

lowering Tube P. If it is necessary to stir a viscous liquid a metronome is useless because, making contact only momentarily, the stirrer would not have time to start moving. Suppose for instance that for a definite current it requires 10 seconds for the magnet to draw the stirrer up the proper distance and 20 seconds for the stirrer to drop back again due to its own weight. The natural period of the stirrer is then 30 seconds and the control is first of all regulated by means of Tap 2 leading to the suction pump to give this period, *i. e.*, go through a complete cycle every half minute. Then Rod P is adjusted so that S is below level *c* about a third of the distance between levels *e* and *g*. Then the current will be on one-third of the time, *i. e.*, 10 seconds, and off two-thirds of the time, *i. e.*, 20 seconds. Another advantage is to be found in the fact that where large currents, say 10 amperes under a voltage of 110 or more volts, are used no relay is required. At the moment of break there is a small spark between the mercury left in cup S and the column of mercury moving downwards. But this spark occurs in the water which, as was mentioned above covers the mercury in O, and the only effect is that in time a minute amount of mercury becomes colloidal; this colloidal mercury is reabsorbed and does not accumulate. An apparatus as described above was in continuous use for several months without requiring any readjustment or addition of fresh mercury.

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