# Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors, PUBLISHED WEEKLY AT No. 361 BROADWAY, NEW YORK,

•. D. MUNN. A. E. BEACH.

### TERMS FOR THE SCIENTIFIC AMERICAN

MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

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### NEW YORK, SATURDAY, MAY 28, 1892.

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No. 856.

### For the Week Ending May 28, 1892. Price 10 cents. For sale by all newsdealers.

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### NEW INVENTIONS NEEDED FOR WORKING STEAM-SHIPS.

In our last number we gave an account of the recent act of Congress passed for the special registration of the two great British-built steamers, the City of New York and the City of Paris. The proposed transfer of American flag has excited considerable feeling in England. The transaction is there looked upon almost as if it were an unwarranted capture by the Yankees of a couple of Britain's best vessels. Our cousins, appear to feel as if there were something wrong in their laws which permits Americans thus to step in of maritime prestige.

But according to the views of our London contemporary, Engineering, there is not much likelihood, after all, of the realization of the transfer. The authorizing act, it is true, has been passed, but our confrère avers that it will be so much more expensive for the owners to run the ships under the American flag that any actual change is improbable. For example, the wages of American firemen would be nearly double that of the English stokers, and so on through the other items for manning the ships. The loss of the British subsidy would further reduce profits, while the increased cost of the new ships which, under the act, are required to be built here would be another serious financial burden.

There are several companies of American citizens who would like to build steamers here with a view to public. foreign trade, but they are deterred by the greater running expenses required. Among them is the Corbin company, which aims to establish a line of steamers between Montauk, at the east end of Long Island, and Milford Haven, in Wales, which latter place, by the completion of the Severn tunnel, is now only six hours distant from London, the same as Liverpool. This line offers the shortest ocean route. The company in question asks Congress to allow it to buy foreign ships, man them with foreign cheap labor, and then sail under the American flag.

At present it looks as if recourse must be had to the genius of our inventors for the solution of the problem of ocean steam navigation in American-built steamers. We can build the ships and supply them with fuel nearly as cheaply as anybody; but we cannot run them lower wage rates that elsewhere prevail. It remains, therefore, for our inventors to study out new and imsubstituted for manual labor on ship board, and the costs of operation thereby reduced. The feeding and pay of the army of coal heavers and stokers now required on every large ship is one of the most serious items of expense. Perhaps by the use of new mechanical desaved. The subject is worthy the attention of inven-

## THE NEW STEEL STEAMERS OF THE PROVIDENCE LINE.

The second of the new screw steamers, the New Hampshire, built for the Providence and Stonington line by the Harlan & Hollingsworth Co., of Wilmington, Del., has just been finished, and has had a trial speed test on the Delaware River. Taking on 600 tons ballast to bring the wheel to immersion line, she made

 araitable qualities of 16 site.
The branch area of the sum-Arrows dimensional time of the sum-Arrows dimensional time of the sum-Arrows dimension of this acid from sum of the sum of t Natural Gas at Salt Lake. The engine is of the inverted direct-acting triple ex-. 13670 pansion type, with four cylinders: One high pressure Natural gas has been discovered on the shore of the cylinder, 28 in. in diameter; one intermediate, 45 in. in Great Salt Lake, within ten miles of Salt Lake City, and a large company has been organized to utilize and diameter; and two terminal cylinders, each 51 in. diam-13677 eter, with 42 in. stroke. A surface condenser, of Light- develop the fuel. Several wells have already been . 13681 hall type, with a centrifugal circulating pump, and a put down to the depth of 650 feet, and it is said that steam reversing gear. The high pressure cylinder has 50,000,000 cubic feet of gas are now flowing daily. A 13676 a single piston valve; the other cylinders each have new town, to be named Woodman, has been laid out double piston valves; cranks quartering. The high on the site of the wells, and a new railway is to be ex-1367: pressure cylinder takes steam at 160 lb.; 1st receiver, tended to Salt Lake City. A smelting establishment, 40 lb. pressure; 2d receiver, 12 lb. pressure; terminal to cost from between \$1,000,000 and \$2,000,000, is 13683 pressure in 3d and 4th cylinders, 0-thus utilizing shortly to be erected, and a large glass factory is also steam to its utmost expansion. The engine, at 100 projected. 13684

revolutions, develops 2,947 indicated horse power, or 1.227 I. H. P. per gross ton.

