

received the attention of specialists, and the machinery for this work has reached a high state of development.

This rapid and economical handling of ores, fuel, and flux has greatly reduced the cost of iron and steel, and thus exerted incalculable influence upon the world's industrial growth.

Cranes for handling package freight have been sporadically developed, here and there, for handling very heavy loads. The most notable of these are the cranes used by the great navies for the transshipment of heavy guns. But the greater portion of the package freight is still handled by comparatively primitive means. The cost of transshipment is great, and the earning power of vessels and cars is considerably reduced because they are idle during the time required for loading and unloading cargo.

Both the railway and the steamship companies are rapidly reaching the conclusion that they must make the necessary expenditure for freight-handling machinery, if the work is to be done economically and quickly. About two years since, when the Pennsylvania Railroad Company began the construction of its new freight terminus in the New York harbour at Greenville, N.J., they invited various engineers and builders of prominence to submit designs for cranes, to be operated by electricity and to handle freight, both bulk and package, between the railway cars and the vessels.

In response numerous carefully thought out designs were submitted, and the engineers of the various companies tendering, exposed very fully the methods of operation and construction proposed and their advantages. The Railroad Company's engineers made a minute and careful examination of these plans, visited and examined in operation various installations of hoisting machinery employing the principles embodied in the designs offered, and made a report which resulted in the selection and purchase of the three cranes described below.

By the initial arrangement there were to have been two cranes of one type designed primarily to handle loose freight such as coal, broken stone, sulphur, and iron ore, in bulk; the third crane being of larger capacity and especially designed to handle heavy package freight; upon further study of the situation, however, the plan was modified so as to combine in one type of crane the more desirable features of both.

The cranes, as constructed, embody the best thought of the manufacturers' engineers, ably aided by the advice and suggestions of the engineers of the Pennsylvania Railroad Company, and, it is thought, represent the most advanced type of construction yet developed for the purpose.