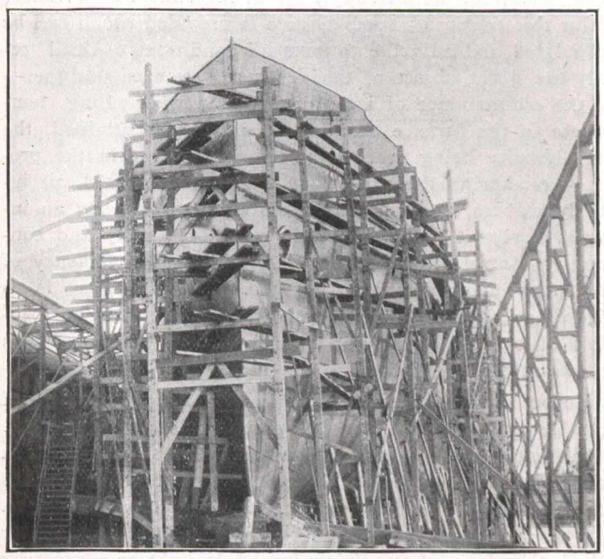
New York, an eminent authority on marine construction has been retained as consulting architect and engineer.

The interior of the cabins and all the decorations are designed by and will be executed under the personal direction of Mr. Louis O. Kiel, of Detroit, an acknowledged authority and expert in such matters.

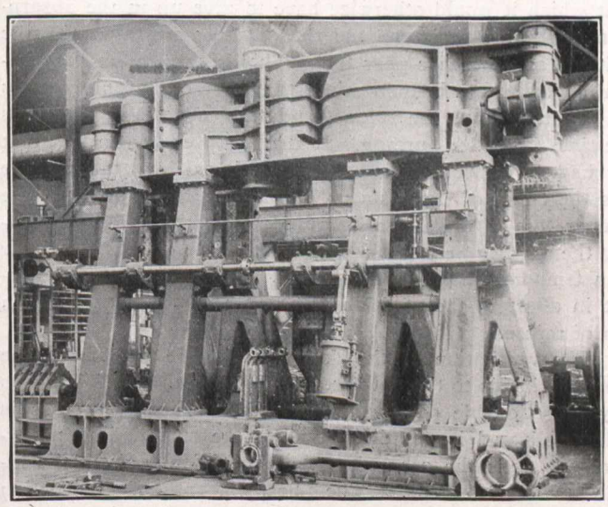
Cargo Capacity.

Seven gangways are provided on each side, five for freight, one for first class passengers and one for second



Progress October 3, Showing Staging.

class passengers and supplies. The five gangways leading to the freight space on the main deck are so arranged that each gangway serves two hatches, which open into the ship's five cargo holds. The very latest design of hoisting machinery for the handling of package freight will be installed, and it is expected the steamer will be one of the fastest "handl ng" ships in the package freight business. Her cargo capacity is about 3,000 tons of package freight, or 100,000 bushels of wheat, below the main deck. She will



Engines of the "Hamonic."

be fittted with elevator hatches to enable her to receive grain if desirable.

Passenger Accommodation.

The "Hamonic" will have accommodation for 400 first class passengers, 75 second class passengers, and 110 off crew and officers, and every attention has been paid to the comfort of passengers and crew.

Next to the Romans, the ancient Peruvians were perhaps the most efficient civil engineers. Their roads were marvellous, and the highway from Quito into the Chilean dominion was one of the most remarkable roads the world has ever known.

THE DESIGN AND WORKING OF A MODERN DESTRUCTOR.*

By William F. Loveday, Borough Surveyor, Stoke Newington.

In submitting a paper on this subject there is no need to give the history of the rise of modern destructors; so much has already been written that to rewrite it would be an insult to the intelligence of the municipal engineer. Suffice it to say, having analysed the refuse and ascertained the quantity of incombustible, vegetable, and other matter, that, given a known quantity, the results to be obtained can be calculated with almost mathematical exactness. The general trend of development and progress in destructor practice, more particularly during the past two years, has been on the following lines:—(1) The amelioration of the conditions for the workman in the destructor house; (2) the introduction of details in construction which ensure fairly high temperatures and a normal ruling condition in the furnace proper. More efficient means have been introduced for the ventilation of the destructor house, and this is a step which is undoubtedly in the right direction. It is well known that, in any plant that is not strictly up-to-date, a visit to a destructor plant is synonymous with dust, and the experience could never be looked forward to with anything but feelings of dismay and prospective discomfort. In up-to-date plants ventilating ducts are provided, and the house is so constructed as to permit of the air being renewed from four to five times per hour. The vitiated air is withdrawn through these ducts and led to the fan inlet, from whence it is propelled to furnace ashpits. In this direction, also, means have been introduced for facilitating the clinkering of the fires. This is by common consent the most laborious operation in the whole cycle in destructor working, and anything that can render easier the clinkering of the fires would be hailed by the firemen, at any rate, with the utmost satisfaction. Taper castings have been introduced which form a line of cleavage between and in the grates, and much facilitate the breaking up of the fires before withdrawal.

Although there are several different firms who specialize in destructors, yet there are practically only two groups or types—namely, the "single cell," and "continuous grate." These may be again subdivided or classified by the method adopted in feeding the refuse into the furnace—namely: (1) top feed—in which the refuse is fed in through the top directly on to the fire or on to a drying or desiccating hearth, and then pulled forward on to the fire-bars; (2) back feed—in which the refuse is fed in through an opening at the back and clinkered from the front; (3) front feed—in which the refuse is fed in through the front and clinkered from the same opening. With regard to the top feed, although possibly there is considerably less handling, yet there are grave objections so far as obtaining good results from the combustion and evaporization point of view. Should a load arrive which is either very wet or contains an unusual quantity of tins, earthenware, bottles, or other incombustible matter, it must of necessity go into a particular cell, with the consequent effect of reducing very considerably the temperature in that cell. Again, the refuse has to be pulled forward on to the bars, and it is difficult to get an even thickness and uniform density over the grate when handling long and heavy firing tools over a hot fire, with the result that the forced draught will take the thin parts, to the detriment of the thicker portion which most requires its aid for a complete and perfect combustion. The front or back feed enables the stoker to apply the refuse more evenly and with more discretion, and although the method of charging with the shovel by hand has been described as putting it on by the spoonful, yet to obtain the highest efficiency the makers of mechanical stokers have been employing this method of small quantities at a time with the best results.

In the single-cell type of destructor the cell is an isolated furnace, having an opening through which the refuse is deliver-

*Read before the Association of Municipal and County Engineers.