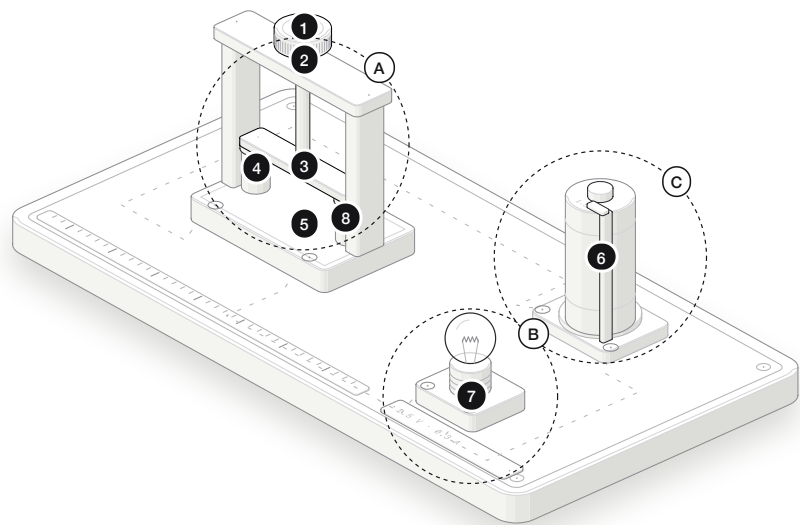


Push button

AN-003
A LOOP, A GAP AND A SPRING
HOW IT WORKS · 1 / 2



How does a button turn a light on?

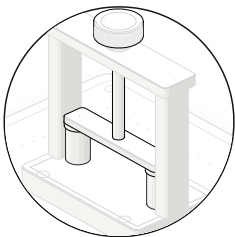
A battery can only push current round a closed loop. The button is a gap in that loop: a spring holds a copper bridge just above two contact posts. Press the cap and the bridge lands on both posts, the loop closes and the bulb lights. Let go and the spring opens the gap again.

1.5_V FROM THE CELL	0.30_A ROUND THE CLOSED LOOP
0.45_W IN THE BULB	7_{px} GAP THE BRIDGE CLOSES

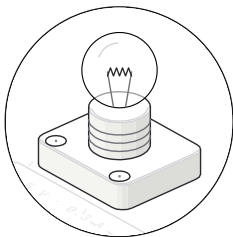
PARTS

- 01 Cap**
Where your finger pushes; it carries the plunger.
- 02 Return spring**
Holds the button open and lifts it when you let go.
- 03 Copper bridge**
Rides on the plunger and closes the gap between the posts.
- 04 Contact posts**
Two brass posts, one for each end of the gap.
- 05 Frame and base**
An insulating block and a frame that guides the plunger.
- 06 1.5 V cell**
Pushes current round the loop once it is closed.
- 07 Bulb**
Glowes when current runs through its thin filament.
- 08 Wires**
Carry current from the cell, through the button, to the bulb and back.

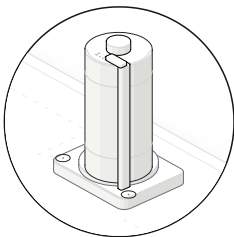
CLOSE-UPS



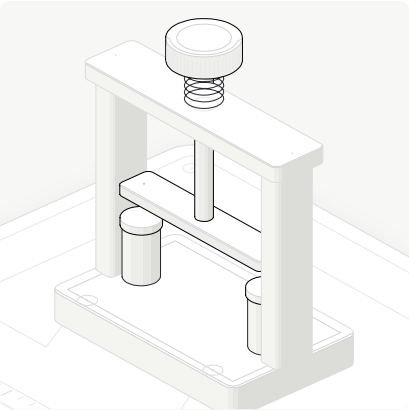
A The gap, closed
The bridge sits on both posts while you hold the cap down.



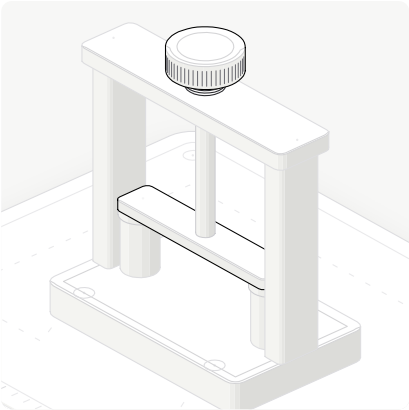
B The bulb
A thin filament in a glass globe, in a threaded socket.



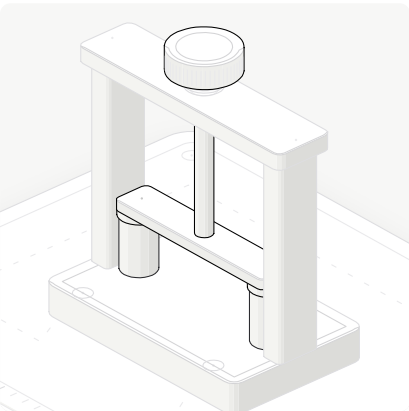
C The cell
A 1.5 V cell in a holder; a strap carries the top terminal down.



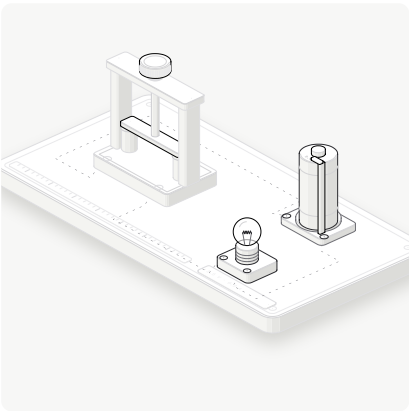
01
The loop is open
The spring holds the bridge 7 px above the posts, so there is a gap in the loop and no current flows.



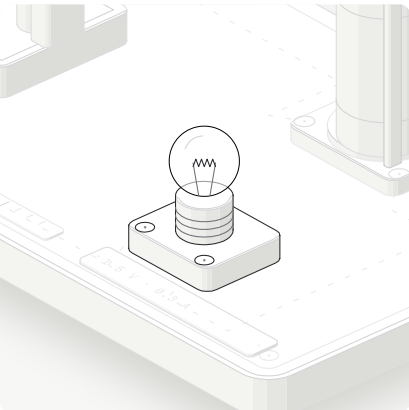
02
Press the cap
The cap pushes the plunger down and squeezes the spring.



03
The bridge lands
The copper bridge comes down onto both posts and closes the gap.



04
Current goes round
With the loop closed, 1.5 V pushes about 0.3 A from the cell, through the button and the bulb, and back.



05
The bulb lights
The current heats the bulb's thin filament until it glows: about 0.45 W.

WHY A SPRING?

The spring keeps the button open until you press it, and opens it again the moment you let go. That is a momentary switch, the kind in a doorbell. A light switch adds a latch so it stays where you leave it.

SPECIFICATION

Cell	1.5 V
Current	0.30 A when closed
Power	0.45 W

Travel	7 px to contact
Action	Momentary, spring return