

A VALUABLE WORK FOR INVENTORS PATENTEES AND MANUFACTURERS.

The publishers of the SCIENTIFIC AMERICAN have just prepared with much care, a pamphlet of information about Patents and the Patent Laws, which ought to be in the hands of every inventor and patentee, and also of manufacturers who use patented inventions.

THE GREAT RURAL AND FAMILY WEEKLY!

NEW VOLUME—NEW FEATURE—NEW TYPE.

MOORE'S RURAL NEW-YORKER, LONG KNOWN as the best and most popular Agricultural, Horticultural, Literary and Family Newspaper in this country, will enter upon its Fifteenth Year and Volume on the 2d of January, 1864.

BEST NEWSPAPER OF ITS CLASS ON THE CONTINENT!

Always Loyal, Practical and Progressive, "The Rural" is the favorite Farm and Fireside Journal—largely read and admired in both town and country. Its ample pages comprise Departments devoted to, or treating upon: AGRICULTURE, HORTICULTURE, ARCHITECTURE, RURAL ECONOMY, EDUCATION, ARTS AND SCIENCE, LITERATURE, GENERAL NEWS.

SHEEP HUSBANDRY,

Conducted by Hon. Henry S. Randall, LL.D., author of "The Practical Shepherd," &c., who is conceded to be far the best authority on the subject in this country.

THE WAR NEWS, MARKETS, &c.,

receive special attention—the "Rural" containing Reports of the principal Grain, Provision, Cattle, Wool and Fruit Markets in the country. Remember that the "Rural" emanates from one of the very best cultivated sections of America, and that its Editors, Correspondents and Contributors strive to promote the pecuniary interest and home welfare of its tens of thousands of readers.

STYLE, FORM, TERMS &c.,

Volume XV., for 1864, of the RURAL NEW-YORKER will be published in Superior Style—with New Type, good white paper, and many fine Illustrations. Its Form will continue the same as now—Double Quarto—with an Index, Title Page, &c., at close of year, complete for binding.

BROWN'S BRONCHIAL TROCHES.

"I have never changed my mind respecting them from the first, excepting to think yet better of that which I began thinking well of." REV. HENRY WARD BEECHER.

MARVIN'S NEW PATENT DRY-PLASTER AND ALUM, FIRE, BURGLAR AND DAMP-PROOF SAFES.

We have received letters from the following eminent scientific gentlemen, proving their superiority over all others: Prof. John J. Gortney, U. S. Mint, Philadelphia.

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ANILINE, TOLUODINE, BENZOLE, NITRO-BENZOLE, Naphthaline, Coal and Wood Naphtha, Arsenic Acid, Carbolic, Picnic and Picric Acids, manufactured by READ HOLLIDAY & Co., Huddersfield, and 128 Holborn Hill, London.

OIL! OIL! OIL!

For Railroads, Steamers, and for machinery and Burning. PEASE'S Improved Engine and Signal Oil, indorsed and recommended by the highest authority in the United States.

IRON PLANERS, ENGINE LATHES, DRILLS AND other machinists' tools, of superior quality, on hand and finishing, for sale low. For description and price address NEW HAVEN MANUFACTURING COMPANY, New Haven, Conn.

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WHEELER & WILSON'S HIGHEST PREMIUM SEWING MACHINES and Foot's Patent Umbrella Stands, 505 Broadway, New York.

BEWARE OF THE NORTH-EASTER.—BROWNE'S metallic weather strips and window bands totally exclude wind, rain, snow, and dust from the crevices of doors and windows without interfering with the free use of the same for ventilating purposes.

DEPARTMENT OF AGRICULTURE. To the Growers and Manufacturers of Flax and Hemp.

THE COMMISSIONERS APPOINTED BY THIS DEPARTMENT, consisting of Hon. J. K. Morehead, of Pennsylvania, William M. Bailey, of Rhode Island, and John A. Warder, of Ohio, to consider the following appropriation made by the last Congress.

SAVING OF FUEL TO PARTIES USING STEAM-DAMPER REGULATORS. Guaranteed to effect a great saving in fuel and give the most perfect regularity of power.

WANTED A STEAM-ENGINE AND BOILER OF 8 or 10 horse-power, in good condition, and economical for fuel. Address DAVID COON, Ypsilanti, Michigan.

