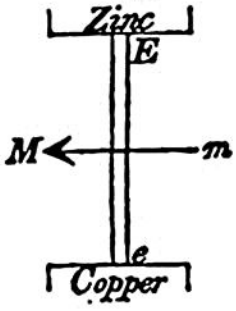
with heat and light, is evident; but at present we decline to give a decided opinion on the nature of the connexion.

We come now to enquire into the relations of electricity and of magnetism to one another—a discovery which we owe to Oersted, and one of the most important that has been made in the present age. The following is a summary of Oersted's discovery. Let us suppose, in the annexed figure, *E e*, to represent the wire connecting the zinc and the copper terminating plates of a common galvanic battery in action. From what has been said, it may be conceived, that under these circumstances, there will be two currents *moving* through this wire in opposite directions; (from the copper to the zinc, usually called *positive* electricity; and from the zinc to the copper, usually termed *negative* electricity.* Now in this state of things, it has been satisfactorily established by experiment, that besides these two currents, there are two others having totally different properties, indeed all the properties of the magnetic ener-

Fig. 7.



* The reader will observe, that the above observations apply to a wire connecting the terminating plates of a *common galvanic battery*; which plates are in reality superfluous. Hence the currents and polarities here given, are just the reverse of those which actually exist, in a wire connecting the zinc and copper in a simple galvanic circle. We have thought it proper to notice this circumstance, to prevent misconception.