

very least. It shows no wear on the running side, but looks as well as when first put on. I believe it is conceded by all that we have but two objects in view in putting any grease or dubbing on leather—the one is to soften, the other is to preserve it. We all likewise know that leather will crack if it does not get some grease on; and this always take place on the hair side when it is not kept soft. And as it forms the largest circle when on the outside of a pulley, it must crack very soon. This may be proved by taking a piece of harness or leather of any kind and lapping it over the finger with the hair side out, when, if it is very dry, it immediately cracks. This is the position of a belt with the smooth side forming the larger or outer circle, which is evidently disadvantageous. Oiling on the flesh of a belt is the way to facilitate the rot in leather, as it will absorb almost any amount of grease when put on, owing to its spongy nature; and as it melts at a temperature of 75° to 80° (the heat we keep all our woolen and cotton factories), it would leave the surface too soft and porous, and serve to cause rot.

Your Dayton correspondent also states that his belt was originally 10 inches wide, but is now 9 inches. This I consider a great shrinkage, but it is easily accounted for when the grease is put on the flesh side. The belt to which I have referred has an angle of about 60 degrees, yet it has given entire satisfaction during 12 years, doing its work well at all times, and, I might add, has the appearance of doing so for years to come. The same correspondent concludes his argument by saying his belt never slips, and would pull down the shafting first. To the former of these assertions I will say it is almost impossible for a belt to slip running horizontally with the slack side up, and sagging (as he says it does) a foot on the top when doing full duty. All who are acquainted with such matters know that that is the most favorable position a belt could have.

Finally, let me say that my experience with belts has led me to conclude that, when they are run with the hair side placed next to the pulleys, they drive 33 per cent more machinery and run more steadily than when reversed.

D. I.

Philadelphia, Pa., May 22, 1860.

## AMERICAN NAVAL ARCHITECTURE.

[Reported expressly for the Scientific American.]

## THE STEAMER "VENCEDOR."

This steamer was constructed for the "Magdalena Steam Navigation Company" of South America, to run over the rapids on the Magdalena river at Honda, in that country. The hull was built by Messrs. Samuel Sneed & Co., Greenpoint, L. I.; it was put together with screw bolts, and taken apart for shipment to the port of Savanilla, S. A., for re-erection there. The machinery was constructed by Messrs. H. Ester & Co., of Brooklyn. As much interest is generally felt regarding the construction and destination of steam vessels in the United States, for parties, in other countries, we will publish minute particulars of the essential elements of the hull and machinery of this vessel:—Length on deck, from fore-part of stem to after-part of stern post, above the spar-deck, 156 feet 6 inches; length between perpendiculars, 150 feet; breadth of beam at midship section, above the main wales (molded) 24 feet; depth of hold, 5 feet 3 inches; draft of water at load line, 3 feet 6 inches; area of immersed section at above load draft, 820 feet. Her frame is of yellow pine, sided 4 inches, molded 6 inches, and 24 inches apart from centers. Bottom planking, yellow pine, 2½ inches thick; sides, of same material, 2 inches thick; promenade deck, made of white pine, 1 inch in thickness. Cargo deck, and hurricane deck made of same material, the former being 2 inches in thickness, and the latter ¾ of an inch in thickness. The pilot-house is on the hurricane deck, 35 feet above the level of the sea.

The *Vencedor* is fitted with two inclined direct engines, diameter of cylinders (two), 16 inches; length of stroke of piston, 6 feet; has one stern wheel, whose diameter over boards is 16 feet; length of wheel blades, 17 feet; number of buckets of same, 15; their width, 15 inches. She is also supplied with one locomotive boiler, to be situated in hold; length of this, 18 feet 8 inches; breadth, 8 feet 4 inches; and its height, exclusive of steam chimney, is 7 feet 8 inches. This boiler contains two furnaces, the breadth of which is 43 inches; length of fire-bars, 6 feet; whole number of tubes in boiler,

138; length of same, 12 feet, and their internal diameter is 3 inches; grate surface of furnaces, 43 square feet; heating surface, 1,500 square feet. Maximum pressure of steam, 120 pounds; maximum revolutions at this pressure, 35. The cutting-off is performed by variable link motion.

