NOTES ON SHIPBUILDING AND THE CONSTRUCTION OF MACHINERY IN NEW YORK AND VICINITY.

THE STEAMER PO YANG.

Hull built by Messrs. Rosevelt, Joyce & Co., New York; the machinery was constructed by the Allaire Iron Works, New York; owners, Messrs. Olyphant & Sons, New York; intended service, coast of China.

Hull.—Length on deck, 220 feet; breadth of beam, molded, 30 feet; depth of hold to spardeck, 11 feet 6 inches; floors, molded, 14 inches; sided, 6 inches, and the frames are 18 to 28 inches apart at centers; draft of water at load line, 7 feet; tunnage, 956 tuns.

Engines.—Vertical beam; number and diameter of cylinder, one of 50 inches; length of stroke of piston, 12 feet.

Boilers.—Two, return tubular, located in hold; they are constructed of the best material, and are of the most durable character.

Water Wheels.—Diameter over boards, 28 feet; material iron.

This vessel was constructed with extraordinary strength, her material being live oak, chestnut, &c. She is fastened with copper and treenails, and around her frames, iron straps, diagonal and double laid, 3½ by ⅝ inches are placed, making them very secure. Her rig is that of a fore topsail schooner; her bunkers are of wood, and she has an inclosed forecastle, but no sponsors under water wheel guards; she has two water-tight bulkheads, an independent steam fire and bilge, and the ordinary bilge injections. The whole construction of the *Po-Yang* is highly creditable to the skill of Messrs. Rosevelt, Joyce & Co., and gives great satisfaction to her owners.

THE STEAMER CONTINENTAL.

Hull built by Messrs. J. Sneden & Co., Greenpoint; the machinery was constructed by the Morgan Iron Works, New York; Owners, New York and New Haven Steamboat Company; intended service, New York to New Haven.

Hull.—Length on decks, 282 feet 6 inches; breadth of beam, molded, 35 feet 8 inches; depth of hold, 11 feet 5 inches; floors, molded, 6 inches, sided, 12 inches, and her frames are 24 inches apart at centers; draft of water at load line, 6 feet 6 inches; tunnage 1,130 tuns.

Engines.—Vertical beam, number and diameter of cylinders, one of 70 inches; length of stroke of piston, 11 feet.

Boilers.—Two, tubular, located on guards, and have one blower to each.

Water Wheels.—Diameter over boards, 34 feet; number of blades, 32; material, wood.

THE STEAMER CONSTITUTION.

Hull built by Mr. William H. Webb, New York; the machinery was constructed by the Novelty Iron Works, New York; owners, Pacific Mail Steamship Company; Superintendent of construction, Captain Francis Skiddy; commander, A. T. Fletcher; intended service, San Francisco to Panama.

Hull.—Length on deck, 333 feet; length over all, 364 feet 6 inches; breadth of beam, molded, 44 feet; depth hold, 23 feet 6 inches; depth of hold to spar deck, 31 feet 6 inches; floors, molded, 15 inches; sided, 18 inches; and the frames are 36 inches apart at centres. These frames are fitted in solid, and have iron straps, diagonal and double laid, 4½ by ⅞ inches running around them, securing them in the best possible manner; draft of water at load line, 20 feet; Rig, brig; tunnage, 3,446 tuns.

Engines.—Vertical beam, number and diameter of cylinders, one of 105 inches; length of stroke of piston, 12 feet.

Boilers.—Four, return flue; length 32 feet 4 inches; breadth, 13 feet 3 inches; hight, 14 feet. There are, in addition to these, four single return boilers, each being 3 feet 4 inches in breadth.

Water Wheels.—Diameter over board, 40 feet; material, Iron.

This vessel is built of live oak, chestnut, hacmetac, &c. She embraces all the modern improvements for securing great strength, safety and comfort. She was intended for the service, as mentioned above, but owing to her great capacity, and her moderate draft of water when loaded, she was looked upon as a desirable steamer for transport service, and chartered by the national government. An interesting and detailed description of her performances during her late trip from New York to Boston, will be found on page 365, of the present volume of the SCIENTIFIC AMERICAN.

THE STEAMER STARS AND STRIPES.

Hull built by Mr. C. Mallory, Mystic, Conn.; the machinery was constructed by Mr. C. H. Delamater, New York; owners, New Haven Propeller Company; intended service, New York to New Haven.

Hull.—Length on deck, 150 feet 6 inches; breadth of beam, molded, 34 feet 6 inches; depth of hold, 8 feet; frames are securely fastened and strapped with iron braces diagonal and double laid; draft of water at load line, 9 feet; rig, three-masted schooner; tunnage, 410 tuns.

