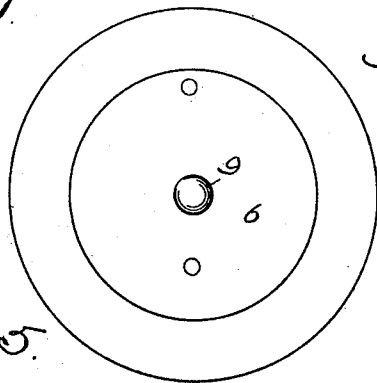
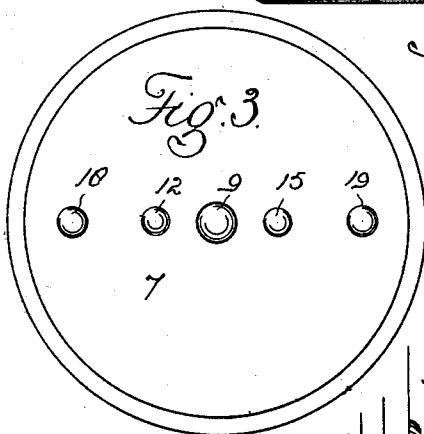
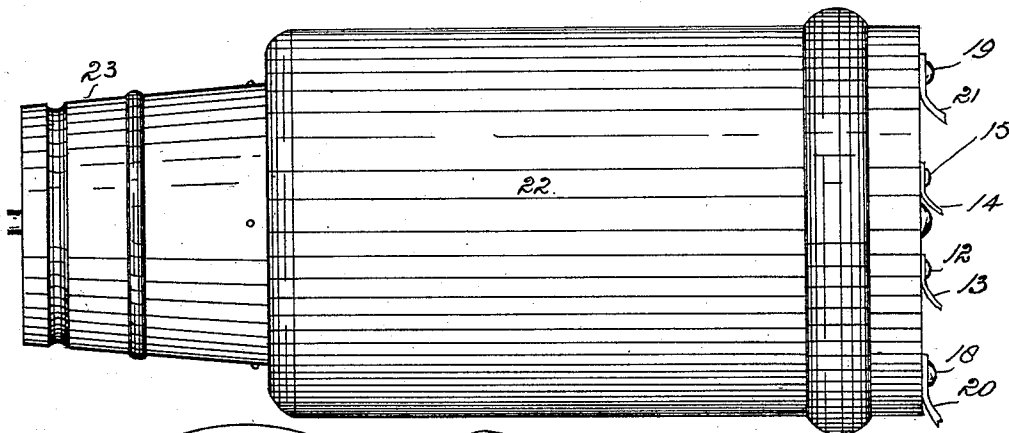
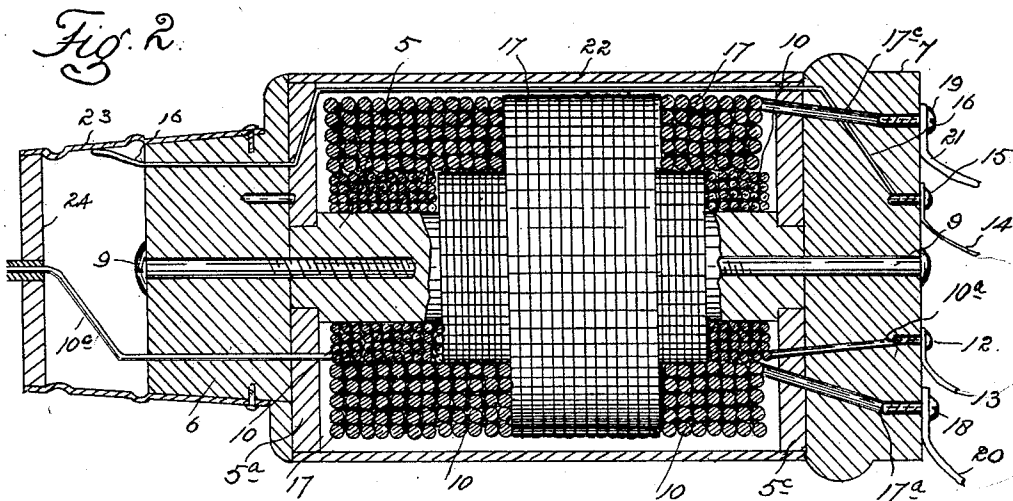


(No Model.)

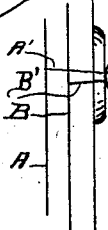
W. P. CARSTARPEN, Jr.
ELECTRICAL TRANSFORMER.

No. 507,526.

Patented Oct. 31, 1893.



WITNESSES:
G. J. Rolland
W. H. Lounell



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UNITED STATES PATENT OFFICE.

