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IMPORTANT TO MANUFACTURERS AND INVENTORS.—SMITH & GARVIN, No 3 Hague street, New York, Machinists and Model Makers, are now ready to make proposals for building all kinds of light Machinery, Manufacturers' Tools, Models, etc. Satisfactory reference given. 17 4\*

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CARD.

PROF. H. DUSSAUCE, CHEMIST, TAKES OCCASION to give notice to his numerous friends that on the first of May next, he will leave for Europe, where he shall reside several months. Any one who desires to transact any business there—purchasing or selling in the chemical line—can get information by addressing New Lebanon, N. Y.

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IN CONSEQUENCE OF THE FIRE ON THE 6TH inst., and the entire destruction of the Patent Exchange, 229 Broadway, the undersigned can hereafter be addressed care of J. N. Phelps & Co., Publishers of "The Illustrated Journal," 111 Fulton street, where the business will be continued. THOMAS G. ORWIG. 1\*

THE CELEBRATED "SCHENCK" WOODWORTH Planers, with new and important improvements, are manufactured by the Schenck Machine Co., Matewan, N. Y. T. I. B. SCHENCK, Treas. JOHN B. SCHENCK, Pres't. 17 1\*

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The AMERICAN ANTI-INCORUSTATION COMPANY are prepared to remove scale from any and every description of steam boiler, and prevent the hard incrustation or scale from forming. By the use of the Anti-Incrustator the consumption of fuel is much reduced; the frequent stoppage of mills, manufactories, furnaces, forges, locomotives, steamboats, collieries, etc., to clean boilers, dispensed with, and the danger from the terrible effects of boiler explosions greatly lessened.

Experience has clearly demonstrated the utility of the Anti-Incrustator, and the certainty of its attaining the very desirable results above claimed for it. Information relative to the Anti-Incrustator cheerfully given personally, or through correspondence at the Company's Office, No. 147 South Fourth Street, cor. of Harmony street, Philadelphia.

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The undersigned having the Anti-Incrustator in use, consider it valuable in removing scale from boilers and in preventing its formation, as well as in the saving of fuel and rendering boilers less liable to explosion. We heartily recommend it to all persons using steam for the purposes set forth, convinced that its use will be highly advantageous.

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RESULT OF THE VAN DE WATER WHEEL CHALLENGE.—MESSRS. EDITORS.—I see in your issue of the 24th inst., a notice with the above heading, with a very one-sided statement of a trial of my Water Wheel with Lefel & Co.'s, which was in every way unfair. The wheel that Lettel & Co put in Mr. Burbank's Mill was a new one, got up with great care, with polished steel buckets, after his first one was beaten, twenty inches more water than my wheel. According to Lettel & Co.'s table, twenty inches of water under fifteen feet head gives 6 44 horse-power. Now, 6 44 horse-power under fifteen feet head ought to grind six and one-half bushels of wheat per hour, or thirty-six barrels in 24 hours more than my wheel, and he only claims beating me 24 barrels in 24 hours, which would show the result of the trial to be in my favor. I am told by a party who knows all the particulars of the trial, that the stones which my wheel run were not in good order, and that it was an unfair trial. I had no notice, nor any one there to see to my interest in the matter. I do not know which drove the most machinery besides the mill stones; my wheel generally drives all the machinery in the mill except two smut mills. My wheel was all cast iron, rough as it came from the foundry, not polished buckets, the first tried from that pattern, using twenty inches less water under fifteen feet head, grinds twenty-four barrels four less in twenty-four hours than the Lettel wheel. If I had been in Lettel & Co's place I should have kept quiet about that trial. I intend to build a wheel venting the same amount of water as the Lettel wheel, when I will let the public know the result. With regard to the challenge, my offer is still open for Lettel & Co's acceptance; the Five Tons and Dollars is still ready as I proposed, with a fair trial at grinding. Below I give Mr. Burbank's certificate, saying my wheel used less water than the Lettel wheel. The new Lettel wheel vents the same as the old one. I see the certificate which Lettel & Co. publish says they did not measure the amount of water used, that it was only as fair a test as could be made without measuring water, as if the amount of water used was of no importance in a trial of the power of water wheels. Very respectfully, HENRY VAN DE WATER. Buffalo, N. Y., March 27, 1866.

