milliamperes. The timing of the indicator is accomplished as follows (refer to attached cut): full line shows straddle bug in normal position against stop pin "A." Dotted line shows straddle bug in extreme position against stop pin "B." Example: For one second between blows adjust thumb nuts "C" and "D" on pendulum until the time it takes the straddle bug to travel from normal position to the extreme position is 6¼ seconds. Strike two quick blows, taking the time of 6¼ seconds from the second blow until the straddle bug touches point "B." Should the time be different than one second, figure accordingly, say two seconds time, the straddle bug would take 12½ seconds, etc.

THE DIAPHONE

The diaphone is the most powerful air instrument known for producing sound, and is founded on an invention of Hope-Jones, the English organist. Its name is derived from two Greek words, *Dia*, through, and *Phonos*, sound. It was so named because the system by which the sound is produced is more efficient, and projects sound farther than any other at present known.

There is no other sound like that of the Diaphone. It has particular quality which makes it unrivaled as a distinctive signal. It therefore cannot be mistaken and will not be confused with steam whistles which might be used in its neighborhood. It gives a prompt, full tone from the beginning to the end of each blast.

It is always advisable to keep the air at a uniform temperature throughout the system to prevent condensation, and as the diaphone is located out of doors it is preferable to locate the storage reservoir in a place where the temperature is as near that of the diaphone as is convenient.

If, however, local conditions are such that it becomes necessary to locate the reservoir in a warm place, see that the control valve located near the diaphone is kept from freezing.

The air intake to the compressor should be located where it is clean and dry, and thirty feet of pipe installed between the compressor and reservoir for cooling the air.

The auxiliary tank should be located as near the horn as local conditions will permit.

The water that collects in the tank should be drained off once every two months. Same would apply to the large storage reservoir.

The pressure regulator is located between the large storage reservoir and the auxiliary tank, and when adjusted for use the gauge on the low pressure should read forty-five pounds.

This can be slightly varied either way to suit the tone of the diaphone.

The regulator should be installed vertically to allow for drainage and as near the auxiliary tank as practicable.

CONTROL VALVE

This valve should be located not more than eight feet from the diaphone and for the type "B" connected with 1½ in. pipe, and for the type "C" with 2 in. pipe.

The valve should not be installed in a place where it is subjected to low temperatures when moisture is present in the air. If this condition exists and the valve must be installed in a cold place, have it boxed in tight, the box to be lined with asbestos and heated with a heat coil during the cold weather.

It is very important to select a proper location for the diaphone in order to distribute the sound to the best advantage. Avoid high locations; fifty feet above where the sound is to be heard will suffice.

The diaphone should be placed in the open one or two feet above the roof.

In order to obtain the best results from the diaphone and insure that all the parts included in the equipment are in proper working order, there should be a competent man taught to become familiar with all its working parts. He should make a daily inspection of the plant and observe the following points:

See that the compressor has sufficient oil in the crank chamber (consult instruction book furnished with compressor).

Watch the governor, for the contact points are liable to corrode and stick, causing the motor to run continually and the safety valve to blow.

Note the pressure gauges and see if the proper pressure is being maintained.

Try to find out how often the compressor starts pumping when the air is not being used. If it pumps more often than one in twelve hours there is an excessive leak, which should be located and repaired.

Drain the water from the storage reservoir at each visit to the plant and from the auxiliary reservoir once a week.

During the freezing weather watch the check and control valves. If there is moisture in the air they should be kept heated to a temperature above the freezing point.

Take the piston out of the diaphone occasionally and wipe it off with an oily rag, also wipe out the cylinder.

Do not grind any of the valve seats with abrasive material. If a valve should start leaking it is caused by a foreign substance under the seat. To remedy this the valve stem should be removed and the valve and valve seat thoroughly cleaned with gasoline.

Become familiar with the operating valve, check valve, and governor. These parts collect oil which comes through the supply from the compressor. They should be cleaned at least once a year with gasoline. Be careful not to let any gasoline get into the compressed air.

The system should be tested once or twice a day by blowing one or two blasts from the diaphone. It is a good plan to blow one blast in the morning and one in the evening. This will also test the electric circuit.