Engines.—Vertical direct, number and diameter of cylinders, 2 of 26 inches; length of stroke of piston, 2 feet 6 inches.

Boiler.—One, return tubular, located in hold, and uses a blower.

Propeller.—Diameter, 9 feet; material, cast iron.

This vessel is constructed of white oak, chestnut, &c., and put together in a masterly manner. She was intended for the service as above mentioned, but upon her completion, she was purchased by the national government, and is now doing excellent blockading duty upon the southern coast.

THE GUN BOATS UNADILLA, SENECA, OTTAWA, PEMBINA CHIPPEWA, AND WINONA.

Hulls constructed by Mr. John Englis, New York; Mr. Jeremiah Simonson, Greenpoint, L. I.; Messrs. Jacob Westervelt & Sons, New York; Mr. Thomas Stack, Williamsburgh, L. I.; Messrs. Webb & Bell, Greenpoint, L. I.; and Messrs Poillon & Co., New York; the machinery was constructed by the Novelty Iron Works, Morgan Iron Works, and Allaire Iron Works, New York; owners, United States government.

Hulls.—Length of the load line from fore side of the rabbet of the stem to the aft side of the forward sternpost, 158 feet; breadth of beam, extreme, 28 feet; depth of hold, from inside of floor timbers to under side of deck plank, amidships, 12 feet; frames of young white oak of the best quality; floor, and first futtocks, sided, 8 to 10 inches; the remaining futtocks are sided, 7 to 7½ inches; and the top timbers and stanchions, side 6½ inches; throat of floors amidships, 12 inches: molding size at the turn of bilge, 9½ inches, and at the planksheer, 5¼ inches; the timbers of the frames are close together, and each scarf is bolted with three iron bolts, ¾ inch in diameter, and care was taken that the bolts were clear of the lodge knee and waterway bolts; the stanchions forming the sides of the ports are of locust and live oak, being sided one inch more than the other stanchions, and between the ports the stanchion of every other frame runs up to the rail; keel of white oak of the best quality, sided, 13 inches, depth, 10 inches; the thickness of the garboard stroke is 6 inches, and the lower side of the main keel runs below it some 4 inches; at the distance of 2 inches above the lower edge of the keel, it is bolted athwartships every 8 feet 8 inches, with copper bolts ⅞ inch in diameter, and riveted on the alternate sides of the keel; keelson of tough white oak, sided, 14 inches, molded, 14 inches; the scarfs of the keelson are 6 feet 6 inches in length and are bolted with copper bolts, ¾ inches in diameter, and doweled to the timbers; draft of water at load line, 7 to 8 feet; rig, schooner; tunnage, 458 tuns.

Spars.—Foremast, including head of 8½ feet, 72 feet in length; mainmast, including head of 7⅞ feet, 72 feet; foretopmast, including head of five feet, 43 feet; maintopmast, including head of 5 feet, 43 feet; bowsprit, outboard, 14 feet; bowsprit, inboard, 10 feet; foregaff, including head of 2 feet, 20 feet; maingaff, including head of 5 feet, 30 feet; main boom, 56 feet; square sail yards 42 feet.

Engines.—Back action, horizontal in direct acting, &c., all of the same dimensions and of the same motive power; number and diameter of cylinders, two of 30 inches; length of stroke of piston, 18 inches; diameter of air and circulating pumps, 10½ inches; length, 32 inches; diameter of main journals of crank shaft, 7 inches; collars, 9 inches; length of each of the main journals, 18 inches; length of the center journal, 20 inches; where the eccentrics and the counterbalance are keyed on the shaft, it is 8 inches in diameter.

Boilers.—Martin's vertical tubular, two to each vessel; length, 12 feet 3 inches; width, 8 feet 3 inches; hight, 9 feet 3 inches; number of tubes in each boiler, 880; length of tubes, 28 inches; diameter, external, 2 inches; these tubes are expanded on one side of the tube plate, and riveted over on the other. Each boiler contains 2 furnaces, of three feet 5 inches width in the clear, with a grate 6 feet 6 inches long; hight from bottom of ash-pit to crown of furnace, 3 feet 3 inches; total grate surface, in boilers, 88 5-6 square feet; total heating surface, 2,700 square feet; the fire-grate bars are one inch in width on top, with ⅝ inch spaces between them, and they are in two lengths of 3 feet 3 inches each: these boilers are made of the best quality American charcoal iron, with the best quality American lap-welded iron tubes; they are placed in the vessel, side by side, with a space of six inches between them, and have one smoke pipe in common to both; the smoke pipe is 48 inches in diameter, and 32 feet in length; before the boilers were placed in the vessel they were subjected to hydrostatic pressure of 60 pounds per square inch, and made safe and perfectly tight under it.

