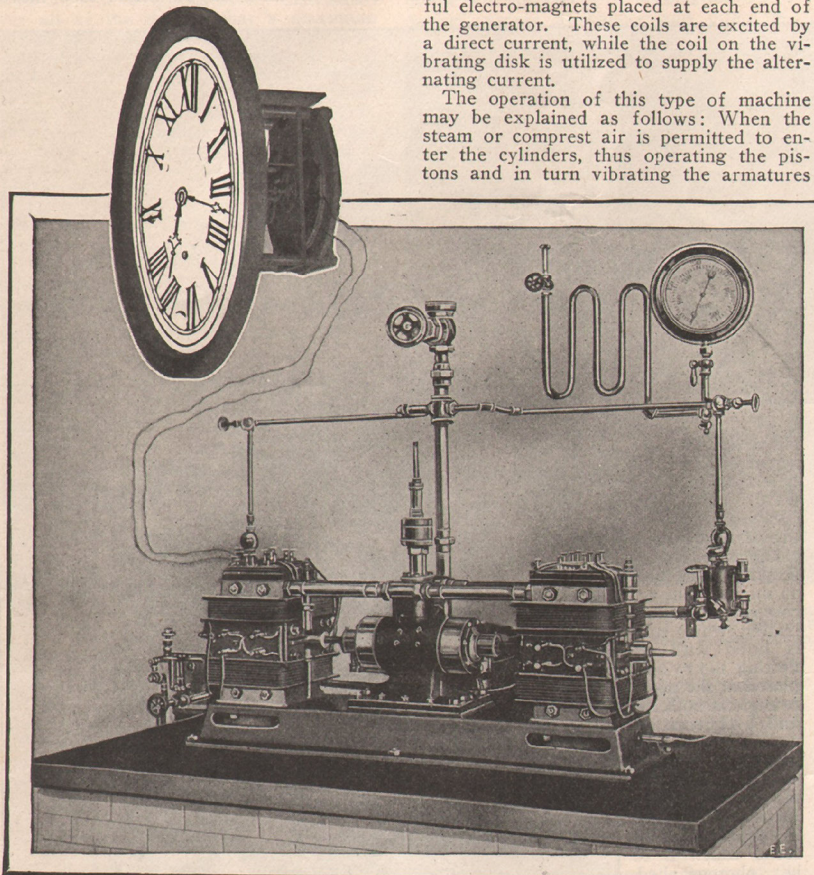


## A Novel Tesla Steam-Electric Clock

Among the various wonderful inventions of Dr. Nikola Tesla we find one of the most interesting clocks ever made, and the accompanying photographs show the neces-

coil is placed on each membrane and connected to a special commutator. The electro-magnet or coil is operated in a powerful magnetic field, made up of two powerful electro-magnets placed at each end of the generator. These coils are excited by a direct current, while the coil on the vibrating disk is utilized to supply the alternating current.

The operation of this type of machine may be explained as follows: When the steam or compressed air is permitted to enter the cylinders, thus operating the pistons and in turn vibrating the armatures



A Steam-Electric Clock Devised Some Years Ago by Dr. Nikola Tesla, the Electrical Wizard. It Comprises an Air or Steam Engine Which Operates Two Special Oscillating Alternators. These Are Wired Up to a Special Motor on the Clock—the Entire Combination Keeping Extremely Accurate Time. It Is Said.

sary equipment for this highly ingenious and novel electric clock.

The clock proper, shown above, is apparently no different from any other standard clock. However, the mechanical movement has been removed and substituted by another special movement linked up with an alternating current motor of special construction which can be seen at the extreme right of the clock. The field consists of a number of rectangular coils placed in torroidal form and connected in series. The rotor or armature is constructed of a circular iron disc, the periphery of which consists of a large number of poles. The speed of this rotor is controlled by the current input. Connections between the rotor shaft and that of the clock hands is obtained by means of a number of reduction gears properly calculated so as to obtain the correct time, when the hands are acted upon by the motor.

