(No Model.)

W. STANLEY, Jr., J. F. KELLY & C. C. CHESNEY.

METHOD OF WORKING CONDENSERS.

No. 505,860. Patented Oct. 3, 1893.

Fig. 1

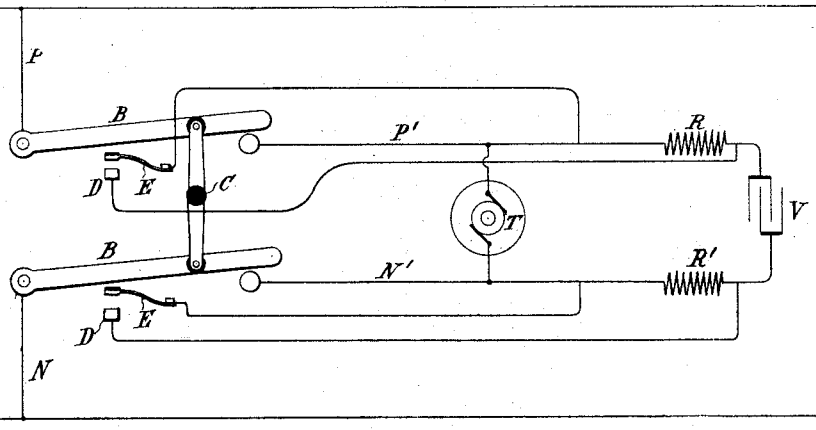
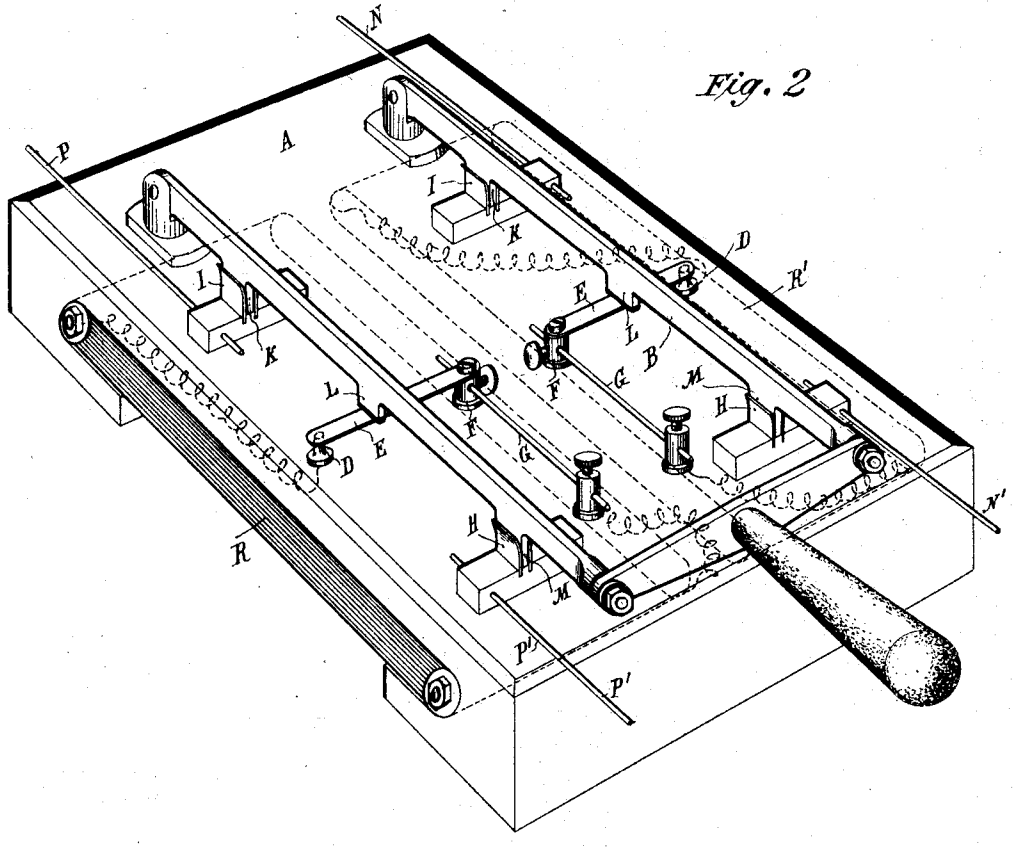


Fig. 2



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METHOD OF WORKING CONDENSERS.