Condenser.—One to each vessel, Sewell's patent; the shell is of cast iron, 1¼ inch thick; the condenser contains 2,900 brass tubes of ⅝ inch external diameter, and 42 inches exposed length, the total length being 4 feet; each end or the tubes are fitted with gum grommets; the tube plates are of brass, 2 inches thick, planed on one side, and they have faced strips for joint, on the other; they are in eight pieces, and bolted to faced flanges of condensers by brass bolts.

Propeller.—Diameter, 9 feet; diameter of hub, 15 inches length of hub, 2 feet 3 inches; thickness of blades at hub, 4½ inches, tapering to ⅞ inch at periphery; length of blade on hub, 15 inches, curving back on the forward edge 6 inches from a perpendicular to a length of 15 inches at the periphery; the after edge is curved parallel with forward edge, and the angle slightly rounded; pitch at forward edge of blade, 11½ feet, expanding to 13½ feet at after edge; mean pitch, 12 feet 6 inches; composition of screw propeller, by weight, 9 parts copper, 1 part tin, ½ part zinc; number of blades, 4.

The hulls of these vessels are braced with diagonal braces of iron on the inside of timbers, 3½ inches wide, by ½ inch in thickness. There are two sets of braces at right angles to each other, one of which lets into the frame and is laid at an angle of 45° with the joint of it, the upper ends being 6 inches below the planksheer, and the lower end at the turn of the bilge amidships. The other tier are laid on the timbers, and the inside plank jogs over them. There is also an iron strap, 3½ inches wide by ⅝ inches thick, running around the stem, and lying on the timbers above the turn of the counter timber, and extending forward within one frame of the forward sternpost. This strap is fastened to each timber, with bolts ⅞ inch in diameter, and the planks jog over it.

The above mentioned vessels together with those reported in our last issue, have been launched and completed within a brief period. The following are still on the stocks, or about being commenced:—

AT JEREMIAH SIMONSON'S, GREENPOINT, L.I.

Preparations are being made at this yard to construct two first-class ferry boats for Commodore Vanderbilt. They are to run between New York and Staten Island, taking the place of the *Clifton* and *Westfield* recently sold to the United States government. Their machinery is in process of construction by the Allaire Iron Works, New York. Their principal dimensions are as follows:—

Hulls.—Length on deck, 225 feet; breadth of beam, molded, 34 feet, depth of hold, 13 feet 6 inches; frames, molded, 15 inches, sided, 7 inches, and 24 inches apart at centers; draft of water, 5 feet 9 inches; tunnage, 960 tuns.

Engines.—Vertical beam; number and diameter of cylinders, one of 36 inches; length of stroke of piston, 8 feet.

Boilers.—One, return flue; located in hold, and will use blowers.

Water Wheels.—Diameter over boards, 26 feet; material, iron.

AT HENRY STEERS'S, GREENPOINT, L. I.

A beautiful side-wheel steamer is being constructed at this yard, under the superintendence of Edward J. Dickerson, Esq. She was originally intended to run in conjunction with the Florida railroad, along the Gulf coast between Cedar Keys and New Orleans, but our domestic troubles caused a suspension of work upon it for several months. She has, however, recently been sold to the house of Messrs. Forbes & Co., China, and will, upon completion, take up her position upon the coast of that Empire. Her machinery is in process of construction by the Allaire Iron Works, New York.

Hull.—Length of keel, 270 feet; length in decks, 285 feet; breadth of beam, molded, 38 feet; depth of hold, 14 feet; depth of hold to spardeck, 20 feet; frames, molded, 18 inches, sided, 7 inches, and are 24 inches apart at centers; they are filled in solid under engine; draft of water at load line, 8 feet; tunnage, 1,998 tuns; rig, schooner.

Engines.—Vertical beam; number and diameter of cylinders, one of 76 inches; length of stroke of piston, 12 feet; to be fitted with Sickles's cut-off.

Boilers.—Two, return flue; length, 30 feet 3 inches; breadth, 12 feet, 6 inches; hight, 11 feet; located, in hold, and will not use blowers.

Water Wheels.—Diameter, over boards, 28 feet; face, 12 feet; material, iron.

