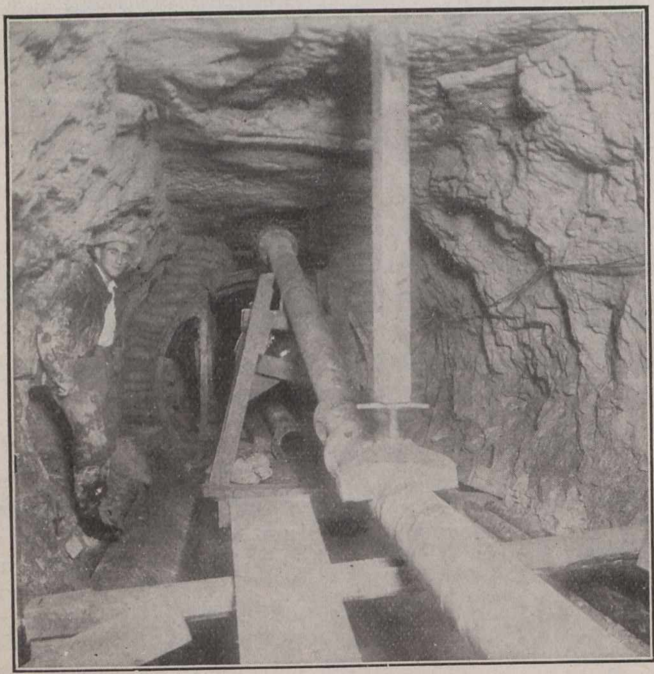
The long 6-in. air line contained two storage tanks of 50 and 160 cu. ft. capacity, the larger being placed at the compressor. The material-handling plant was designed for speed in pouring, the bins being of large capacity, and valves and levers easily operated. The pipe conveying the concrete to the retaining walls ran to the foot of the forms at the nearer end, rose 37 feet, and was continued along the top of the forms to the far end. At any point an elbow could be bolted on allowing the concrete to be poured in the forms at any point along the line. The concrete was allowed to drop directly into the forms, or a "bootleg" was connected to the elbow to assist the spreading over a large area. The same system was employed on the 300-ft. dam, which was poured in 42-ft. sections and in three vertical lifts of 15, 30 and 37 feet. The longest shot on the job was 600 feet and the greatest height to which the concrete was raised was about 40 feet. The average operating crew numbered eight laborers. An

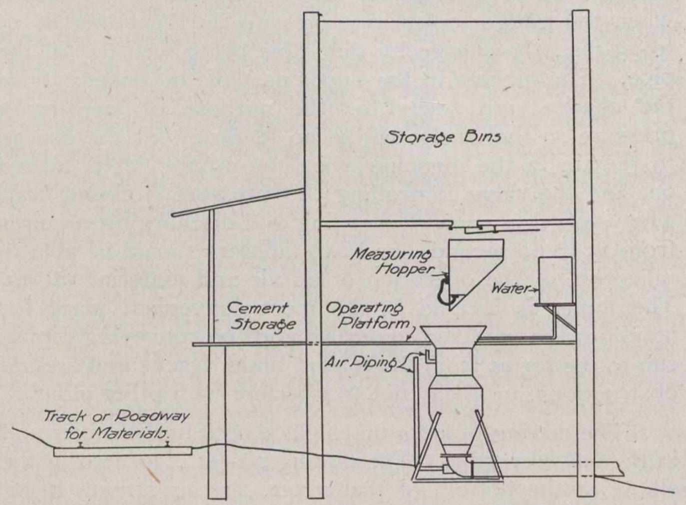


Example of Tunnel Lining Being Poured by Compressed Air.

average daily pouring speed of 250 cubic yards was maintained, the plant operation being independent of the weather conditions.

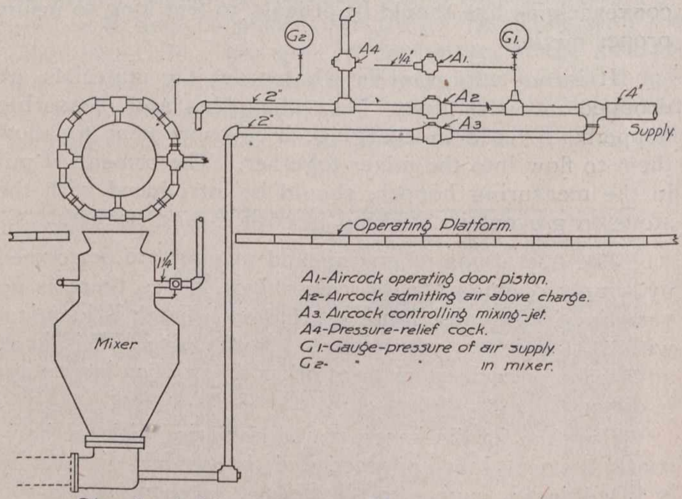
One of our illustrations shows a set-up in which the bins were filled from the adjacent gravel pile by scrapers. Here the mixer was set in a hole deep enough to bring the top of the bin on a level with the bank, and the scraper teams dumped the gravel on a screen of rails over the bins. This job is a typical application of the pneumatic method to reinforced concrete bridge construction. From the bank of the river the conveyer pipe rose on a slope of 45 degrees to a level about 20 feet above the mixer and was extended along the forms from arch to arch as each was poured. During the pouring of the piers and haunches of the arches, the concrete was discharged into a wooden box, and was then distributed by gravity chutes. With a conveyer pipe 500 feet long the speed of pouring was 30 yards per hour, an arch of 500 cu. yds. being poured in 17½ hours. The compressor plant was installed in two electrically driven units, each of 400 c.f.m. rated capacity.

The extreme convenience of the conveyer pipe for delivering the concrete is shown at its best in the usually difficult and slow work of lining tunnels. Pneumatic pouring was recently employed in lining an 8-ft. tunnel 2,800 ft. long, for the St. Louis waterworks at Chain-of-Rocks, Mo. The mixer was set up at the bottom of the shaft and the material was dropped through a pipe to the



Typical Concrete Plant for Mass Work With Pneumatic Mixer.

mixer from a measuring hopper at the surface. In filling the 36-ft. form, which was used, an 18-ft. length of pipe was inserted over the top of the form and this position was held until the rear half of the form was filled. The pipe was then withdrawn and the remaining portion of the lining was poured from the front end of the form. There was no difficulty in shooting 1,100 feet, with the air supply pressure of 95 lbs. per sq. in. The air line was run down the shaft to the mixer from the surface. The crew numbered 10 men, 6 of that number being at the surface handling material and the others below engaged as follows: 1 man operating mixer; 2 men at discharge end of the pipe, building sand-bag bulkheads; 1 foreman.



Standard Air-piping for Mixer and Conveyer.

The tunnel lining averaged about one cubic yard of concrete to the lineal foot. Records are available for some parts of this work showing that in one week, with the crew as given, in 34 hours of working time 435 cu. yds. of lining was mixed and placed at an average distance of 600 feet. This appears to be an extraordinary record