Electricity with the Modular System

Model of an electric bell

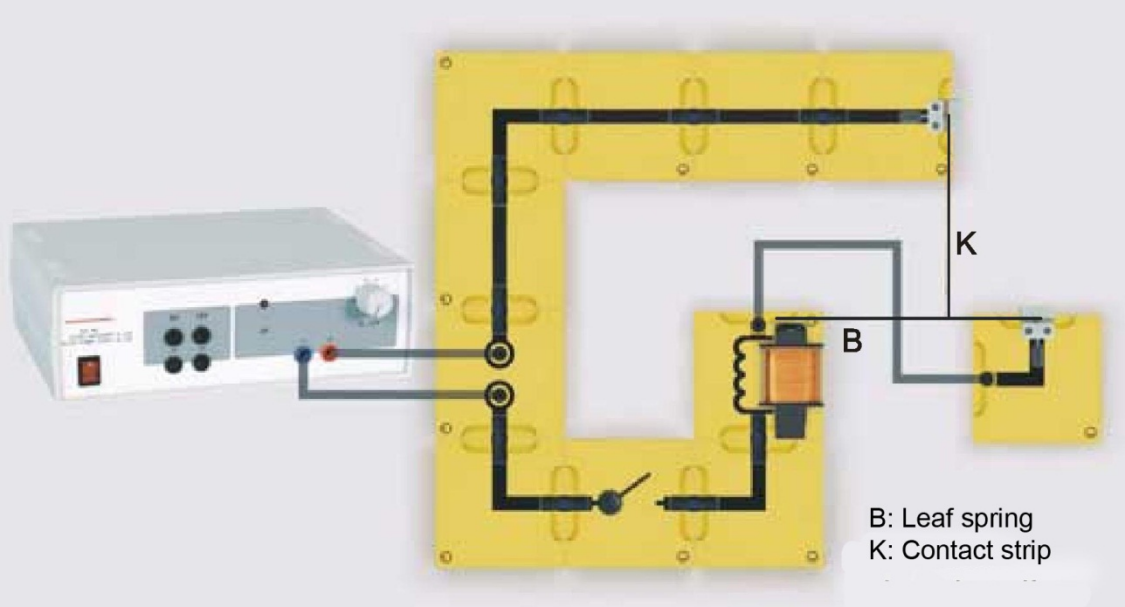
Electromagnetism and Induction

Applications of electromagnetism

Objective of the experiment

To demonstrate the layout and working principle of an electric bell.

Setup



Apparatus

1	539 052	Coil holder, BST
1	590 83	Coil, STE, 500 turns
1	593 21	Transformer core, demountable
1	539 025	Toggle switch, BST
2	539 060	Adapter plug, BST
1	539 061	Contact strip, BST
1	539 064	Leaf spring, BST
4	539 001	Connector blocks BST, straight
1	539 003	Connector block BST, straight, 2 sockets
4	539 004	Connector blocks BST, 90° angle
9	539 000	Bridging plug, BST
1	521 49	Power supply, 12 V DC, 230 V
1	500 624	Safety connection lead, 50 cm
2	500 644	Safety connection lead, 100 cm
1	301 300	Demonstration experiment frame
1	301 301	Adhesive magnetic board

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Carrying out the experiment

- Set up the circuit and apply a voltage of 12 V (DC). Place the iron core into the coil so that it lies about 0.5 cm from the leaf spring.
- Close the toggle switch and observe what happens between the leaf spring and the iron core as well as between the leaf spring and the contact strip.

Observation

After closing the switch, the leaf spring is initially attracted to the iron core, but then returns to its initial position. The process repeats as long as the toggle switch is closed.

Evaluation

A self-interrupting circuit (also known as Wagner's hammer) is used to operate an electric bell.

After closing the circuit with a switch (bell button), a leaf spring is attracted by the iron-cored coil.

The contact strip opens the coil circuit and the leaf spring falls back to its initial position.

As a result, the coil circuit is closed again and the process starts anew.

Note:

If the leaf spring is equipped with a tongue that beats against a bell on the up and down movements, the familiar ringing sound results.