MASON'S PATENT FRICTION CLUTCHES, FOR connecting and disconnecting shafting: also for hoisting machinery, and for starting all heavy machines without sudden shock, are manufactured by WILLIAM MASON, Providence, R. I.

BISULPHIDE OF CARBON, CHEMICALLY PURE, for sale in quantities from one to fifty carboys. Address DU-BOIS D. PARMELEE, Chemist, 21 East 41st street, New York.

FIRE ENGINE FOR SALE VERY CHEAP, SUITABLE for country, town or village, will throw a stream 180 feet. ALBERT POTTS, north-east corner of Third and Willow streets, Philadelphia, Pa.

GIFTS FOR THE HOLIDAYS.—PARR'S TOOL Chests fitted with complete sets of tools, sharpened and set ready for use and packed in cases for shipping.

PATENT CALIPERS.—THE SELF-ADJUSTING CALIPERS illustrated in the Scientific American of Aug. 8, 1863 (see a drawing in that number) are manufactured by the patentees at Worcester, Mass., and are now ready for delivery.

NERVOUS DISEASES AND PHYSICAL DEBILITY, arising from Specific causes in both sexes—new and reliable treatment, in Reports of the Howard Association—sent in sealed letter envelopes, free of charge. Address Dr. J. SKILLIN HOUGHTON, Howard Association, No. 2 South Ninth street, Philadelphia, Pa.

ALCOTT'S CONCENTRIC LATHES—FOR BROOM, Hoop, and Rake Handles, Chair Rounds, &c.—Price \$25; and all other kinds of Wood-working Machinery, for sale by S. C. HILLS, No. 12 Platt street, New York.

SCIENTIFIC AMERICAN, FROM 1848 (VOL. 2), TO date, complete (22 volumes) for sale; also volumes 3, 4, 5, 6, 7, 8, and 9, old series. Address J. D. REICE, 11 South-seventh street, Philadelphia, Pa.

HOLSKE & KNEELAND, MODEL MAKERS. PATENT Office Models, Working Models, and Experimental Machinery, made to order at 100 Walker street, between Center and Elm, New York.

W. M. CLEVELAND HICKS, CIVIL AND MECHANICAL Engineer, 480 Broadway, New York.

MESSIEURS LES INVENTEURS.—AVIS IMPORTANT. Les inventeurs non familiers avec la langue Anglaise, et qui préféreraient nous communiquer leurs inventions en Français, peuvent nous adresser dans leur langue natale.

THE CHEAPEST MODE OF INTRODUCING INVENTIONS.

INVENTORS AND CONSTRUCTORS OF NEW AND useful Contrivances or Machines, of whatever kind, can have their inventions illustrated and described in the columns of the SCIENTIFIC AMERICAN on payment of a reasonable charge for the engraving.

No charge is made for the publication, and the cuts are furnished to the party for whom they are executed as soon as they have been used. We wish it understood, however, that no second-hand or poor engravings, such as patentees often get executed by inexperienced artists for printing circulars and handbills from, can be admitted into these pages.

MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, No. 37 Park Row, New York City.

UPHAM'S PATENT STEAM TRAP.—THE BEST AND cheapest article yet offered to the public, for effecting a saving of fuel by preventing a waste of steam where it is used for warming.

CONES FOR UNITED STATES MUSKETS, ENFIELD and Austrian Rifles, and for the Shells of Rifled Cannon, promptly supplied in any quantities and warranted to pass Government inspection.

WANTED AN ENGINEER TO SEND TO A FOREIGN country. A young unmarried man is required who is a good mechanic and possessed of good general business ability.

PFLEGHAR & SCHOLLHORN, PRACTICAL TOOL-MAKERS and Builders of small machinery and models. Room No. 6 Stafford Building, opposite the Courier office, New Haven, Conn.

PARTNER WANTED.—A PRACTICAL MACHINIST or Foundryman in a shop in a country village now doing a good business. One who can furnish some capital preferred.

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GROVER & BAKER'S CELEBRATED SEWING MACHINES were awarded the highest premiums over all competitors at the recent State Fairs of New York, Vermont, Iowa, Michigan, Indiana, Illinois, Kentucky, Pennsylvania, Ohio, and at every Institute and County Fair where exhibited this year.