ROCHESTER, Sept. 20, 1865. HENRY VAN DE WATER—Dear Sir:—I have now fully tested your Patent Improved Jovyal Turbine Water Wheel, at my mill in the city of Rochester, under a fifteen foot head and full run, and am driving two pair of 4 1/2-foot stones, and they are grinding us to their fullest capacity with all the machinery necessary for cleaning and bolting wheat and flour for said runs of stones. I most cordially and confidently recommend your Wheel to mill-owners and others, who are operating machinery by water power, as being the best wheel of the day, using less water and doing more work than any other Water Wheel known to me. It is proper to state that you warranted your wheel to yield full as much power as the Ohio Double American Turbine Water Wheel, built at Springfield, Ohio, with the same number of inches of water. I am satisfied that your wheel gives me more and a steadier power than the Ohio wheel, with 20 inches less water. You can draw at sight on me for your pay for the same. It is proper to state that the wheel is only 3 feet in diameter. Truly Yours, G. W. BURBANK. 17 1

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 Explanation of Characters used; Definitions of Words used in this Work; United States Weights and Measures; Decimal Fractions; On the Selection of Millstones; On the Dressing of new Millstones—making their Faces Straight, and ready for putting in the Furrows; Furrows: the manner of Laying them out—their Draft, and cutting them in; Directions for laying off and cutting the Holes for the Balance Ryne and Driver; Directions for putting in the Balance Ryne and the Boxes for the Driver, and making them fast; Of setting the Bed Stone, and fastening the Bush therein; Directions how to Bridge or Tram the Spindle; Instructions for grinding off the Lumps of New Stones, Turning the Back of the Running Stone, Rounding the Eye and Balancing the Stone; Directions for Dressing and Sharpening Millstones when they become dull; Respecting the Irons of the Mill; Description of Plate 4, Showing the Principles upon which the Millstones work; How to fit a New Back on a Stone that has been running; Of the Elevator, Conveyor, and Hopper Boy; Of Bolting Reels and Cloths, with Directions for Rolling and Inspecting Flour, Directions for Cleaning Wheat; Instructions for Grinding Wheat; Directions for Grinding Wheat with Garlic amongst it, and for Dressing the Stones suitable thereto; Directions how to put the Stones in Order for Grinding Wheat that has become amongst it; Directions for Grinding Middlings, and how to prevent the Stones from Choking, so as to make the most of them; Reels for Bolting the Middlings; Instructions for a Small Mill, Grinding different kinds of Grain; Of the Manner of Packing Flour; Table showing the number of Pounds which constitute a Bushel, as established by Law in the States therein named; The Duty of the Miller; Pearl Barley or Pot Barley; The art of Distillation; Of the Importance of Draughting and Planing Mills; Coars; the best time for Seasoning and Cutting them; The Framing of Mill Work; Windmill; a Table of the Velocity of the Wind; Instructions for Baking; Receipt for making Rabbit Metal, etc.; Cement; Solders; Table Showing the Product of a Bushel of Wheat of Different Weights and Qualities, as ascertained from Experiments in Grinding Parcels; Of Saw-Mills and their Management; The Circular Saw; Rules for Calculating the Speed the Stones and other pieces or parts of the Machinery run at; To find the Quantity, in Bushels, a Hopper will Contain; Table of Dry Measure; Souts—the Necessity of making them Large; To lay off any required Angle; Of Masonry; Of Artificer's Work; Of Bricklayer's Work; Bricks and Laths—Dimensions; Timber Measure; Table—Diameters in Inches of Saw Logs required to such board measure; Of the Wedge; Of Pumps; The Sewer; Table showing the power of Man or Horse as applied to Machinery; Measure of Solidity Rules for calculating Liquids; a Table showing the Capacity of Cisterns, Wells, etc., in Ale Gallons and Hogheads, in proportion to their Diameters and Depths; Steel—Of the various degrees of Heat required in the Manufacture of Steel; Composition for Welding Cast Steel; 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TIMOTHY ROSE, OF CORTLANDVILLE, N. Y. patented, Nov. 7, 1865, an improvement on Pumps for Clearing Oil Wells of paraffine, and for bored wells; fresh-water wells made in from one to three hours.

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CHARLES A. SEELY (LATE PROF. OF CHEMISTRY in the N. Y. Medical College), Consulting and Analytical Chemist.

RESULT OF THE VAN DE WATER CHALLENGE. Messrs. Editors.—The readers of your valuable paper will recollect that in your issue of Nov. 11, 1865, Mr. Van De Water challenged any water-wheel builder to compete with his make of wheel for \$500.

