THE STEAMER "SETH GROSVENOR."

The steamer *Seth Grosvenor*, built by the "New York State Colonization Society," to run between Cape Palmas or Montsonia, on the coast of Siberia, to meet the requirements of the local trade, has just been completed. The destination of this vessel is an initiatory step in an enterprise believed to be fraught with good results to African colonization; and as soon as authentic intelligence can be obtained from the coast of Africa, relating to the existing state of affairs there, she will be dispatched on her important duty. Her dimensions with particulars of engine and boiler, are as follows:—Length on deck, from fore-part of stem, to after-part of stern-post, above the spar deck, 95 feet; breadth of beam, at midship section above the main wales, 16 feet 10 inches; depth of hold, 5 feet; depth of hold to spar deck, 5 feet 3 inches; draft of water at board line, 3 feet; size of engine-room, 27 feet by 6 feet; area of immersed section (at load draft of 3 feet) 39 square feet; tunnage, 68 tuns. She is fitted with a steeple engine; diameter of cylinder, 28 inches; length of stroke of piston, 3 feet 6 inches. Diameter of water wheels (over boards) 14 feet 4 inches; length of wheel blades, 1 foot 3 inches; and she has 14 blades. She has one return tubular boiler, the length of which is 12 feet 6 inches; breadth, 5 feet 9 inches; hight (exclusive of steam chimney) 6 feet 10 inches; and beneath this there is one furnace—breadth 5 feet; length of fire-bars 4 feet 6 inches; there are 36 tubes—30 of 4 inches (internal diameter) and 6 of 3 inches. The internal diameter of the four flues is 2 of 8 inches and 2 of 15 inches; length of tubes above, 9 feet; length of flues below 6 feet. The diameter of the smoke-pipe is 2 feet 3 inches; hight, 24 feet; draft forward, 3 feet, draft aft, 3 feet.

The cube of grate surface is 225 feet 5 inches, and possesses a heating surface of 540 square feet. The furnace will consume two tuns of fuel per day, The frame is of white oak and hacmetac and square, fastened with copper and trenails; frames not filled in, solid, and moulded 16 inches apart at centers. The floors are molded at the throats, 6 inches; rided 3 inches. The boiler is located in the hold, and protected from communicating fire by felt and iron. Her rig is that of a schooner, not coppered; bunkers of wood, and is supplied with two anchors. She is fitted with one independent (steam) fire and bilge pump, and has bottom valves to all openings in the bottom. The builder of the hull is Henry Steers; builders of engines, the Allaire Works; superintending engineer, C. H. Haswell.

EFFECT OF FOOD UPON RESPIRATION.

Dr. Edward Smyth read a paper, on Feb. 10, 1859, before the Royal Society, giving the results of over 2,000 experiments which he has been making to ascertain the effect of different kinds of food on the quantity of carbonic acid expired from the lungs. He found that most kinds of food increase the quantity of carbonic acid given off from 1 to 3 grains per minute, the effect commencing soon after the introduction of food into the system and attaining its maximum in about two hours. The most powerful stimulants of respiration are tea and coffee, which sometimes increase the quantity of carbonic acid evolved three grains per minute. The experiments showed that the following-named substances are classed as follows in their effect on the lungs:—

Exciters of respiration—Sugar, milk, cereals, potato, gluten, casein, gelatin, fibrin, albumen, tea, coffee, cocoa, chicory, alcohol, rum, ales. Non-exciters of respiration—Starch, fat, coffee leaves, brandy, gin.

PUBLIC ART MUSEUMS.