The action of the quadruple engine tends to a freedom from jar or vibration, usual with our large propellers of this class, making the after part of the vessel an exceptionally quiet part. The roughness and imthese ships, which are in fact semi-war vessels, to the pact of water at the bow make the usual vibration, so that if you want a quiet berth, take an after one.

The boilers, two in number, are of the Scotch type with Purves corrugated furnaces, each  $46 \times 78$  in., aggregating 270 sq. ft. of grate surface. Boilers 131/2 ft. diameter, 11 ft. long. A blower service for the fire room and boilers when necessary. The engine room is and suddenly deprive them of two such large chunks, arranged with all the modern facilities for utility and convenience for every needed service. A powerful fire pump and fire apparatus throughout the vessel. Five bilge pumps constantly working on the crosshead of the air pump. A supply pump for salt water for sanitary purposes. A fresh water supply pump for pressure service. A steam jack for turning over the shaft.

An incandescent lighting system, consisting of two Thomson-Houston dynamos of 350 light power each, driven by separate engines of 20 horse power each. Steam is reduced to 80 lb. pressure for these engines by a reducing valve. An annunciator service throughout the boat. A steam heating service in connection with both main and donkey boilers.

The fitting up of saloons and staterooms is in the most elegant style, and there seems nothing wanting to make the new boats favorites with the traveling

### THE LARGEST MASONRY DAM IN THE WORLD.

The largest masonry dam in the world has lately been completed in India, in connection with the new water works for the city of Bombay. It is situated 65 miles north from Bombay, and stretches across the Tansa Valley. The dam is about two miles in length; 118 feet high; 100 feet thick at its greatest depth; 15½ feet at the top. The lake which will be formed when the valley is full covers an area of eight square miles, and it is expected will furnish a supply of 100,000,000 gallons per day throughout the year. The dam has been 51/2 years in process of construction and from 9,000 to 12,000 men and 800 carts and animals have been employed upon it during each working season from October to May. The difficulties of construction were so economically after they are built, by reason of the very great. The sand and cement of which it is composed had to be carted for many miles. Over 14,700,000 cubic feet of rubble stone were used, over 2,200,000 proved modes whereby mechanism may be further cubic feet of lime, and over 3,300,000 cubic feet of washed sand. The excavations of rock amounted to over 6,700,000 cubic feet. The masonry work in all was over 11,000,000 cubic feet. The contractors were Glover & Co., of Edinburgh. The executive engineer was J. B. Clarke. The water is conducted from vices, involving it may be a rearrangement of the the dam to Bombay in iron pipes 48 inches diameinternal parts of steamships, much labor could be eter, laid above ground. Each length weighs about four tons. The aggregate weight of the pipes is 50,000 tons, supplied by Macfarlane, Strang & Co., of Glasgow.

### Kalsomining.

Kalsomining, or wall coloring in distemper, is best done about this time of the year, when the walls are not too cold or too hot. It may be done, says the Paint and Varnish Journal, any time during the winter, so that the walls do not freeze. There are a good many preparations put up for this purpose and called by various names. However, if you are where

Which solve data may be builted with absolutely included a finite fraction L METALLURGY.—Aluminum.—By W. R. INGALLS.—All about aluminum.—Its strength, preparation, price and other data. Researches as to the Properties of Alloys.—By Prof. W. C. ROB-ERTS-AUSTEN.—A deeply interesting paper, touching on the work done under the auspices of the Alloys Research Committee of the British Institution of Mechanical Engineers.—15 illustrations and diagrams iagrams. MISCELLANEOUS.—The Homacoustic.—An improved system f speaking tube, especially adapted for use on shipboard.—2illus-VIII. IX x. The Railway Detween the Onice State For the Inter-Continental Railway.-2 illustrations... VITICULTURE.-Mildew of the Grape.-A remedy for mildew. With formula of a curative mixture... I. ZOOLOGY.-Elephants, Recent and Extinct.-By R. LYDEK-EER.-The Siberian mammoth and mastodon.-Their peculiarity of structure graphically told of.-4 illustrations... XI XII.