

conductor. First, by mutual induction in which two separate coiled conductors placed near each other, one of them having a current flowing through it supplied from some electric source; this coil is called the primary or exciting coil. The magnetic circuit produced by the current in the primary, sur-

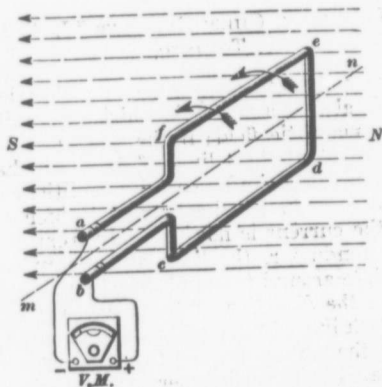


FIG. 1

rounds and threads through the other or secondary coil. If there is any sudden change in the strength of the current flowing in the primary, it will also cause a like change in the number of lines of force in the magnetic field, which passes through both coils. The sudden changes in the number of lines of force passing through the secondary coil induces an E. M. F., which tends to send a current through the coil. If the effect of the action is to diminish the number of lines of force that pass through the coil, the current will circulate around the coil in a right-hand direction, as viewed by a person looking along the magnetic field in the direction of the lines of force, but if the effect is to increase the number of lines of force that pass through the coil the current will circulate around the coil in the opposite direction.

Second, by self-induction, which is due to changes in the number of lines of force caused by the sudden changes in the current flowing in the coil, as for example, the action in the primary coil. If the strength of the current remains constant there would be no change in the number of lines of force passing through the coil, but if the strength of the current suddenly increases it will induce an E. M. F., which opposes the