on the foundations, and the chimney completed on December 10th following. The construction could have been carried on much more rapidly, but as there was no particular hurry the men worked only in fine weather, and occupied themselves in bad weather making blocks under shelter. The labor employed in erecting the chimney consisted of two masons and five helpers. With this force it is possible to lay six courses of fourteen blocks each in one day.

In the erection the blocks were at first hoisted into place by means of a steam-driven derrick (Fig. 9), and the mortar hauled up in buckets with a rope. When the chimney had attained too great a height for the derrick a hoist was installed on a platform in the interior, and a gasoline engine placed at the end of the smoke tunnel in the power house. By this method the blocks and mortar were hoisted up inside the chimney, and the construction continued thus until the finish. Fig. 11 is a view of the completed chimney taken in the summer following its erection.

For the mortar forming the bonds between the blocks a mixture of one of cement to two of sand was used. The chimney was lined inside with 4 ins. of firebrick set in fireclay, to a height of 50 ft. above the top of the smoke flue. A sectional steel ladder was built up along with the erection of the chimney, the supports being tied into the vertical reinforcing rods. The whole was surmounted with a cast iron cap, similar to that shown in Fig. 4, into which was set the lightning rod.

The design for the shaft of the chimney was prepared in Paris, France, by the engineers of the Monnoyer Company. The foundations were designed by, and constructed under the supervision of, the engineers of the general contractor, Jos. Gosselin, of Quebec and Levis. The subcontractor for the erection of the superstructure was the firm of Ed. Pelletier & Fils, of Quebec, which firm holds the patent rights for this system in Canada and the United States.

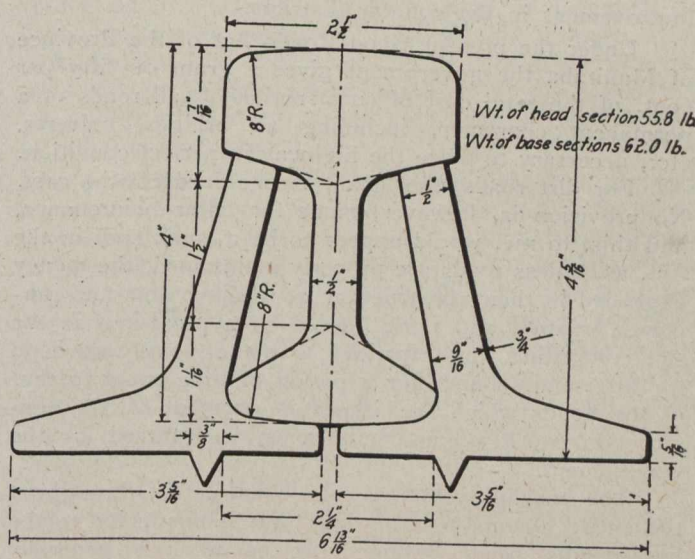
In conclusion it might be stated that this system of reinforced concrete is also successfully used in the construction of water tanks, condensers, and dust towers, many beautiful examples of which may be seen in the various countries of Europe.

The offices of the Mexican Petroleum Company, the Huasteca Petroleum Company, the Petroleum Transport Company and the Caloric Company have been moved from 52 Broadway to 120 Broadway, New York City.

The estimated value of the forest products of Canada in 1914 was $176,672,000, as compared with $177,120,000 in 1913, $182,300,000 in 1912, and $170,600,000 in 1911. The total of $176,672,000, representing the value of the production of 1914 was made up as follows: Lumber, lath and shingles, $67,500,000; firewood, $60,500,000; pulpwood, $15,500,000; posts and rails, $9,500,000; cross-ties, $9,000,000; square timber exported, $400,000; cooperage, $1,900,000; poles, $700,000; logs exported, $850,000; tanning materials, $22,000; road mining timbers, $500,000; miscellaneous exports, $300,000; and miscellaneous products, $10,000,000. Spruce is the most important wood in Canada for the production of lumber and pulp. Maple is used for firewood as well as for furniture, cars, agricultural implements, hardwood flooring and distillation. Cedar is the most important wood in Canada for poles, fence-posts and rails, cross-ties and shingles. White pine and Douglas fir are important lumber species. Beech, poplar and jack pine are used in large quantities for fire wood. Red pine, hemlock, and tamarack are lumber woods of less importance. Balsam fir is an important pulp-wood. Yellow pine grows in the interior of British Columbia, and covers a large area in the dry belt. Elm is an important cooperage wood, together with oak, ash, and basswood.

A NOVEL RAIL SECTION.

A marked departure from the commonly accepted designs of rails is seen in a rail now in use in 40 ft. of track on the main line of the Minneapolis, St. Paul & Sault Ste. Marie near Minneapolis, Minn. The rail is made up of three separately-rolled members, as shown in the accompanying cross-section. The central portion, shaped like the English bullhead rail, is enclosed except the head, by two T-shaped supporting sections, the three pieces being of such proportions that the central part is supported on the underside of the head and also on the base. Holes are provided in the outstanding legs of the supporting sections for spiking or bolting the rail to the ties. No other fastenings are used either to hold the three portions together or to splice the joints. One advantage claimed for this rail is that by staggering the joints in the centre or tread section with reference to those in the supporting sections, no splices of any kind are required. Another advantage suggested is that the portion subject to wear com-



Dimensions of the Compound Section.

prises only one-half the weight of the composite section and can be renewed independently of the supporting portions which are not subject to wear.

The rails in use on the "Soo" were installed in November, 1914, and consist for each rail of a 20-ft. length of head section in the centre with a 10-ft. length on either end, supported on two 20-ft. lengths of base sections, thus breaking the joints. A special compromise joint was provided for the connection to the standard rail on either end. Owing to the small amount of this rail used it was not rolled, but was planed out of solid material, a bloom serving as a blank for the head section, while an I-beam served the same purpose for the base section. The track has been inspected frequently, but the length of service has been too short to demonstrate the true merits of the new section. Future developments will be watched with interest. The rails were furnished by the American Safety Steel Rail Company, Bismark, N.D.

German chemists have been trying to find a use for "carbide-mud," or the residue from the union of calcium carbide and water. The "Chemiken Zeitung," Berlin, now states that when mixed with 40 per cent. of building sand this residue makes a very usable mortar, which hardens well and binds stones firmly together.