

superintendent of construction for the Ottawa Electric Company, along with a representative of the City Engineer, conducted the experiments in Ottawa. Two Packard transformers, type F, made for 1,000 and 2,000 volts on the primaries, ratio of transformation of one to twenty, 125 cycles, were mounted on a sleigh and driven around where required. It was usually drawn up to the foot of the pole and primary wires carrying about 1,000 volts were brought down to the transformers by means of flexible wires. The transformers were worked in parallel and had the connections so made as to obtain a ratio of transformation of forty to one, so that about 25 volts were obtained on the secondary. With this arrangement it was found possible to do without the reactive coil and other means of regulations which had been used in the first trials, so that the pipe-thawing outfit consisted simply of the two transformers above referred to and an amperemeter which was inserted in the primary, there being no portable instrument with large enough range to put on the secondary; a voltmeter was connected across the secondary coils.

Following is the data of five trials which were made:

1st. Secondary volts 17, primary amperes 8. Connections made from water pipe 25 feet of $\frac{3}{8}$ " lead pipe to a hydrant at the door. Water flowed in three minutes and came out at full pressure in six minutes.

2nd. Secondary volts 21, primary amperes 5. Connections from water pipe in one house through about 100 feet $\frac{3}{8}$ " lead pipe and 16 feet 5" iron pipe to water tap in next house. One of the services only was frozen. Water flowed in eight minutes and with full pressure in ten minutes.

3rd. Secondary volts 22, primary amperes 9. Connections made to water tap inside and to iron main pipe in street, which was reached by opening a man-hole. Current passed through 25 feet $\frac{3}{8}$ " lead and 4 feet 5" iron main. Water flowed freely in two minutes.

4th. Secondary volts 23, primary amperes 7. Connections made from water tap in one house through about 60 feet $\frac{3}{8}$ " lead and 24 feet of 5" iron pipe to the water taps in next house. Water flowed in one minute and full pressure was on in 3 minutes.

5th. A lead pipe service between a residence and a stable being frozen, connection was made between the water taps in each place and water flowed freely in one

ed by Mr. Jones, Superintendent of Waterworks, by the aid of current and a transformer and 100 amperes capacity supplied by the Gas and Electric Co. Using a current of 52 volts, two frozen hydrants were thawed in 45 minutes.

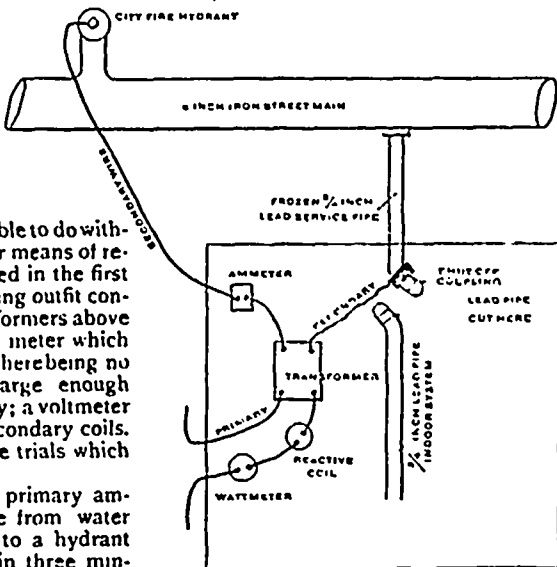
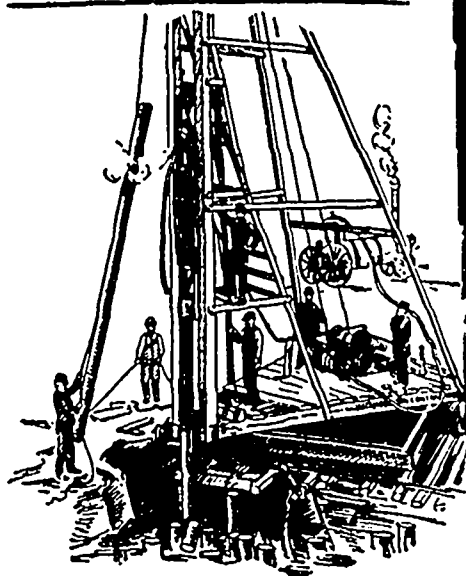


FIG. 2—APPARATUS FOR THAWING OUT WATER PIPES.

minute. No reading of current was taken in this last case.

By the time the pipes completely thawed out the water in some parts of them had become very hot. In some cases it was found impossible to get any current through at all. This was due to the style of the joints made in some of the main iron pipes where there was no electrical contact between the different lengths.

The experiment at Chatham, which was also entirely successful, was conducted



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