WILLIAM P. CARSTARPHEN, JR., OF DENVER, COLORADO, ASSIGNOR OF TWO-THIRDS TO JAMES E. GREGG, OF SAME PLACE, AND RICHARD W. WEBB, OF SANTA FÉ, TERRITORY OF NEW MEXICO.

ELECTRICAL TRANSFORMER.

SPECIFICATION forming part of Letters Patent No. 507,526, dated October 31, 1893.

Application filed November 7, 1892. Serial No. 451,258. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. CARSTARPHEN, Jr., a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Transformers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in transformers, the object thereof being similar to that aimed at in all devices of this class, namely to increase the ampérage of an electrical current at the expense of the electromotive force by the employment of a simple and efficient construction which may be easily and cheaply manufactured.

To this end my invention consists of the features, arrangements and combinations hereinafter described and claimed, and the same will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is an elevation of one form of my improved transformer. Fig. 2 is a longitudinal section through the center of the same. In this view the central portion of each coil is shown in elevation. Fig. 3 is an end view of the larger extremity. Fig. 4 is an end view of the smaller or plug extremity after removing the thimble. Fig. 5 shows the supply circuit, the incandescent lamp socket and the transformer attached thereto.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views, let the numeral 5 designate the spindle or core of an iron spool provided with heads 5^a and 5^b, to which are respectively secured the insulating blocks 6 and 7 by means of screws 8 and 9. Upon this spool and in contact with the spindle or core is wound the primary coil 10 having its terminals 10^a and 10^b, the one being connected with the main or supply circuit and the other

connected with the binding post 12 from which leads a conductor 13 to the mechanism for making and breaking the primary circuit, the return being made through a conductor 14 to binding post 15 and thence through another conductor 16, back to the supply circuit. Outside of the primary coil, or interiorly of the spool is wound the secondary coil 17 having the terminals 17^a and 17^b leading respectively to the binding screws 18 and 19 connected with the conductors 20 and 21 of the secondary circuit, in which is located any suitable translating device. The parts of the spool are incased, and the magnetic circuit completed by a cylindrical iron shell 22 engaging the heads of the spool and located between the insulating blocks 6 and 7.

To block 6 is attached the thimble 23 fashioned to fit the socket of an incandescent lamp. This thimble is preferably composed of metal, and may be fashioned to fit any style of lamp socket. It is closed by a disk 24 provided with an aperture through which passes the terminal 10^a of the primary coil, while the conductor 16 leads to the body of the thimble. The primary coil is therefore connected with the supply circuit in the same manner as the filament of an incandescent lamp. Hence it will be understood that this transformer is specially designed for insertion in the incandescent lamp socket and is intended for use in all cases where it is necessary or desirable to diminish the voltage of the lamp circuit. My transformer will therefore be found specially advantageous for use in connection with cigar lighters, surgeons' cauterizing instruments, &c., located in the incandescent circuit, as well as with the alternating current motors.

The use of the transformer in connection with the incandescent lamp socket, is illustrated in Fig. 5 in which A and B designate the main circuit conductors; A' and B', the branch wires leading to the socket C through the fixture D and thence to the transformer E connected with the socket in the same manner as the lamp, whereby the one may be removed and the other inserted at pleasure.

In tracing the course of the electric current through the transformer, it may be said to en-

ter *via* conductor 10^c, passing thence through the primary coil and out through terminal 10^a to the external primary circuit *via* binding screw 12 and conductor 13 and thence back through conductor 14, binding screw 15, conductor 16, thimble 23 to the other supply circuit wire.

Having thus described my invention, what I claim is—

1. In a transformer the combination of an iron spool the primary and secondary coils wound thereon, the concentric iron shell engaging the heads of the spool, head blocks secured to the spool extremities, a supply circuit, the external primary and secondary circuits and suitable attachments for connecting the same with the coil terminals, substantially as described.

2. In a transformer the combination with the supply circuit and the external primary and secondary circuits, of the iron spool, the primary and secondary coils wound thereon, the concentric iron shell engaging the spool heads and closing the magnetic circuit, head blocks forming means for connecting the coil terminals with the external circuits, one of these blocks being provided with a thimble

adapted to fit the incandescent lamp socket, substantially as described.

3. The combination with the supply circuit and the external primary and secondary circuits, of a transformer consisting of a closed magnetic circuit composed of an iron spool and an iron shell engaging the heads thereof, the primary and secondary coils wound on the spool and covered by the shell and a plug attached to one extremity of the spool and adapted to fit the incandescent lamp socket, substantially as described.

4. The combination with the incandescent lamp circuit and socket of a transformer terminating at one extremity in a plug adapted to fit said socket, the construction being such that the primary coil of the transformer is directly connected with the lamp circuit by inserting the transformer in the socket, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM P. CARSTARPHEN, JR.

Witnesses:

WM. MCCONNELL,
G. J. ROLLANDET.