This vessel is built of white oak, cedar and hacmetac. Her model is one of much beauty, and her easy and graceful lines betoken great speed. She has iron straps, diagonal and double laid, running around her frames, securing them in the best possible manner, and making the vessel one of great strength. When completed, she will be another proof of the skill of American shipbuilders and American mechanics.

IRREVERENT photographers in London are making fun of Spurgeon's recent Gorilla lectures, and have just issued a little card picture entitled, "Rev. C. H. Gorilla," and representing one of those interesting animals climbing a tree, as natural as life, only the head and white neckcloth of Spurgeon! This fascinating work of art is advertised in these words: "No Home without a Gorilla; a portrait of one from life should be in every home, as it creates so much merriment."

LOUIS NAPOLEON has given Professor Bunsen the decoration of an officer, and M. Kirchoff the Cross of the Legion of Honor, in recognition of their valuable discoveries in spectrum analysis.

UP to the hour of our going to press, 1 P. M., Dec. 19, the contents of the dispatches brought hither by the Queen's messenger to Lord Lyons had not been communicated to our government.

A MINE of cannel coal for making gas, has lately been opened at Manhattan Bay, in the island of Cape Breton. The place has been named in honor of the Manhattan Gas Company, New York city, which has contracted for several thousand tuns of the coal. One tun yields about 9,500 cubic feet of gas, and 40 bushels of coke. The gas is of very excellent quality.

Inproved Holder for Bagging Grain.

The operation of putting grain into bags requires ordinarily the labor of two persons, one to hold the bag, and the other to pour in the grain. A cheap and simple little implement that will save the labor of one of these persons will effect an enormous economy in bagging the many millions of bushels of grain that are annually produced in this country. Such an implement has been invented and recently patented by A. M. Olds, and we present an illustration of it in the annexed engraving.

OLDS'S PATENT HOLDER FOR BAGGING GRAIN.

An upright standard, A, supported by a heavy iron platform at the base, is surrounded by a box or sleeve, B, which has a vertical motion up and down the standard. The sleeve is balanced by a weight hanging inside the standard, and it carries the jaws, C C, which support the bag and hold its mouth open. Each jaw has upon its lower and outer corner a spur wheel, *d*, and there are two similar spurs upon the lower corners of the hopper plate, E; these spurs being provided to catch into the bag and support it while it is being filled. As the bag rests at its lower end upon the floor, the spurs support only the weight of the bag; the weight of the grain being supported by the floor. The cord which sustains the weight within the standard passes around a pulley in the box, B, and is fastened to projections extending inward from the rear ends of the jaws, C; it is then led over a pulley in the outer edge of the box, B, and passing around a fourth pulley, in the upper end of the box, G, is secured at its outer end to the standard, A, at the top of the rod which serves as a guide to the box, G, in the vertical motions which this box receives.

When the workman wishes to attach his bag to the jaws, he places his foot upon the plate, F, which is fastened rigidly upon the side of the box, G, and, pressing downward, the jaws are drawn backward; the horizontal direction of the line from the point at which it is attached to the jaws securing this result. To prevent the sleeve, B, from being drawn down by this pressure, the board which forms its back side is shortened at the lower end, thus allowing the sleeve to tip and be clamped against the standard. As soon as the mouth of the bag is placed round the spur wheels the foot of the workman is removed from the plate, F, when the pressure of the weight within the standard being no longer counteracted, it draws the jaws forward and thus distends the mouth of the bag. The jaws, C C, are inclined at an angle diverging upward, and they consequently form with the plate, E, a flaring hopper or tunnel through which the grain is poured into the bag. The weight in the standard is so adjusted in relation to the weight of the sleeve, B, and its connections, that the few pounds of grain poured first into the bag, carry down the bag with the sleeve, B, so that the bag rests at its bottom upon the floor, with its upper end supported and distended as represented in the cut. After the bag is filled the jaws are drawn back by pressing the box, G, down, when the bag is easily removed and an empty one substituted in its place.

The patent for this invention was granted through the Scientific American Patent Agency, August 20, 1861, and further information in relation to it may be obtained by addressing the inventor, A. M. Olds, at Box 202, Chicago, Ill.