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MESSIEURS LES INVENTEURS.—AVIS IMPORTANT Les inventeurs non familiers avec la langue Anglaise, et qui préféraient nous communiquer leurs inventions en Français.

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Who are the only manufacturers of J. A. Fay & Co.'s Patent Wood working Machinery in the United States.

BUERK'S WATCHMAN'S TIME DETECTOR.—IMPORTANT for all large corporations and manufacturing concerns—capable of controlling with the utmost accuracy the motion of a watchman or patrolman.

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OIL! OIL! OIL! For Railroads, Steamers, and for machinery and Bureau, PEASE'S Improved Engine Signal, and Car Oils.

FOR SALE.—A LARGE FLY WHEEL, 20 FEET IN diameter, weighing about 10 tons, good as new.

FOR PATENT SCROLL SAWS, PATENT POWER Moulding Machines, Tenoning, Boring and Doweling Machines.

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FOR PATENT SCROLL SAWS, PATENT POWER Moulding Machines, Tenoning, Boring and Doweling Machines.

**Improved Motion for Sewing Machines.**

Many of the lower-priced sewing machines have no treadle or other means of applying power, except a small balance-wheel and a handle therein. It is difficult to get sufficient velocity on these machines without driving the hand and arm at such a rate that the operator is soon tired out; moreover one hand is always occupied in moving the machine so that attention is distracted from the work, which is often injured thereby. The engraving published herewith shows a method of attaching a treadle to such machines so that they are moved by the foot of the operator the same as all other machines. The treadle only has to be purchased where the operator has the machine, and not an expensive piece of cabinet work such as the table often is.

The method of attaching the treadle is as follows:—A cast-iron plate, A, is fitted to two studs on the bottom of the machine and is prolonged at the end furthest from the reader to receive a clamp, B, which carries the main driving wheel, C. From this wheel a rod proceeds to a stirrup, D, at the end, which constitutes a treadle, light and durable. It can be easily put on and taken off any table without marring the surface, and will greatly facilitate operations.

The machine to which the treadle is attached is very neatly got up and does good work for one of its class, that is, the single thread machine.

For further particulars address J. G. Folsom, Winchendon, Mass., who has an application pending before the Patent Office on this invention.

**Academy of Sciences.**

Father Secchi sent an account of the spectra of some stars, as seen by him recently in a new spectrometer by Merz, with a prism by Hofmann, of Paris. A drawing of the spectrum of  $\alpha$  Orionis accompanied the communication. The spectrum of Sirius is described by the learned author as resembling that of sulphur.

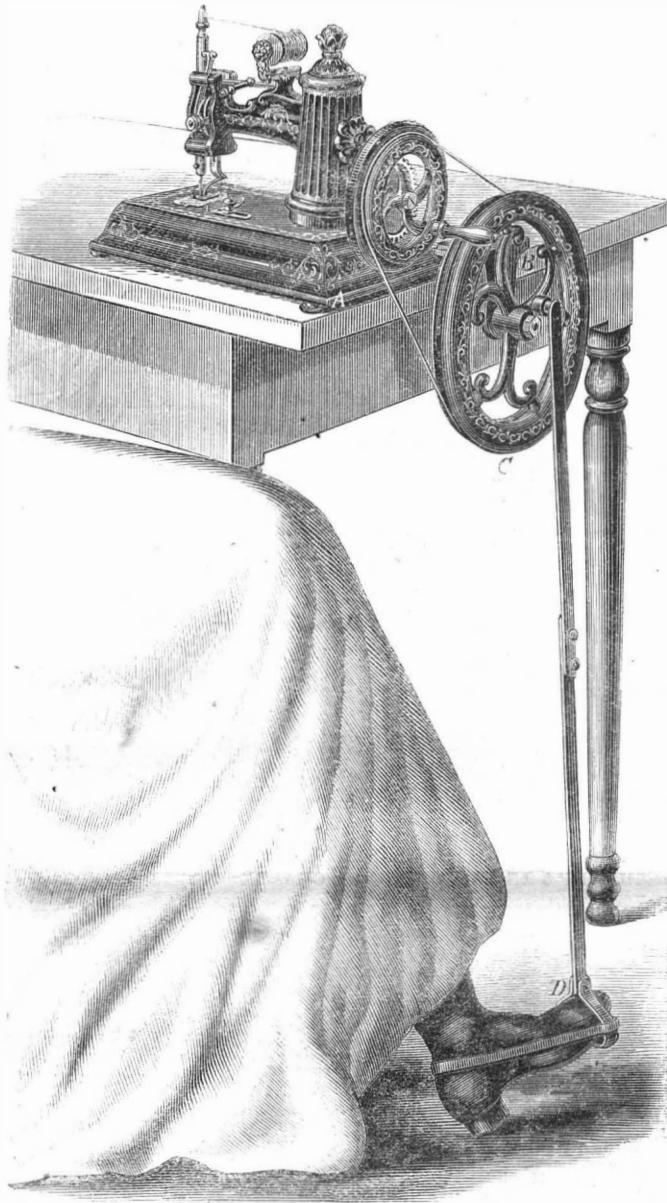
M. De Vergnette-Lamotte sent a long memoir "On the Preservation of Wines by the Employment of Heat." M. Pasteur, reviving an old suggestion of Appert, proposes to heat wine for a few minutes to 75° or 80° C. The author objects to this, and says it is better to submit the wines for some time to a temperature not exceeding 45°. He seems to admit, however, that Appert's or Pasteur's plan answers well with the more saccharine and alcoholic wines, like ports and sherris, etc.