Rev. Geo. Duffield, D.D., of Detroit, lately delivered the opening lecture before the Rogers Art Association, at Ann Arbor, Mich. The subject of his lecture was: "The Results of Research and Discovery in Egyptian and Assyrian Antiquities." He dwelt upon the importance of establishing art museums in this country, and the obligation resting upon the University of Michigan to take the lead in the matter. We are glad to know that we have such an eloquent advocate of these views in Professor Duffield. On page 401, Vol. I. (new series) of the SCIENTIFIC AMERICAN, we endeavored to impress upon the minds of the public the benefits that would result to the people by the establishment of public museums of art. It would be a high honor to Michigan if that State took the lead of all others in this great social agency of mental elevation.

SINGER'S IMPROVED HOSE COUPLING.

The hose coupling represented in the accompanying cuts seems to be a very simple, efficient, and promptly-acting device, and well worthy the attention of firemen, and all other persons interested in the ready operation of fire-engines; and who in the community is not?

To the end of one piece of hose the metallic cylinder, A, is securely attached, and to the end of the other piece to be coupled is attached the cylinder, C; the latter cylinder having the enlargement, H, cast upon its end of a size to admit the end of the cylinder, A. This enlargement is provided with a groove to admit the gasket or elastic packing ring, *a*, Fig. 2, against which the end of the cylinder, A, abuts as shown. The cylinder, A, is

Fig. 1

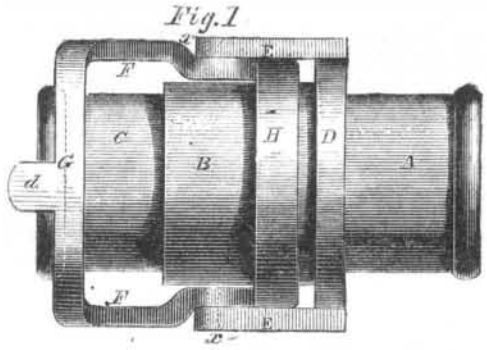
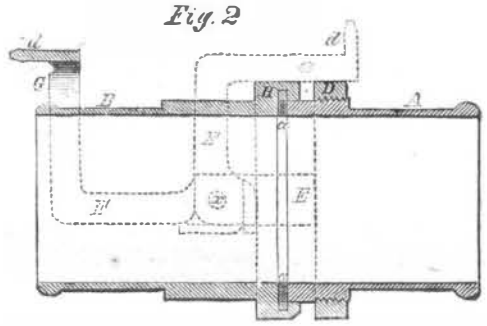


Fig. 2



inserted in the large end of, C, and to illustrate the mode in which its end is pressed firmly against the packing, *a*, and held in place, the coupling is shown in Fig. 2 as turned one-fourth round from the position represented in Fig. 1. The metallic ring, D, is secured upon the cylinder, A, and has the arms, E E, cast or soldered upon it. Connected with these arms by means of the pivots, *x x*, are the levers, F F, of which the long arms are joined together by means of the semi-circular bar, G, and the short arms are made in the shape of eccentric cams, so that when the boxes are turned down as represented in Fig. 1, and in the full lines in Fig. 2, the cams press against the projection, H, on cylinder, C, and force this cylinder against cylinder, A, while by turning the levers, F F, out from the coupling in the position shown by the dotted lines in Fig. 2, the short arms of the levers are released from their pressure against the projection, H, and the two parts of the coupling fall asunder. As the packing, *a*, becomes condensed or worn, the end of cylinder, A, is made to follow it inward by the simple plan of screwing the ring, D, further upon the cylinder, A.

The inventor claims that hose may be coupled with this arrangement while the water is flowing through it with force. At all events it appears to be a very simple and efficient coupling, by which hose may be joined very quickly indeed, and a smooth, neat, and light joint be made.

The patent for this invention was issued, through the Scientific American Patent Agency, Jan. 3, 1860, and persons desiring further information in relation to it, will please address the inventor, Joseph Singer, Drawer 376, Cleveland, Ohio.

PATENT EXTENSION CASE.

