

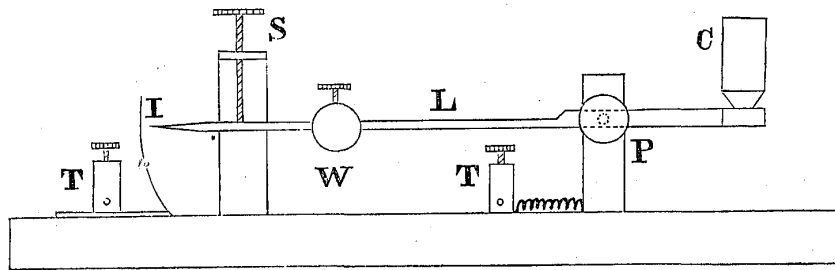
## A Mechanical Starter.

BY

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A short description of my *mechanical starter* may conveniently be given here. It is useful both as a starter and an avoider of shunt in our seismic triangulation circuit.



(Scale:  $\frac{1}{2.5}$ )

A lever L is pivoted at P, the weight W acting as a counterpoise when a small cylindrical weight C is mounted at the end of the shorter arm of the lever. The weight C is, for facilitating its overturning, provided with a conical base, whose flattened end is about 2 mm. in diameter. As an avoider of shunt, both ends of our telegraphic line were connected to the two terminals T T respectively, so that the circuit, which is open in ordinary time, is closed in the case of an earthquake at the sharp end of the lever when the weight falls down. The level of the lever is adjusted by means of a scale I and a screw S.

The ordinary pendulum starter now much in use requires some improvements. Thus, for instance, its sensibility can not be altered. Again by the variation of air temperature the lower end of the needle

is driven into contact with the mercury, which of course starts the seismograph.

The *mechanical starter*, however, is free from the defects as referred to above. By changing the level of the lever, we can alter the sensibility of the starter ; while the apparatus is affected very little from the variation of temperature. We can, moreover, eliminate the use of electric cells,\* which are connected with ordinary seismographs, if we use the arms of the lever to disengage the key of the clockwork as it falls from its position.

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\* As already done in some strong motion seismographs.