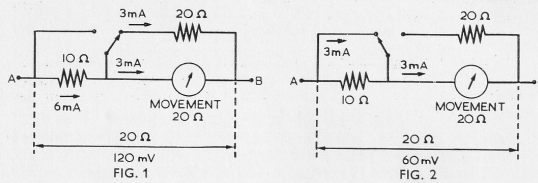


The $\div 2$ Button

The switch knobs are engraved with sectors enclosing ranges of voltage, current and resistance. In general, the successive ranges shown on the knobs have a 10:1 ratio but to provide intermediate ranges, a divide-by-two button is incorporated on the panel of the instrument, this being operative upon all current and voltage ranges.

To deal with mains voltage measurements, the 480-volt "a.c." and "d.c." ranges have been introduced, so that they and their associated 240-volt ranges (press button) may be employed for more accurate measurement of mains voltage.

The divide-by-two button is used when measuring current and voltage only, and serves to halve the value of any range shown on the switch knob. It should never be pressed if over half-scale deflection is being shown, since twice the length of pointer deflection as normally occurs, is produced on pressing the button. This divide-by-two button is therefore effective in producing the ranges marked with an asterisk on the table of ranges. For example, if the switch knobs are set to give the 0.012 A. d.c. range, pressing the button will transform it to one of 0.006 A. d.c. The greater simplicity in manufacture and wider coverage of ranges results from the use of the divide-by-two button in place of intermediate ranges on the switch knobs, but the circuit becomes more complex although the same tappings on the shunt, multiplier, or transformer provide two ranges in place of the normal one. Since this device also enables external current and voltage accessories to produce a double range effect, an explanation of its operation might be of assistance to the user.



The relevant portion of the circuit is shown in Figs. 1 and 2, this being connected on "d.c." in series with multiplier resistances for voltage measurements, or across a universal shunt for current measurement. It will be noticed that the effective resistance between points