Electric Telegraph.—Samuel F. B. Morse, of Poughkeepsie, N. Y., has applied for the extension of a patent granted to him on the 11th of April, 1846, for an improvement in electro-magnetic telegraphs. The said petition will be heard at the Patent Office on Monday, the 2d of April, at 12 o'clock M.; and all persons interested in opposing the same are notified to appear and show cause (if they have any) why said petition ought not to be granted. The testimony in the case closes on the 19th of March.

FOREIGN NEWS AND MARKETS.

Although much has been said and written about the *Great Eastern*, it appears that all is not yet over in this line. A great deal has been rather hinted at than fairly charged against her builder, J. Scott Russell, for all its defects—low speed and everything else. He was really looked upon by the public as a kind of delinquent in this case, and so at last he has come out in a report to the directors, of an exculpatory character. He states as an excuse for her low speed, that she was not designedly built for a high speed steamer on a short voyage, but for a uniform speed of more than ordinary velocity, so as not to be affected by storms, and thus make long voyages to Australia and India, more rapidly and more economically than any other steamer of a less size. Respecting her qualities he asserts she has proved handy and manageable, so as to go into and out of any harbor in this or other countries that afford suitable traffic. She has ample power to stand up in sea-way or storm, without such rigid stiffness as to make the sea strike her with violence. She has proved that, in danger from external violence, or internal accident, her system of separation into compartments is so successful that no damage to one part of her affects another. She has realized the speed for which she was designed, and which is such as to enable her to reduce the time of a voyage to Australia from 59 to 30 days. She not only can carry coals for the entire passage to Australia, but find room besides for 5,000 tuns of goods. Along with this she affords ample accommodation for from 500 to 800 first-class passengers, and might be fitted up for 1,000 additional berths, as first and second-class, and 1,500 third-class, if desirable. She has been proved to afford comparative immunity from sea-sickness, along with the comfort and luxury of a first-class hotel, thus rendering a passage across the sea in every way more enjoyable than a long journey by land.

James Nasmyth, the inventor of the steam hammer, has taken out a patent for a siphon motive power. In that part which connects the two limbs of the siphon, valves are fitted to cut off the connection with the limbs. In a cylinder connected with one limb there is a small portion fitted, and its rod is attached to a shaft to which it gives motion for operating the valve and driving machinery. A small air-tight chamber is connected with the piston cylinder by a valve. When water is let into the limbs of the siphon, the piston connected with the discharging limb is made to rise, and when it has reached the end of its stroke, the valve is shut to cut off the inlet water, and then the one is opened into the air-chamber, when the water flows from under the piston and it descends. In this manner a continual reciprocating motion is to be given to the piston—a perpetual power without the use of a dam or material waterfall.

The steamships of the Peninsular and Oriental Steamship Company consume from four-and-a-half to five pounds of coal per horse-power per hour, and the total cost of fuel is £650,000 per annum. By adopting the most recent improvements, this company can save one-half the expenses for fuel, as the Pacific Steam Navigation Company, whose vessels run on the coast of South America, consume only two or two-and-a-half pounds of coal per horse-power in an hour.

Many of the heavy iron rolling mills in England and Scotland have lately adopted the frictional gearing system in place of toothed wheels. The rim of the main fly-wheel is made with a groove in it, and a wedge-faced pinion gears into the groove. In most of the calico print-works in Glasgow, the same arrangement of driving gearing has been adopted; and in a few years it is supposed no other mode of connecting the wheels of machines will be in use in England.

By experiments recently made by W. Fairbairn, Esq., and Thomas Tate, Esq., at Manchester, England, to test the strength of glass vessels of various forms, it was found that the resistance of glass to a crushing force was equal to 13.460 tuns per square inch. Taking flint glass at 1.000 in strength, green glass is 1.152, and crimson glass 4.124—flint the weakest.

The following rule is in force on some of the German railways: In the waiting-room of each station, and in each booking-office, books are kept open for any complaints that travelers may think themselves authorized to enter therein, accompanied with the name, rank and residence of the complainant. The German railroads