

Experiment No. 1 – Study of Apparatus

1. Break shock is stronger. Why?

Ans:-

Break shock is stronger because the sudden collapse of the magnetic field induces a larger EMF in the secondary coil, producing a stronger stimulus than at make.

Explanation

- In an induction coil, when the **primary circuit is broken**, the **current in the primary coil suddenly falls to zero**.
- This produces a **rapid collapse of the magnetic field**
- The **rapid change** in magnetic flux induces a **large EMF** in the secondary coil → producing a **stronger induced current** → therefore a **stronger shock**.

2. What is advantage of break shock?

Ans:-

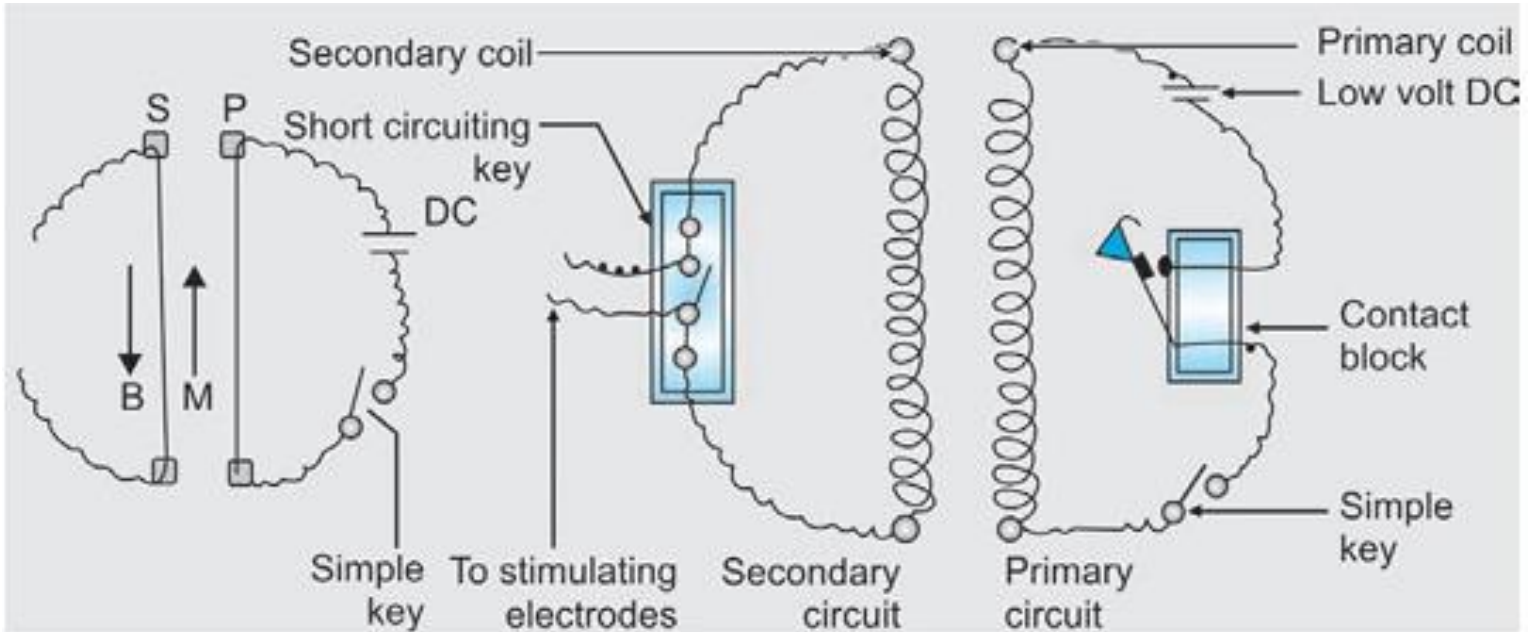
Break shock is stronger and more effective for stimulating nerves and muscles because the sudden collapse of current in the primary coil produces a larger induced EMF in the secondary coil.

Why this is useful:

- Ensures **reliable stimulation** even when tissue excitability is low.
- Allows the use of **lower current strength** because break shock itself is strong.
- Gives a **clean, sharp stimulus**, which is ideal for eliciting clear muscle contractions.