M. Fouque presented a memoir "On the Chemical Phenomena of Volcanoes." Only the general conclusions of the author are given in the *Comptes Rendus*, and the most interesting of these is the last. The author wished to demonstrate that the contact of sea water with the molten mass on which the solid crust of the earth rests is sufficient to account for all the eruptive phenomena. With this view he made some synthetical experiments, having for their object the reproduction of some of the substances he had found in the fumaroles of Mount Etna. In the course of his experiments he found that steam alone decomposes chloride of sodium, forming caustic soda and hydrochloric acid; and, further, that sulphate of lime and chloride of sodium react on each other in the presence of the vapor of water, producing sulphate

of soda, and many other compounds he has noticed in volcanic emanations. Is it possible that the first of these observations may lead to the simplification of the soda process?—*Chemical News*.

**Extension of Patents.**

Many valuable patents are allowed to expire every year for the want of a little care on the part of patentees in not applying for an extension. The petition must be filed in the Patent Office at least ninety days



**FOLSOM'S MOTION FOR SEWING MACHINES.**

before the expiration of the patent, which gives time for the preparation of testimony. Inventors who have patents dated in 1852, and who may wish to have them extended for seven years, can receive all necessary advice how to proceed, by addressing this office.

**HOPKINS'S WATER COOLEER.**

This water cooler is composed of an inner and an outer casing, with the intervening space filled with any non-conducting material. The inner casing is made to receive the ice as it is delivered to the consumer without the necessity of cutting away the corners and otherwise breaking it—as in the ordinary round cooler. The great loss of ice resulting from the necessity of cutting it into small pieces and exposing a much greater amount of surface to the water is avoided, while the external dimensions do not have to be any larger than in ordinary coolers.

After the block of ice is placed with the water in the cooler, as in ordinary ones, the covers are replaced and the water may be replenished through the reservoir, A, which is so arranged as to shut off all communication with the external air to the interior of the cooler. Hence, there is no necessity for removing the cover except to introduce more ice.

A glance at the reservoir will always indicate the height of the water in the interior of the cooler. As

the water is introduced gradually at the base of the ice, says the inventor, with the covers tight, it does not melt as rapidly as when poured upon it from above with the covers off, which, at the same time, admits the warm surrounding air.

It is claimed that this cooler will save from thirty-three to fifty per cent of ice, as it was in use last season, while the cost will be but a trifle more than ordinary



coolers. Samples may be seen at the warerooms of J. Hall Reohrman, No. 606 Cherry street, Philadelphia, where orders will be received. State rights will be disposed of on application to the patentee, No. 1,107 Walnut street.

It was patented Jan. 16, 1866, by E. E. Hopkins, of Philadelphia, Pa.

**FAST WORK.**—Benj. F. Avery, of Louisville, Ky., informs us that for three months past he has finished 2,000 plows per week. He turned out over 622 in one day, which, we should say, was rapid work.

OF THE 529,241 persons who visited Kew Gardens last year 260,040 arrived on Sundays, and 269,201 on week days.



**INVENTORS, MANUFACTURERS.**

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Also, Reports of Scientific Societies, at home and abroad, Patent-law Decisions and Discussions, Practical Recipes, Etc. It also contains an Official List of all the Patent Claims, a special feature of great value to Inventors and owners of Patents.

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