Move overhead projector to rear of its rolling cart, and place in front of it the 40-amp rectifier with back of rectifier toward the projector. Place cart in front of lecture table, as far from table as possible and still keep it on level portion of floor, and project image on screen at front of room. With the Variac switch in the off position, set the rectifier switch at 6 volts and the Variac dial at 47. When the rectifier is turned on later, these settings will provide the desired current of 40 amp through either of the two specimens to be used. (See WARNING 1.)

Single Straight Wire: Place the single-wire mounting on the horizontal, lighted table of the projector, and focus the plexiglas plate on the screen. Using the two-conductor cable provided, connect the specimen to the rectifier. (See WARNING 2.) Turn on the Variac switch and sprinkle iron filings in the vicinity of the wire. Tap the plate gently to facilitate alignment of the filings. (See WARNING 1.)

Two Parallel Wires: Replace the single wire with the two parallel wires. Using the special single-conductor cable, in addition to the two-conductor cable, connect the two parallel wires in series so that the currents in the two will flow in opposite directions. Turn on the Variac switch and sprinkle iron filings in the vicinity of the wires. Tap the plate gently to facilitate alignment of the filings. (See WARNING 1.)

Reconnect the two parallel conductors so that the currents in the two will flow in the same direction and repeat the experiment, again using a current of 40 amp and observing both WARNINGS.

Note: There is provided a brush with which residual filings can be removed from the plate if desired.

WARNINGS: (1) The maximum allowable current is 40 amp, and even this should flow continuously for not more than approximately 30 seconds. This length of time is quite sufficient to sprinkle on the filings and tap the plate. (2) Because of the large current required, heavy connecting wires and good contacts are essential. Leaving one or both of the heavy, rectifier cables with clamps wound on the back of the rectifier, insert in these clamps the cylindrical terminals on the two-conductor cable. Connect the spade terminals to appropriate binding posts on the specimen, pushing the terminal as far as possible onto the binding post and tightening the post snugly. (For the two parallel wires, connect the remaining two binding posts with the special single-conductor cable having a spade terminal at either end.) After these connections are made, and having already set the rectifier switch at 6 volts and the Variac dial at 47, turn on the Variac switch momentarily to check that the current is approximately the desired 40 amperes.