

the feeding and discharge through the hose was continuous and uniform.

The feeding mechanism was operated by a paper wheel and friction disk controlled by a lever. The dry mixture passed through the feed wheel into the hose and was then picked up by air directly from the compressor and forced through the hose. The hose used was a 2-in. steam hose.

In the accompanying table is given an itemized statement of costs:

Table Showing Cost of Stuccoing 631 Square Yards of Surface With Cement Gun.

	Cost.	Cost per sq. yd.
Material for lathing:		
Cheese cloth, 631 sq. yd. at \$0.035	\$22.09	
Building paper, 56.8 squares at	0.30	17.04
Wire, 631 sq. yd. at.....	0.1278	80.64
Lath, 500 sq. yd. at.....	5.25M	2.63
Nails, 10 lb. at	0.04	0.40
Staples, 200 lb. at	0.0425	8.50
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	\$131.30	\$0.2081
Labor for lathing:		
Carpenters..... 16 hrs. at \$0.5625	\$ 9.00	
Carpenters..... 59 " " 0.50	29.50	
Carpenter helpers...144 " " 0.375	54.00	
Laborers..... 33 " " 0.218	7.22	
Laborers, Mexican.. 41.5 " " 0.156	6.49	
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	\$106.21	\$0.1683
Total for lathing	\$237.51	\$0.3764
Material for plastering:		
Portland cement, 65 bbl. at...\$3.43	\$222.95	
Sand (at site)		
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	\$222.95	\$0.3533
Labor for plastering:		
Nozzleman 96 hrs. at \$0.5625	\$54.00	
Engineer100 " " 0.375	37.50	
Laborers, mixing..212 " " 0.156	33.13	
Laborers on wall..156 " " 0.166	26.00	
Laborer (hose) ... 59 " " 0.218	12.94	
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	\$163.57	\$0.2592
Fuel:		
Gasoline, 97.5 gal. at	\$0.22	\$21.45
Lubricants.....		4.90
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	\$ 26.35	\$0.0418
Total for plastering	\$412.87	\$0.6543
Total	\$650.38	\$1.0307

Time: 12 days.

AVERAGE: 52.51 sq. yd. per day.

The resulting cost per square yard appears rather high, but it must be remembered that the stucco is 1¼ in. thick (the average thickness is somewhat more owing to the stretching of the cloth between studding), the cement is high in cost, and efficient labor difficult to secure. The nozzleman was an experienced man, but all other labor was unfamiliar with the work.

As the building covered was relatively small and badly cut up by openings, the results given above are perhaps not quite fair to the "cement gun" as too much time was lost in moving the hose lines and the consequent starting and

stopping, which has a tendency toward clogging the feed hose. Time was also lost by the wearing out of the feed hose about a foot from the hopper, due, apparently, to a whirling motion of the sand as it came from the hopper.

As has been stated, the gun was placed in a recess in the rear of the building so that the entire job was done without moving the plant. Fifty feet of hose was used and all parts were reached by running through window and door openings.

On the whole the apparatus is considered a success, certainly so if used on comparatively large surfaces where little changing of position is required. The quality of stucco secured is the principal argument in its favor.

OUR RAIL MILLS CAN HANDLE THE BUSINESS.

A despatch from Ottawa stated that importations of rails from the United States have been heavy and that Canadian mills could not cope with the demand. Mr. J. H. Plummer, president of the Dominion Steel and Coal Corporation, thinks otherwise. Interviewed at Sydney, he admitted an increased demand, but stated that if it had come to stay, the mills are well on the way to take care of it. It is not clear that the demand is permanent, he thinks. "There is a factor in the case naturally not known to the public. Rail contracts are made each fall for the whole of next season's requirements. The steel companies then proceed to make contracts for the balance of their output of steel. The present shortage represents demands which the railways did not foresee last fall, and it is useless to blame the rail mills. They could not afford to enter on the season's business with any considerable amount of steel unsold, and would be unable to take large extra orders for rails whatever their rail mill capacity might be.

"It is true that we are passing through a period of active railway building but that has been our condition for some years. The present output of 4,000,000 tons would lay over 3,000 miles of railway, and even in these days that represents great growth. In any case, so far from the steel companies being held up as having failed to keep pace with the requirements of the country, they are entitled to credit for having in the face of enormous and sudden growth in the demand for rails, been able to supply 90 per cent. of the consumption."

DIESEL OIL LOCOMOTIVE.

Much attention has lately been paid to the possibilities of the Diesel oil engine. So far it has not been used for locomotive purposes on road or rail, but, as was announced a few weeks ago. Dr. Diesel is at work with Messrs. Sulzer Brothers, at Winterthur, and Herr Adolph Klose, of Berlin, on a 1,000 to 1,200 h.p. Diesel locomotive. Steam locomotives have, of course, been made of much larger sizes, and the above engine will not, therefore, improve on its immediate predecessors in this respect, but it may be expected to show very large economies in fuel consumption. The Diesel engine proposed for this work is of the two-stroke cycle, four-cylinder type, having its cylinders arranged in pairs at an angle of 90 deg. The engine is directly geared to the driving wheels, and does not transform its power electrically. An auxiliary engine drives air pumps for giving increased torque when starting or when climbing a grade. The whole is expected to weigh about 85 tons. It will be seen that this locomotive gives the most direct form of challenge to the steam locomotive.