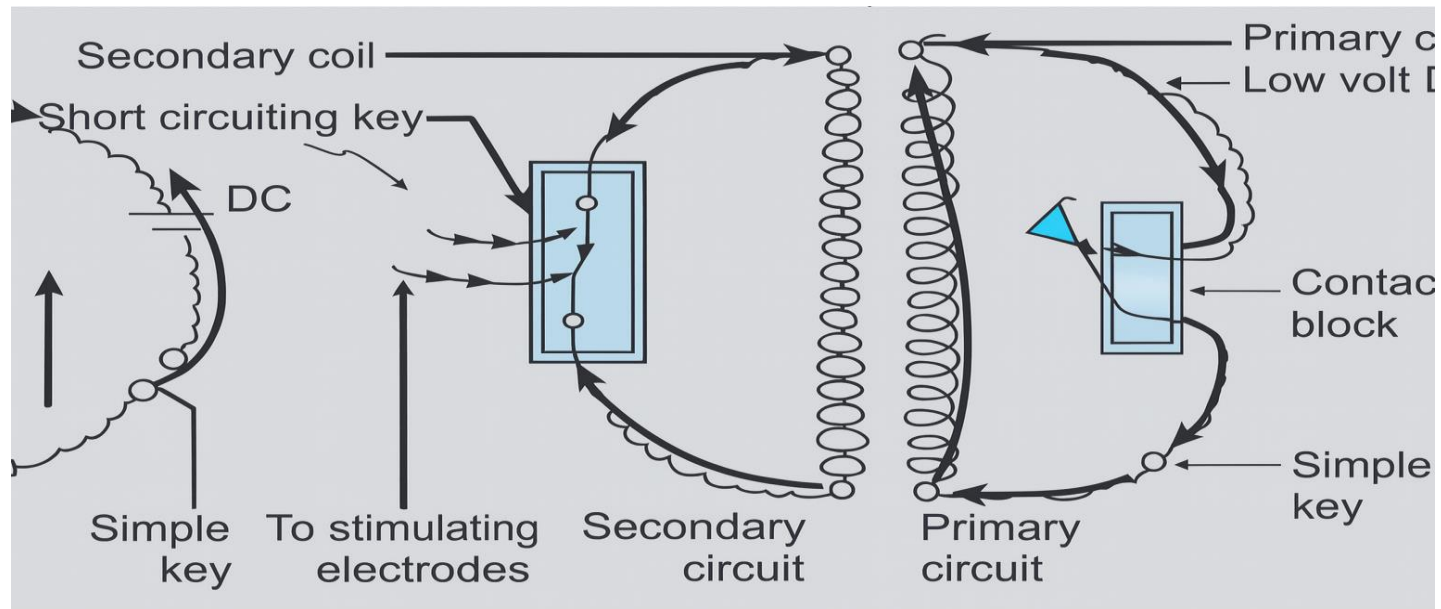
3. Draw a diagram of connection.

Ans:-



4. Draw a diagram of the connections and show by an arrow the path of the current.

Ans:-



5. What is the use of Neef's hammer connection?

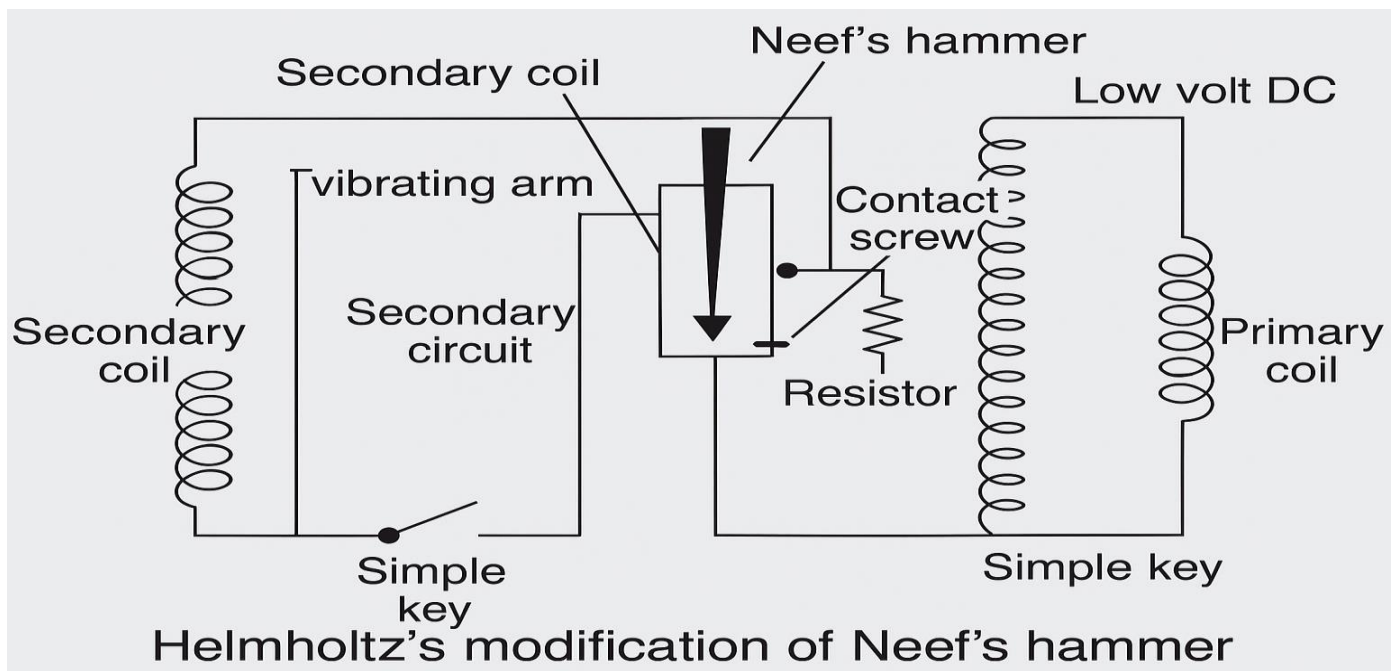
Ans:- Neef's hammer is used to produce rapid interruptions in the primary circuit, generating a series of induced shocks for tetanizing stimulation.

Why we need this?

- A continuous DC current **cannot repeatedly stimulate** nerve or muscle.
- The hammer automatically and rapidly opens and closes the primary circuit.
- This produces a **train of induced shocks** in the secondary coil.
- Useful for:
 - **Tetanic contraction** experiments
 - **Determining minimal tetanizing current**
 - **Physiological demonstrations requiring repeated stimuli**

6. Draw a diagram of Helmholtz's modification of Neef's Hammer connection.

Ans:-



7. Draw a diagram of Pendulum in circuit.

Ans:-

