement of the slide I and its magnet beyond that necessary to impart the above described movements to the lever J, will have no effect upon the latter.

It will be seen by the above described arrangement of parts that the battery circuit after being once completed is not broken until the operator releases his hold of the handles C. It will also be seen that while the operator has hold of the handles C, he may regulate the position of the magnet in respect to its core, and that the movable lever or bar *f*, extending through the front of the case in position to be moved by the hand of the operator serves as a direct means of raising and lowering the magnet, and thereby varying the strength of the current.

Where it is desired to limit the time for which the apparatus shall be used, I use a time motor V, such for instance as is used in ordinary call boxes the arm 29 of which when it moves up closes a switch on either circuit to make a short circuit or opens a switch to break the main circuit. As shown, the open switch 27 is in a short circuit line connecting the two lines 4, 5, and the arm 29 when it reaches its upper position toward which it moves slowly, will strike and close the switch. The arm 29, may be moved upward by a spring 40, and its rate of motion may be regulated by a dash-pot 41. The switch is of spring metal, and when the arm 29 moves away, opens and breaks the short circuit. A cord 23 connects the arm 29 and the bar or bars *f* or other moving part of the apparatus, so as to depress the arm 29 when the handle or handles are released and when the latter are moved to operate the machine the arm 29 is released, and moves gradually upward, but the current passing through the handle is continued for a time until the arm strikes the switch. Normally the parts are in the position shown in Fig. 2. When an operator depresses the handles the cord is slackened and the arm 29, begins to move slowly upward. When the determined time has elapsed the arm 29, will reach its upward position, close the switch and cut off the current. The parts are so proportioned that when the handles are lowered enough to cause the induced current to begin to operate the cord 23 will be given sufficient slack and the switch will be closed after a proper interval whether or not there is any slack of the cord 23, remaining after such closure.

It will be evident that such a timing motor and switch may be combined with different electrical devices when it is desired to limit the times for which the machines operate.

It will be evident that spring or weight motors of different constructions can be used in connection with operating handles to set them in position to move slowly toward and adjust switches after a given time. It will be obvious that an equivalent arrangement would be to raise or lower the core instead of the magnet, and that one of the bars might be stationary, the other serving as a means of effecting the above described operations. It will also be evident that the construction and arrangement of many of the parts described may be varied without departing from the main features of my invention.

Without limiting myself to the precise construction and arrangements of parts set forth, I claim—

1. The combination with the movable portion of the induction coil, the chute D, the circuit breaker, consisting of fixed and movable contacts at one side of the chute, and the induction coil and handles, of a movable section *c*, of said chute opposite the circuit breaker and devices for engaging said movable section frictionally with the movable portion of the induction coil, during the entire movement of said coil substantially as set forth.

2. The combination with the movable section *c*, of the chute D, and the adjustable portion of the induction coil, of a bar 21, and a

friction lever J, grasping said bar and connected with the section *c*, substantially as and for the purpose set forth.

3. The combination in a coin-operated induction coil, of a case containing a battery, electro-magnet, chute, circuit breaker, handles outside the case, wires extending from said handles to contacts on the door of the case, and wires extending from the secondary circuit of the induction coil to contacts upon the case arranged to meet those upon the door when the latter is closed, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM R. POPE.

Witnesses:

J. S. BARKER,

F. L. FREEMAN.