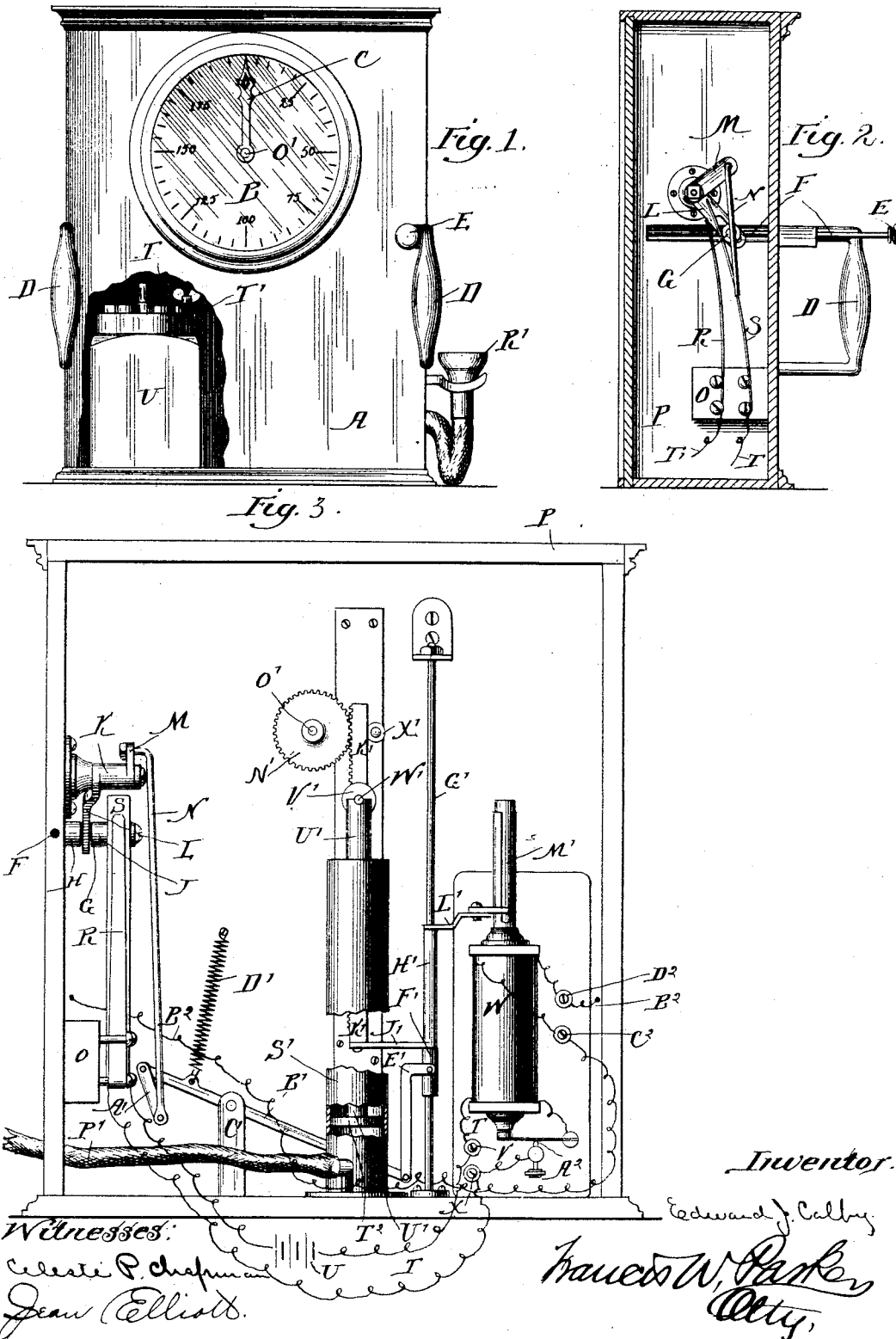


(No Model.)

E. J. COLBY.
COIN CONTROLLED ELECTRIC COIL.

No. 445,220.

Patented Jan. 27, 1891.



UNITED STATES PATENT OFFICE.

EDWARD J. COLBY, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED ELECTRIC COIL.

SPECIFICATION forming part of Letters Patent No. 445,220, dated January 27, 1891.

Application filed October 17, 1889. Serial No. 327,341. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. COLBY, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a certain new and useful Coin-Controlled Electric Coil, of which the following is a specification.

My invention relates to testing devices, and has for its object to provide means whereby a variable and indicated electrical current may be passed through the body of the user separate or combined with devices for testing the lungs. I accomplish this object by means of devices illustrated in the accompanying drawings, wherein—

Figure 1 is a front view of my device; Fig. 2, a vertical section, and Fig. 3 a rear view with back removed and partly diagrammatic.

A is a front of the case containing the indicating-dial B with hand C.

D D are handles securely attached to the side of the frame.

E is a thumb-piece on the rod F, which is adapted to slide in the direction of its length.

G is a pin on such rod, carrying the sleeves H and J.

