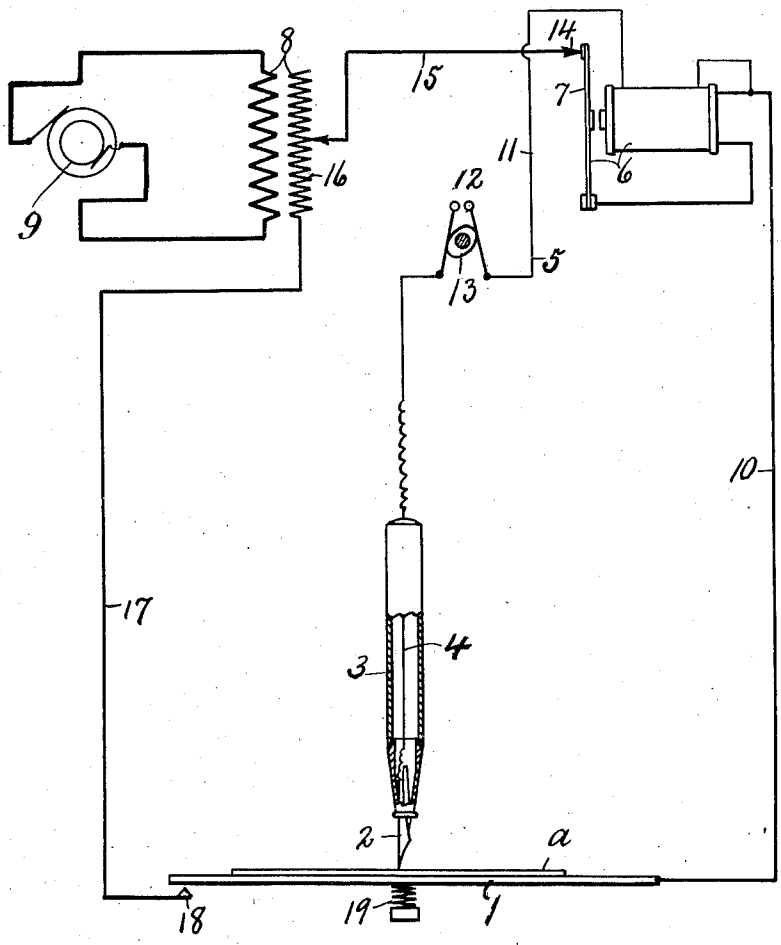
R. R. CONE.

ELECTRIC PERFORATING APPLIANCE.

APPLICATION FILED MAR. 24, 1919.

1,425,079. Patented Aug. 8, 1922.



Ralph R. Cone INVENTOR

BY Howard P. Denison

ATTORNEY.

UNITED STATES PATENT OFFICE.

RALPH R. CONE, OF SYRACUSE, NEW YORK, ASSIGNOR TO LOUIS WILL, OF SYRACUSE, NEW YORK.

ELECTRIC PERFORATING APPLIANCE.

1,425,079. Specification of Letters Patent. Patented Aug. 8, 1922.

Application filed March 24, 1919. Serial No. 284,867.

To all whom it may concern:

Be it known that I, RALPH R. CONE, a citizen of the United States of America, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Electric Perforating Appliances, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an electric perforating appliance, the object being to electrically puncture the paper simultaneously with the application of the writing fluid thereto so that the punctures will appear in the line with the writing fluid.

The drawings show a diagrammatic view of an apparatus for carrying out the object stated, said apparatus consisting, in this instance, of an electrically conducting plate —1—, having a smooth unbroken surface of the same material, upon which one or more sheets —*a*— of paper or equivalent material to be written upon is adapted to rest flatwise.

The means for applying the writing fluid to the paper may be an ordinary fountain pen having the usual metallic pen point —2— secured in one end of a tubular handle or reservoir —3— for the writing fluid, the metallic pen —2— constituting a conductor for permitting the ink from the reservoir —3— to the surface of the paper —*a*—, and also constitutes an electric conductor connected to one end of the wire —4— which extends from and through the interior of the reservoir and outwardly through the upper end thereof, to form a part of a secondary electric circuit —5— of a vibrating spark coil —6— having its vibrating member as —7— electrically connected in the secondary circuit of a transformer —8— which may receive its current from any source of electric energy as an A. C. dynamo electric machine —9—.

