of cylinders, and more recently at Omaha under similar conditions.

The apparatus is very simple, consisting merely of a piece of pipe and a through way cock extending into the air chamber.

Moreover, the objection of a very small air space to draw upon, as is the case in pneumatic cylinders, would not apply in a large caisson, which constitutes a large reservoir in itself, and would retard any rapid fall of pressure.

Another strong reason in favor of the air process was this: An air-chamber with an iron skin can be made practically air-tight, but a certain quantity of air must be thrown in per minute to keep the air fresh and fit to live in. This air would usually escape under the edges and do no work. Now, why not allow it to escape through pipes and at the same time carry out sand with it, and not be wasted? There was ample air-pump power, thirteen compressors having been provided, of which number four only were required to supply the leakage, but six to supply sufficient fresh air.

Any other mode, however, of sending out the material would require extensive provision of machinery in the shape of pumps, boilers, and pipes, entailing an additional cost of at least $40,000, and difficult of application for want of the required space around the foundation.

In view of these considerations, it was first determined to give the air system a thorough trial.

The result has been eminently satisfactory. At a depth of sixty feet sand was discharged through a three and one-half inch pipe continuously for half an hour at the rate of one yard in two minutes. This represents the labor of fourteen men standing in a circle around the pipe and shoveling as fast as their strength would permit. At this depth the supply of air was sufficient to supply three pipes at a time. This may appear a small number compared with the whole number of pipes, but yet was enough to keep at least sixty men busy.