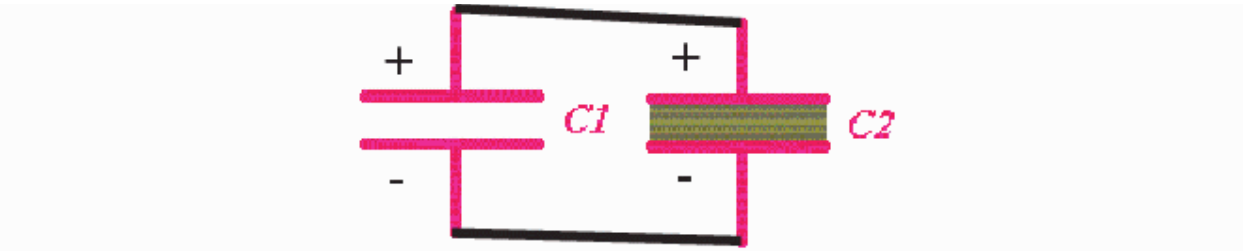
CheckPoint 4c

Two identical parallel plate capacitors are given the same charge Q, after which they are disconnected from the battery. After C_2 has been charged and disconnected, it is filled with a dielectric. **The two capacitors are now connected to each other by wires as shown. How will the charge redistribute itself, if at all?**



A. The charges will flow so that the charge on C_1 will become equal to the charge on C_2.

B. The charges will flow so that the energy stored in C_1 will become equal to the energy stored in C_2.

C. The charges will flow so that the potential difference across C_1 will become the same as the potential difference across C_2.

D. No charges will flow. The charge on the capacitors will remain what it was before they were connected.

V must be the same !!

Q: $\frac{Q_1}{C_1} = \frac{Q_2}{C_2} \Rightarrow Q_1 = \frac{C_1}{C_2} Q_2$

U: $U_1 = \frac{1}{2} C_1 V^2$, $U_2 = \frac{1}{2} C_2 V^2 \Rightarrow U_1 = \frac{C_1}{C_2} U_2$