One terminal of the primary winding and also one terminal of the secondary winding of the spark coil —6— is connected by a wire —10— to the plate —1—, the other terminal of the primary winding of said coil being connected to the vibrator or armature —7—, while the other terminal of the secondary winding of said coil is connected by a wire —11— to one side of the current controller —12—, the other side of which is connected to the wire —4— passing through the reservoir to the pen point —2—.

The controller —12— preferably consists of a pair of jump spark terminals, the distance between which may be varied at will by the operation of a rotarily adjustable cam —13— against which the opposite arms of the controller —12— are spring pressed under their own tension, it being understood that the cam —13— is made of insulating material.

The purpose of the adjustment of the terminals of the controller —12— by means of the cam —13— is to enable the operator to regulate the puncturing effect of the electric current according to the number of sheets of paper operated upon since it is possible to cause the simultaneous puncturing of a large number of sheets by the proper adjustment of said terminals or by another adjustment of the same terminals a single sheet may be punctured without liability of burning or producing excessively large perforations.

The vibrating armature —7— is normally in electric contact with the terminal —14— which is connected by a wire —15— to the secondary coil —16— of the transformer, said coil being also connected by a wire —17— to another terminal —18— which underlies one end of the plate —1— opposite that to which the wire —10— is connected.

The plate —1— is yieldingly supported on a spring —19— which tends to hold its free end out of contact with the terminal —18— but permits the plate to be pressed into contact with said terminal —18— by the weight of the hand thereon or by the pressure of the pen upon the paper resting upon the plate.

It is evident that instead of connecting the wire —4— directed to the pen point —2—, it may terminate in the writing fluid in the reservoir —3— under which conditions the writing fluid would complete the circuit to the pen point.

Assuming now, that it is desired to write indelibly upon the paper —*a*—, the fountain pen is then taken in hand and drawn along and upon the surface of the paper to produce the desired writing or other characters by which operation the free end of the metal plate —1— will be pressed into electrical engagement with the terminal —18— against the action of the spring —19— thus closing the circuit through the primary winding

of the spark coil —6—, and at the same time setting up an induced current in the secondary winding and thence through the wires —4— and —10— with sufficient electro-motive force to electrically puncture the paper with a frequency directly proportionate to the speed of vibration of the armature —7— of the spark coil, it being understood that the continued contact of the plate —1— with the terminal —18— causes a rapid vibration of the armature —7— and consequent make and break contact with the terminal —14— which produces corresponding frequency of interruption of current between the plate —1— and conducting point —2—.

Under these conditions the movement of the pen across the surface of the paper with the usual speed of writing not only leaves a deposit of the writing fluid upon said surface but also causes the paper to be electrically punctured at more or less regular intervals along the line of and simultaneously with the fluid deposit.

This method of writing indelibly is particularly valuable in signing checks and other valuable documents; the apparatus shown being particularly simple and efficient for that purpose in that the plate serves as a table or a rest upon which the paper may be placed and together with the fountain pen is all that need be in view.

The remaining parts may be concealed within a suitable case remote from the plate —1— except that the wire which is connected to the pen may be partially exposed when the pen is in use and must be sufficiently flexible to permit the pen to be handled in different positions.

What I claim is:

1. The combination with an alternating current generator and a transformer, of a normally open electric circuit connected to the secondary winding of the transformer and including therein a vibrating spark coil and a bed-plate of electric conducting material in series with the primary winding of the spark coil, said plate constituting a switch member for closing said circuit, and a writing instrument of electric conducting material electrically connected to the secondary circuit of the spark coil to cooperate with said plate for perforating purposes.

2. The combination with an alternating current generator and a transformer, of a normally open electric circuit connected to the secondary winding of the transformer and including therein a vibrating spark coil and a bed-plate of electric conducting material in series with the primary winding of the spark coil, said plate constituting a switch member for closing said circuit, a writing instrument of electric conducting material electrically connected to the secondary circuit of the spark coil to cooperate with said plate for perforating purposes, and adjustable means in the secondary circuit of the spark coil in series with the writing instrument for varying the intensity of the perforating current.

3. In an electric perforator appliance of the character described, a bed-plate of electric conducting material having a smooth unbroken surface of the same material for supporting the sheets to be operated upon, a writing instrument of electric conducting material cooperating with the plate for perforating purposes, and means for supplying current energy to said plate and writing instrument including a normally open electric switch of which the plate constitutes one member.

In witness whereof I have hereunto set my hand this 17th day of March, 1919.

RALPH R. CONE.

Witnesses:
H. E. CHASE,
ANNA G. JORDAN.