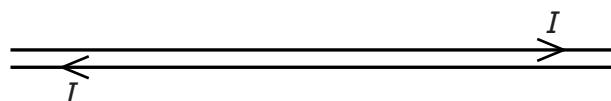


6 Suggest an explanation for each of the following observations.

- (a) Two wires are laid side-by-side and carry equal currents  $I$  in opposite directions, as shown in Fig. 6.1.



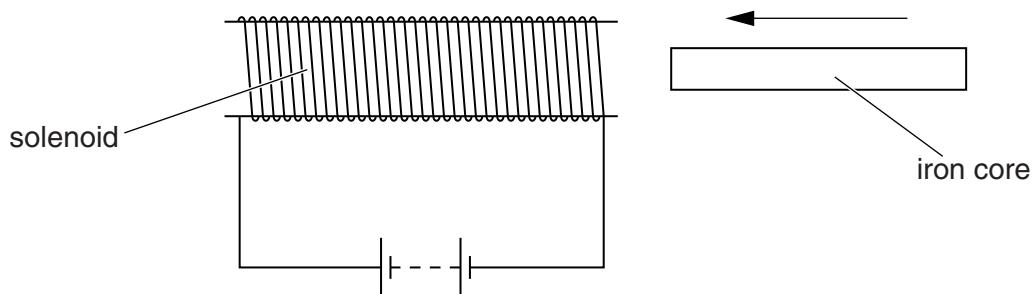
**Fig. 6.1**

The total magnetic flux density due to the current in the wires is negligible.

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[3]

- (b) An air-cored solenoid is connected in series with a battery, as shown in Fig. 6.2.



**Fig. 6.2**

As an iron core is inserted into the solenoid, an e.m.f. that opposes the e.m.f. of the battery is induced in the solenoid.

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[4]