The cylinders of the engine are to be placed on the after-gunwale of the steamer; the shaft is of wrought iron, 9½ inches in diameter at body; the journals are 8½ inches in diameter; piston rods of steel, and the distance between centers of engines athwartship is 22 feet. She has two masts, and will be, when put together, a very superior boat in every respect, and a model for others of its character where like results are required.

## THE STEAMER "FLUSHING."

This steamer was constructed by Messrs. Samuel Sneed & Co., Greenpoint, L. I., for the route between New York City and Flushing, L. I. We herewith annex full particulars of the hull and machinery:—Length on deck from fore-part of stem to after-part of stern-post, above the spar-deck, 161 feet; length at load line, 155 feet, 6 inches; breadth of beam at midship section, above the main wales (molded) 27 feet; depth of hold, 8 feet; draft of water at load line, 4 feet; area of immersed section at this draft, 86 square feet; tonnage, 323 tons. Her hull is of iron, 5-16ths of an inch in thickness, and is securely fastened with rivets ¾ of an inch in diameter, at a distance of 2½ inches apart. Distance of frames apart from centers, 20 inches; shaped L, and their depth 3 inches; width of web, 5-16ths of an inch; width of flanges, 3 inches. The cross floors are 12 inches in depth by ½ of an inch in thickness, and are connected with every other frame.

The *Flushing* is fitted with a vertical beam condensing engine, diameter of cylinder, 36 inches; length of stroke of piston, 10 feet; diameter of water wheels over boards, 26 feet; material of same, iron; length of wheel blades, 6 feet, 9 inches; number of blades, 22.

She is also supplied with one return tubular boiler, whose length is 24 feet; extreme breadth, 10 feet; shell, 8 feet, 6 inches; location in hold; number of furnaces, 2; breadth of same, 4 feet 6 inches; length of fire-bars, 7 feet; whole number of tubes above, 140; whole number of flues below, 10; internal diameter of tubes above, 2½ inches; internal diameter of flues below, 6 of 12 inches, 2 of 9 inches and 2 of 13 inches; length of tubes above, 10 feet. The height of smoke pipe, above grate surface, is 50 feet; diameter of same, 42 inches; area of heating surface in boiler, 2,200 square feet. The maximum pressure of steam is 50 pounds, and point of cutting-off, 5 feet; maximum revolutions at above pressure, 27. She has three water-tight bulkheads; one independent steam fire and bilge pump; draft at time of launching, 2 feet 2 inches; weight of iron in hull, 136,000 pounds; depth of keel, 3 inches; ½ an inch thick, and shaped U; has two box keelsons, and four plate keelsons running fore-and-aft. The builders of her machinery are the proprietors of the Morgan Iron Works, in this city; and her owners are the New York, College Point and Flushing Steamboat Company.

## AN EXTRAORDINARY ANNOUNCEMENT!

FORTY-SEVEN PATENTS ISSUED THROUGH A SINGLE AGENCY IN ONE WEEK.

Soon after the removal of our offices to No. 37 Park-row, and the association with us of HON. CHAS. MASON, formerly *Commissioner of Patents*, we announced our facilities ample for conducting the entire patent business of the United States. We did not then suppose, however, that, in so short a period as up to the present time, we should be doing one-half of the business, notwithstanding our capability of doing the whole; but we are happy to state that the time has arrived when almost one-half of the entire patent business of the country is conducted through this agency. The official list of claims, published under the appropriate head in another part of the present number of the *SCIENTIFIC AMERICAN*, bears us witness in this assertion.

The total number of patents issued for the week ending May 22d, was one hundred and eight; out of this number, forty-seven—or nearly one-half—were patents which were solicited through this office; being a larger number (we have no hesitation in asserting) than was ever before issued to the clients of a single agency in one week. We would re-iterate the assertion that we have ample facilities for attending to the entire patent business

of the country; and our patrons may rest assured that, under our perfectly-organized system of doing business, the same critical attention is paid to each case which is intrusted to our management as if we had but a single application to prepare in a week.

