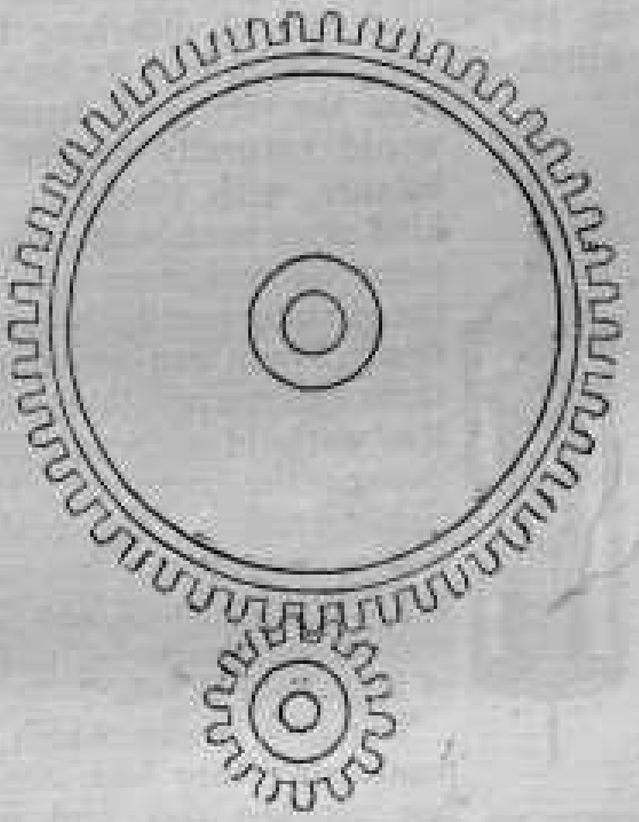
THE COTTAGE HOME.

CHAPTER V.

JOHN HARRISON AND CHRONOMETERS.

An accurate measurement of time is essential to the proper discharge of the business of civilized life. Among a people emerging from barbarism solely occupied in pastoral pursuits, the observations of the Sun might suffice for all their calculations, but it is a very different thing when time is money. We need not enter on the subject of time measurement among the ancient nations; sun-dials were introduced at an early period. We read for example in the Scripture of the dial of Ahaz: the Egyptian sages are said to have invented the clapoydon or water clock, and Julius Cæsar is said to have found it in use among our ancient British forefathers; Alfred the Great invented candle clocks, by burning candles marked with the hours and placed in horn lanterns; sand-glasses were also used, and in the Middle Ages were found in nearly all respectable houses.

The invention of the mechanical apparatus for the measurement of time was a desideratum. But the original inventor of clocks is unknown. "Nothing satisfactory," says a writer on this subject, "is furnished by the old chroniclers till the days of Charlemagne, when the French historians describe a clock sent to that monarch by the ever memorable Haroun al Raschid, the caliph of the East. This clock is said to have sounded the hour by the falling of a brass ball upon a bell. It had also the figures of twelve horsemen, who came out at different doors in number answering to the hours. This curious piece of mechanism was welcomed in France as a wondrous triumph of art. Ancient clocks were all more or less connected with ingenious mechanical contrivances of the toy kind, and were on this account more highly esteemed than for their real utility. The first clock at Bologna was fixed up in 1356. Henry de Wyack, German artist, erected a clock in the Imperial palace of Genoa, about 1364. A clock is mentioned by Dante, in 1321. One is said to have been erected at Canterbury, in 1292; and another at Westminster, in 1288. Chaucer has an allusion to clocks; and there is mention made in Rymer's 'Fœdera' of protection being given by Edward III. to three clockmakers from Holland, who were invited from Delft into England, in 1368. These isolated facts and dates serve, when brought together, to show that wheel-clocks were begin-



CLOCK WHEELS.

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