

**NATIONAL STANDARD HOSE COUPLINGS AND FITTINGS
FOR PUBLIC FIRE SERVICE.***

By P. L. Wormeley.

1. The movement for the adoption of standard fire hose couplings dates from the great Boston fire of 1872, which showed the impossibility of the fire departments of adjacent towns acting in unison when provided with the diverse sizes of hose fittings then prevailing.

2. The matter was taken up at the first Convention of Fire Engineers, in 1873, and was discussed at various conventions in succeeding years. The resolutions gradually became more definite, although little was accomplished toward bringing about the desired changes until the agitation received a new impetus from the Baltimore fire in 1904, when neither the Washington, Philadelphia, nor New York fire engines, on their arrival, could make connection with the local fire hydrants.

3. This condition led the Merchants and Miners Transportation Company, in April, 1904, to request the Secretary of the Department of Commerce and Labor to investigate the subject of fire hose couplings. The Secretary referred the matter to the Bureau of Standards, and, in the investigation which followed, it was found that there was a great diversity in sizes and threads of couplings throughout the United States. It was evident that considerable expense would be involved in changing from one standard to another, and therefore, at the conference of the committees of the National Fire Protection Association and American Water Works Association, held in New York City, April 24, 1905, the Bureau of Standards proposed the adoption either of the thread which could be shown to be most extensively used, or that thread which possessed the greatest advantages in other respects. Following the latter course, the conference resolved that $7\frac{1}{2}$ threads per inch should be recommended for $2\frac{1}{2}$ -inch fire hose couplings. This thread was not regarded as an ideal standard, but was considered the most practicable basis for unification under prevailing conditions.

4. At the annual convention of the International Association of Fire Engineers, at Duluth, in 1905, this standard was adopted after lengthy discussion, and at Dallas, in 1906, the convention reaffirmed the action taken at Duluth, and made its record complete

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by adopting the National Standard Specifications covering couplings of 3 and 3½ inches inside diameter, each to have 6 threads to the inch, and a 4½-inch coupling having 4 threads to the inch.

5. Since then a dozen large organizations have adopted the national standard. The report of the committee of the American Society of Mechanical Engineers, adopted December 3, 1913, treats its present status in a very clear and comprehensive manner, with suggestions for converting non-standard couplings for serviceable interchange with the national standard. Up to 1913 the national standard had been put into service in 73 cities or towns, either as new equipment or by adaptation of non-standard couplings to interchange with the standard.

STANDARDIZATION OF NO. 200 CEMENT SIEVES.*

By Rudolph J. Wig and J. C. Pearson.

THIS paper reports the results of an investigation undertaken for the purpose of developing greater uniformity in fineness determinations of cement as ordinarily made on certified No. 200 sieves.

It has been observed that sieves differed considerably in their indications of fineness, and an attempt was made to establish the range in sieving values of as many sieves previously certified by the Bureau of Standards as could be located. Carefully prepared samples of cement were therefore sent to all laboratories known to possess certified sieves, and with the coöperation of these laboratories results of tests on about 160 sieves were obtained. These results showed a variation of nearly 5 per cent. in the fineness of the standard sample, which was assumed, from the study of the results, to be 77.00 per cent. passing the standard No. 200 sieves.

A study was made of the possible causes of discrepancies in sieves, and it was found that no reliable estimates of sieving values could be made from the ordinary certification measurements, nor from other proposed methods of standardizing, except by actually performing the sieving tests with a sample of known fineness. The most probable explanation for these unaccounted-for discrepancies seems to be in the irregular spacing of the warp wires, which cause a variation of 100 per cent. or more in the size of the sieve openings. This very large variation

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