

also two mail hoists fitted with twelve-horsepower motors.

In addition to these there are four electric jib cranes, each made to lift 1,350 pounds. The lifting motions are operated by a twelve-horsepower motor through worm gear, and the slewing motion through worm and spur gearing by a two-and-one-half-horsepower motor, the motors being series wound of the enclosed type. These cranes are conveniently placed on the boat deck for lifting stores or luggage and mails from tenders that come alongside.

Another important part performed by electric power is the hoisting and lowering of the lifeboats. This work is done by four electric winches placed alongside the lifeboats. The motors attached to these winches are each of twenty-seven horsepower, connected to worm gear running in an oil bath.

An interesting application of electric driving is in connection with the refrigerating machinery. The two gas compressors are each coupled direct to a twelve-pole shunt-wound motor of thirty-five horsepower, giving a constant torque between forty and 110 revolutions per minute. The armature is provided with two windings which are in series at starting, and by turning the hand wheel on the switch gear, the starting resistance is cut out and a variable resistance inserted in the shunt circuit to regulate the speed between thirty-five and seventy-five revolutions per minute. By transposing the armature windings from series to parallel connections without resistance, and by inserting the shunt resistance again, the speed can be increased to 110 revolutions per minute. The two brine pumps are operated by shunt-wound motors of three-and-one-half horsepower each.

In addition to the large number of motors already enumerated, there are still a great number of other applications. Among these are the motors for driving the printing machine and the Marconi apparatus, of five and three horsepower, respectively, and provision is made by having connections on deck for driving winches of 112 horsepower on the quay or in barges. In the galleys and cooking department an electric motor drives a machine capable of making bread for 3,000 people, and in the cooking ovens there are four vertical spits, driven electrically, capable of dealing with one-half a ton of meat at a time; other motors are fitted to knife-cleaning machines, dish-washing machines, circular knives for cutting bacon, potato peelers, whisking machine,

freezing machines for making ice cream, and numerous electric hot plates for keeping food warm during service.

Telephone instruments are fitted throughout the first-class staterooms. Having an exchange on board, passengers can converse with one another without leaving their rooms. On arrival in port the exchange is connected to the Liverpool or New York exchange, so that passengers may be in communication with their homes or offices up till the hour of sailing or immediately on arrival.

Another telephone system connects the captain and officers on watch on the bridge with the engine rooms and crow's-nest on the foremast. These consist of Graham's navy pattern loud-speaking telephones, and are used for docking and steering as well, connections being fitted on the forecastle, in the wheelhouse aft, and in the steering-gear room at the stern of the ship. For the officers' use there is an intercommunication telephone service fitted, consisting of the Parsons-Sloper secret instruments, each officer being able to call up another from his own room.

In addition to the telephone system there is a large installation of electric bells, with Gents' patent indicators. In every first-class stateroom there is a combination fitting of electric bell push, electric-light switch, connection for portable reading lamp or curling-tongs heater, and electric fans, while a number of special rooms are fitted with electric radiators.

A complete installation of electric clocks is fitted on the magnetic system. In the public rooms and principal entrances and corridors there are fitted, in all, forty-eight clocks, controlled from the master clock, situated in the chartroom adjoining the bridge.

There is also a complete electric fire-alarm system. A brass plate and red lamp indicate the position of the alarm push in the corridors, these being connected to indicators in the engine room and the navigating house on the bridge deck.

In addition to the ordinary life buoys, there are two special buoys fitted on the bridge deck, operated by Martin's electric release gear, which can be operated from the bridge and other positions, on the alarm being raised.

In connection with the Stone-Lloyd system of watertight doors, an electric indicator is fitted in the navigating house which shows the position of every watertight door in the ship. The doors are closed or opened by hydraulic power simultaneously, by the officer in charge moving a handle, which operates the con-

trol valve. The function of the electric indicator is to show the officer exactly which doors are open or closed. The indicator has a small lamp for each door, with wires led to a contact switch at the door, which, when the door is closed, completes the lamp circuit and lights the lamp.

Another important fitting on the bridge is Martin's automatic indicator for the navigating lamps.

#### ◆◆◆◆◆

#### Santa Fe Electrification.

The Santa Fe Railway Company proposes to electrify the line over Raton Pass, a distance of thirty-eight miles, between Trinidad, Colo., and Raton, N. M., in which event 15,000 electric horsepower will be required for twenty-four hours' consumption in hauling freight and passenger trains through the Rocky Mountains.

The change from steam to electricity will involve an expenditure of about \$1,500,000, and J. J. Henry, president of the Southern Colorado Power and Railroad Company, of Trinidad, will figure with the Santa Fe officials on a contract to do the work.

Mr. Henry is interested in the Tongue River Power and Transmission Company, which owns a valuable waterpower proposition in the Tongue River Canyon. His company also holds an option on the plant and equipment of the Sheridan Electric Light and Power Company.

#### ◆◆◆◆◆

#### New Haven Merger Case in October.

United States District Attorney Asa P. French and Colonel J. H. Benton, Jr., counsel for the New York, New Haven & Hartford Railroad, conferred recently with the judges of the United States Circuit Court, relative to the proceedings in the New Haven merger suit. The court announced that it would be ready to hear the arguments on the demurrer in October. No day was set, but it is understood that the matter will be taken up when all parties interested have returned to the city.

#### ◆◆◆◆◆

#### Cement Company's Mortgage.

The Mississippi Valley Cement Company, of Louisiana, Mo., has filed a mortgage deed of trust to the Mississippi Valley Trust Company of St. Louis to secure bonds in the sum of \$1,500,000 which will be issued to raise money to pay off its indebtedness and to complete the plant in Louisiana. The bonds will run until July 1, 1929, but are redeemable in 1912 and will draw five per cent interest.