Fig. 1

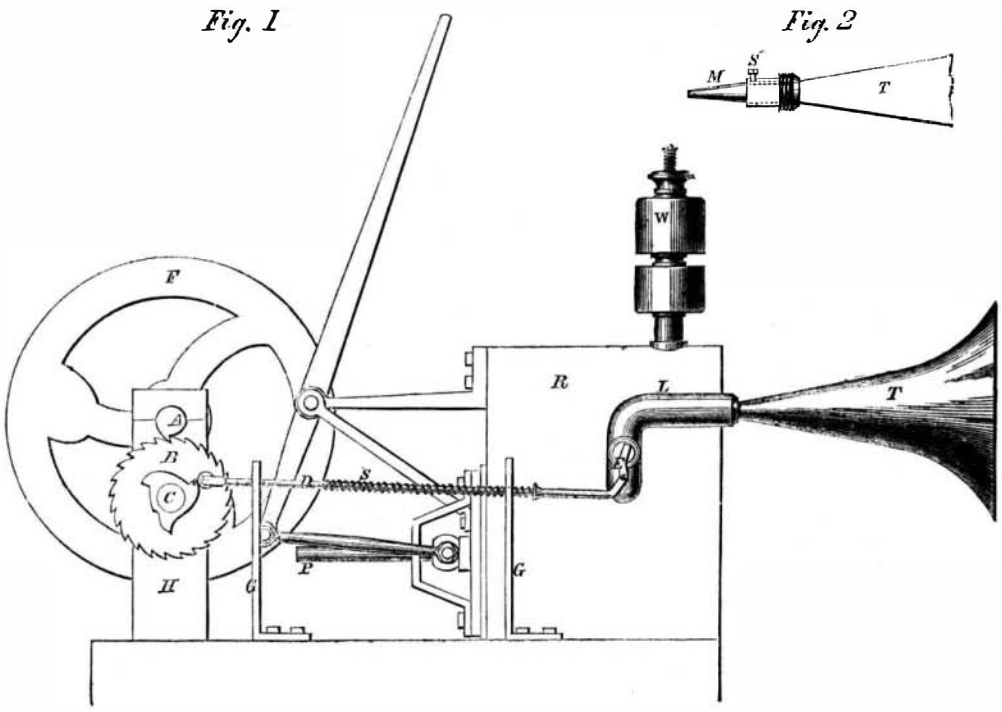

Fig. 2

DABOLL'S IMPROVED FOG ALARM.

Improvement in Fog Alarms.

There is nothing else that so completely bewilders a navigator as a fog. It cuts off all means of ascertaining his position, and prevents him from seeing rocks, vessels or other obstructions that may lie directly before him. Even the bright blaze of a lighthouse is completely obscured, and it is customary to imperfectly supply its place with a fog bell. The commanders of vessels too are in the practice of keeping their bells ringing during a fog to avoid the danger of the vessels coming in collision. But the bell gives a very uncertain sound, filling the whole air with its vibrations so that no idea can be formed of the direction whence the sound comes. The sharp, shrill scream of the steam whistle with its wonderful power of penetrating distances is far better suited to the purpose of a fog alarm, and is accordingly generally used on ferry boats and other steam vessels. But in many cases there are objections to the use of steam. Whenever the whistle has to be located at a distance from the boiler the steam condenses in the conducting pipe; and in situations where there is no engine the employment of a boiler for the purpose is expensive and dangerous.

Celadon L. Daboll, of New London, Conn., has invented an apparatus for blowing a trumpet or whistle with compressed air in place of steam, which is represented in the annexed engravings. A patent was granted for this invention on June 26, 1860.

Into a reservoir, R, air is compressed by means of a pump, of which the piston, P, is shown. A pipe, L, leads from this reservoir into the trumpet, T; the communication between the trumpet and the reservoir being closed by the valve, E, in the pipe. This valve is alternately opened and closed by the revolution of the wheel, F, acting through the mechanism represented. Upon the shaft of wheel, F, is a single toothed pinion, A, which catches into the teeth upon the wheel, B, and thus turns this wheel the distance of one tooth at each revolution of wheel, F. Upon the shaft of wheel B is a cam, C, pressing against the end of the rod, D, which is connected with an arm upon the axle of valve, E. The spiral spring, S, presses the rod, D, against the cam, E. It will be seen that as the cam, C, revolves, the valve, E, is alternately opened and closed, and by simply changing the form of this cam, any desired variation may be produced in the length and succession of the sounds.

Thus each vessel, lighthouse, or station may have its own peculiar signal, which cannot by any possibility be confounded with another. Or the Morse alphabet may be sounded by the apparatus and thus any message may bes ent through the fog.

Fig. 2 shows the manner in which the reed may be attached to the throat of the trumpet, by means of the schrew, S, so as to be easily replaced when defective.—The whistle, W, may beemployed in place of the trumpet if preferred. The air may be compressed by means of an air engine or other suitable power, and we should think the invention might prove very practical. In many situations these air whistles or trumpets must be decidedly preferable to either bells or steam whistles.