We append a few complimentary letters received from different parts of the country within a few days, to the perusal of which we call the attention of such as are about to apply for Letters Patent:—

MESSRS. MUNN & Co.:—You will please accept my thanks for the promptness and dispatch you manifested in procuring my patent for pipe-molding machinery. I received my papers yesterday; consequently, you will see, by referring to the date on which I left my model at your office (March 26th), that it has all been done in less than six weeks. Considering that my invention was a complicated machine, and that one of the claims was rejected and the papers had to be sent back to New York for alterations, I think you have done up my business in "A No. 1" style and at railroad speed. I will advise all inventors that I may come across to give their business to your office by all means. You recollect that I took my case from —, after he had kept it in his office for six weeks; while you have only taken the same time to get it through the Patent Office that it took him to get his papers ready. If I ever have any more business of this kind, you may depend I shall know where to get it done from this time forward.

WILLIAM DOYLE.

Albany, N. Y., May 8, 1860.

MESSRS. MUNN & Co.:—I am in receipt of your note giving me the information that the application made through your agency has met with success, and also am in receipt of the Letters Patent from Washington. Accept my sincere thanks for the promptness and ability with which you have conducted my case. I can cheerfully unite my humble voice to scores of others in recommending your agency in all business connected with the Patent Office. The promptness and dispatch with which all communications are attended to, and the concise and comprehensive form in which the claims, &c., are arranged, are sufficient guarantee to insure success to any applicant. I am much pleased with the drawings, for they exactly represent the very idea I wanted to convey. All to whom I have shown the "papers" are greatly pleased with them; and since I conceived the idea of the "guard," some five or six persons have been induced to concentrate their thinking faculties and "try their luck" at the patent business as inventors. Two have already obtained patents through your office, and the others are still hard at their contrivances. As to the *SCIENTIFIC AMERICAN*, I wish my efforts could make it universally read; for I think there would then be a more general appreciation of the arts and sciences, and mechanics would be admitted to that position in society which is justly their due.

B. S.

Portsmouth, Va., May 9, 1860.

MESSRS. MUNN & Co.:—I hasten to acknowledge the receipt of your favor of April 30th, containing the gratifying intelligence that my Letters Patent are granted. My thanks to you, for the speedy and efficient manner in which you have conducted my case, are more abundant than words can express. My first knowledge was that my invention was a valuable one; and I now know that the right is granted whereby I can obtain that value, which is, of course, exceedingly gratifying. My influence for the future shall be directed in your behalf. You will soon receive another case from—

N. S. GILBERT.

Albion, N. Y., May 1, 1860.

MESSRS. MUNN & Co.:—Your letter announcing our good fortune has been this day received. Many thanks to you for the skill and energy which you have displayed in obtaining a patent for us. We had expected such a result, notwithstanding the case had been twice rejected; because we believed you to be above the too common trick of attorneys of holding out false hopes to their clients. We hope this is not the last patent we shall have the pleasure of obtaining through your agency, and wish you success both as patent-attorneys and editors of the *SCIENTIFIC AMERICAN*.

CHURCH &amp; ELLSWORTH.

Birmingham, Conn., May 1, 1860.

MESSRS. MUNN & Co.:—I have the great pleasure of acknowledging the receipt of my Letters Patent for reversing cultivator teeth. This case was presented to the Patent Office some six months ago; but owing to defects in my specification and claim, the application was rejected. No doubt many inventors, who have undertaken (as I did) to prosecute their own applications, have experienced the same results and abandoned their just rights in a valuable invention, when a patent might have been obtained had they employed competent attorneys. It is two things, to invent and to secure a patent. The energy with which you prosecuted my case to a successful termination and the ability exhibited in framing my specification and claims show your devotedness to the inventor's rights, and that you richly merit your extensive reputation.

HEMAN B. HAMMON.

Bristolville, Ohio, April 19, 1860.