SPECIFICATION forming part of Letters Patent No. 505,860, dated October 3, 1893.

Application filed March 18, 1893. Serial No. 466,626. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM STANLEY, Jr., JOHN F. KELLY, and CUMMINGS C. CHESNEY, citizens of the United States, and residents of Pittsfield, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Methods of Working Condensers, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

In operating alternating current motors, transformers or other similar devices possessing self-induction, we employ condensers which we connect up in a shunt or in multiple to such devices and which are of such capacity or value as to neutralize the magnetizing current. We have found, however, in such cases, that a difficulty is encountered at opening or closing the circuit. If the balance, between the capacity of the condenser and the self-induction for the periodicity of the impressed electro-motive force be not exact, a series of oscillations are liable to be set up which produce at the terminals of the condenser differences of potential much higher than the normal, and in some cases so high as to injure or destroy the condenser by the rupture of its dielectric. These oscillations are gradually damped out by the resistance of the circuit but their occurrence is obviously a serious objection in the system. To avoid this difficulty we interpose in the condenser branch or circuit a dead resistance sufficiently high to prevent the action referred to, and short-circuit or throw out such resistance during the normal working of the translating device with which the condenser is used. We prefer to accomplish this by employing in conjunction with the translating device a switch or circuit-controller so arranged that it will short-circuit the resistance after it has closed the main circuit through the translating device, and, conversely, break such short circuit before it opens the main circuit.

The accompanying drawings represent in Figure 1 a diagram of the apparatus and circuit connections. Fig. 2 is a perspective view of a compound switch which we employ.

A is a box or support of suitable character containing resistance coils R, R′. To the said box are pivoted two metallic switch levers B, B, operated by an insulating handle C. These levers are formed or provided with projections K adapted to pass between terminal contact plates or springs I and projections M that engage with similar plates H. This device forms an ordinary double pole switch which completes the circuit when the wires P, P′ and N, N′ are electrically connected by the engagement of the levers with the terminals to which said wires are respectively connected.

Under each lever is a pair of stationary terminals D, F, to one of which a resilient strip E is connected and which remains normally out of contact with the other. These strips are in the path of lugs or projections L on the levers B, so that when the latter are depressed the said projections will encounter the strips E and cause the same to electrically bridge or connect the terminals F, D, but not until after the projections M have come into contact with the terminals H and completed the main circuit. Each terminal D is connected with one of the terminals of a resistance coil, the other with the opposite terminal of such coil, usually through a fuse G, so that the complete downward movement of the switch levers closes the circuit through the translating device and short circuits the resistance R, R′. These resistances, as indicated in Fig. 1, are in series with the condenser V, which latter is in shunt to the translating device T.

The switch shown and described herein is merely given as an illustration of a practical device for carrying out the invention, and any other suitable form may be used.

We are aware that a variable resistance has been employed with a motor or like device with which, for the purpose of neutralizing its self-induction, a condenser was combined, but in such cases the resistance was designed and was used for controlling or governing the action of the motor itself, but in our present invention the resistance is used under conditions which do not modify or affect materially the action of the motor, but

only of the condenser, and it is intended and used for the protection only of the condenser.

What we claim is—

1. The method of operating condensers associated with alternate current translating devices for neutralizing the self-induction of the same, which consists in interposing in circuit with the condenser a protective resistance and short-circuiting or withdrawing such resistance after the main circuit or that through the translating device has been closed.

2. The combination with an alternate current translating device and a condenser for neutralizing the self-induction of the same, of a protective resistance in circuit with the condenser and a switch adapted to short-circuit or withdraw such resistance after closing the main circuit through the translating device, as set forth.

3. The combination with an alternate current translating device and a condenser in shunt or derivation thereto, a protective resistance in series with the condenser, and a switch adapted to short-circuit said resistance after closing the main circuit, as set forth.

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