The source of current for driving this remarkable electric clock motor is obtained from an alternating current generator of very unique construction and design, this machine being illustrated here. It consists of two steam or compressed air cylinders, built in one frame as shown. A piston is placed in each of the cylinders which operate alternately with respect to each other. The connecting rods of each piston are linked with a vibrating membrane of each dynamo; these are seen at each end. A

or coils, an electro-motive force is induced in the coil by virtue of being moved in the magnetic field surrounding it. The period or frequency of vibration of this current depends upon the rapidity of the armature movement. Both generators are linked in such a manner that an alternating current of uniform form and periodicity is obtained.

The motor on the clock is connected with this special generator and the current is so adjusted that a uniform velocity of the rotor is always obtained in order to obtain absolutely correct time from the clock.

A large number of such clocks were installed in the laboratory of Dr. Nikola Tesla a number of years ago which are driven by a single generating unit. It is said that the accuracy of time attained by this ingenious clock system is far better than with any other system known.

### AN ELECTRIC "PROD" FOR ANIMALS.

The *electric prod* is the successor of the big bull-whip which at one time was so generally made use of by men who had horses and cattle in their charge. The general activity of the societies for the prevention of cruelty to animals with its organization all over the country, has been the means of putting the ugly old bull-whip out of business, for at the present time, it is a rare thing to see them even

### PROF. CLERK MAXWELL A POET THIRTY-SEVEN YEARS AGO.

The late Prof. Clerk Maxwell was in the habit of recreating his mind from the severer tasks by penning amusing physics comic parodies of well-known poems. One of the best of these was his electric valentine, which runs as follows:—

ELECTRIC VALENTINE.

*Telegraph Clerk A to Telegraph Clerk B*  
"The tendrils of my soul are twined

With thine, though many a mile apart;  
And thine in close-coiled circuits wind  
Around the magnet of my heart.

"Constant as Daniell, strong as Grove;  
Seething thru all its depths, like Smee;  
My heart pours forth its tide of love,  
And all its circuits close in thee.

"O tell me, when along the line  
From my full heart the message flows,  
What currents are induced in thine?"

One click from thee will end my woes.

Thru many an Ohm the Weber flew  
And clicked this answer back to me—  
"I am thy farad, staunch and true,  
Charged to a Volt with love for thee."

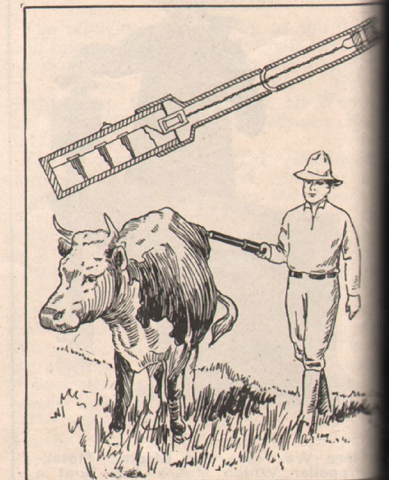
The inscrutable signature  $\frac{dp}{dt}$  is adopted

from the fundamental equation of thermodynamics  $\frac{dp}{dt} = J.C.M.$  (James Clerk Maxwell).

This explanation reminds us of the famous colleague physicists, Thomson and Tait, are familiarly known to their students as T. and T., nicknames also drawn from the jargon of thermodynamics. *Electrician, London.*

in the establishments devoted to the sale of harness and such things.

The electric animal prod has just been patented by a resident of Fort Worth, Texas, which has recently developed into a large cattle center, and the prime object of the prod is to hasten the movement of the cattle being past thru the abattoirs of that place. The prod is an elongated body with several batteries and an electric coil concealed in the handle. At the other end of the device are two contact points, spaced a small distance from each other. When this end of the appa-



When "Bossle" Becomes Unruly It's Easy Matter to Hustle Her Along with This New "Electric Shocking Prod."

ratus is applied to the body of the animal the circuit is established between the contact points and the animal experiences an electric shock.