K is a sleeve pivoted above and provided with two arms, one arm L having a slot to engage the pin G and the other arm M secured to the rod N.

O is a block of insulation secured on the inner side of the case P, and to this block are secured springs R S, which latter spring normally rests against the sleeve J. From the spring R leads the conductor T to battery U, thence to binding-post X, thence through the circuit-breakers T² to the primary coil in the spool W, thence to the binding-post V, and thence to the spring S.

The rod N is connected by the link A' to the lever B', which is pivoted on the standard C' and actuated by the spring D'. This lever at its outer extremity carries the link E', which is secured to the sleeve F' on the permanent rod or guide G'. H' is a second sleeve on this rod, and carries below the arm J' to the rack-bar K', and its upper extremity, the arm L', which is connected to the reciprocating core M' of the spool W. The rack-bar K' engages the pinion-wheel N' on the shaft O', to which the indicating-hand C is secured.

P' is an air-tube having the mouth-piece R' at one end, and connected at the other end at the base of the cylinder S' below the piston T², which is secured to the piston-rod U'.

Projecting from the side of the rack-bar K' is a heavy arm or weight V' with the pin W', which rests upon the top of the piston-rod.

X' is a roller to keep the rack-bar in contact with the pinion.

The circuit-breaker A² is placed in circuit with the conductor T² in the usual manner.

B² is a conductor which leads from one handle D to the binding-post C², thence to the secondary coil of the spool W, thence to the binding-post D², and thence to the other handle D. These various parts may be somewhat changed in their construction and relation without departing from the spirit of my invention.

The use and operation of my invention are as follows: The same being supposed in substantially the condition indicated in the drawings and the operator desiring to supply any predetermined current of electricity to his person can do so by seizing the handles D D, and then pushing on the thumb-piece E until the indicating-hand C has reached the desired or predetermined point on the dial. As the thumb-piece E is pushed, the rod F moves toward the left, as indicated in Fig. 2, thus rocking the arm L and bringing the two springs R S together. So long as they remain together an intermittent current passes through the primary coil of the spool W by means of the conductor T, circuit-breaker A², battery U, and binding-posts V and X. This current develops in a secondary coil of the spool W a current which passes through one handle to the other through the person of the operator, thence through conductor B² to binding-post C², through the secondary coil to binding-post D², and thence to the other handle. If now the pressure continue to be applied to the thumb-piece E, the rod F moves farther to the left and causes the arm M to move downward, thus depressing the rod N and rocking the lever B' on its pivot C'. This causes the arm E' to rise, carrying with it the sleeves F' and H', and thus the rack-rod K' and core M'. The rack-rod K' rotates the pinion N' and causes the hand C to indicate on the dial B, while the core M', reciprocating through the

spool W, increases the strength of the derived current. When the operation is discontinued, the weighted portion V' and the gravity of the parts restore them to their original position. In like manner the lungs are tested by blowing through the tube P', and thus causing the piston-rod U' to rise, and by means of the pin W' to raise the rack-rod K' and operate the indicating-hand. This same motion, however, also raises the sleeve H' and the core M'.

The essential advantage of my device consists of arranging, in combination, a lung exercising and testing apparatus, in combination with an electric shocking apparatus, so that, for example, in connection with the bath, the patient or person using may exercise and test the lungs, and also receive or pass through the body an electric shock, the strength and power of both exercises being visibly connected, so that extreme exercise in either or both directions may be avoided.

I claim as new and desire to secure by Letters Patent—

1. In an electric testing apparatus, the combination of the case with a shocking-coil therein, handles adapted to be brought into circuit with such coil, and a movable thumb-piece operatively connected with the core of the coil, and an indicating-dial whose hand is operatively connected with such core or thumb-piece, so that by grasping the handles the circuit may be closed through the body and by operating the thumb-piece the current may be varied and indicated.

2. In an electric testing apparatus, the com-

bination of a case with the handle D and thumb-piece E and the circuit-closing strips S and R, connected with the circuit, the rod F, pin G thereon, and the arms M and L on the piece K, substantially as and for the purpose shown and described.

3. In an electric testing-machine, the combination of a case with exterior handles and a thumb-piece with its reciprocating rod and induction-coil, with a movable core, a series of connecting-bars from the movable core to such thumb-piece, so that by pushing the same in the core is reciprocated to increase the strength of the current, and a circuit-closer connected with and operated by such thumb-piece.

4. In an electric testing-machine, the combination of a case with exterior handles and a thumb-piece with its reciprocating rod and induction-coil, with a movable core, a series of connecting-bars from the movable core to such thumb-piece, so that by pushing the same in the core is reciprocated to increase the strength of the current, and a circuit-closer connected with and operated by such thumb-piece, and an indicating-dial also connected with such thumb-piece, so as that when the thumb-piece is pushed in the circuit is closed, and as it is pushed in the strength of current is increased and indicated on the dial.

Dated this 15th day of October, 1889.

EDWARD J. COLBY.

Witnesses:

CELESTE P. CHAPMAN,
JEAN ELLIOTT.