TO LEASE OR FOR SALE THE ONLY VACANT mill lot on Paterson race. For further particulars apply to G. SHIFF, 17 William street, room 27, up-stairs, New York, or to JAMES SPEAR, Paterson, N. J.

THE PENDLETON AND FIFTH STREET MARKET Railroad Company hereby offer a premium of \$500 for the best steam car for street railroad purposes, to overcome grades not exceeding eight feet in a hundred and perform the work in a satisfactory manner.

GUILD & GARRISON'S CELEBRATED STEAM Pumps—adapted to every variety of pumping. The principal styles are the Direct Action Excelsior Steam Pump, the Improved Balance Wheel Pump, Duplex Vacuum and Steam Pumps, and the Water Propeller, an entirely new invention for pumping large quantities at a light lift.

BLACK DIAMOND STEEL WORKS, PITTSBURGH, Pa. PARK BROTHER & CO., manufacturers of best quality Refined Cast Steel, square, flat and octagon, of all sizes.

POWER LOOM WIRE CLOTHS AND NETTINGS, superior in quality and at low prices, by the CLINTON WIRE CLOTH COMPANY, Clinton, Mass. N. B.—Our trade-mark "Power Loom Wire Cloth."

Sur Beachtung für deutsche Erfinder Die Unterzeichneten haben eine Anstalt, die Erfindern das Verhalten anzeigt, um ihre Patente zu sichern, herauszugeben, und veröffentlichen solche gratis an dieselben.

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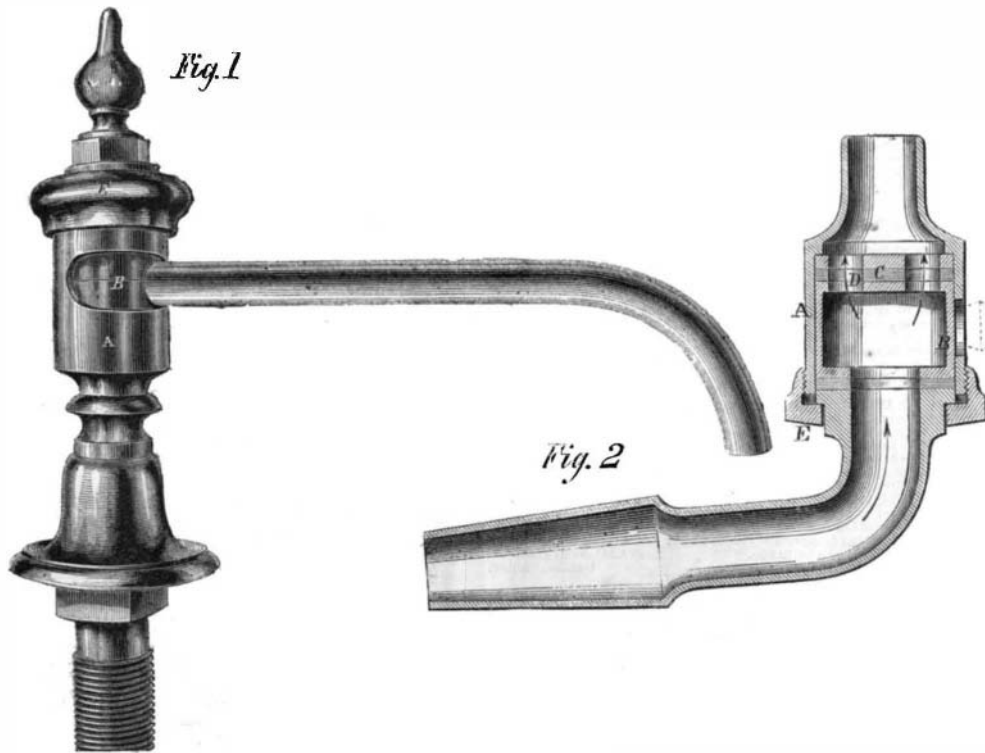
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Improved Faucet.

One of the most annoying of the minor troubles of life is the incessant leakage of faucets attached to water-pipes. Water is so universally introduced into the cities and towns throughout the country that a durable and tight faucet is a public necessity. Very often much damage to ceilings and merchandise occurs through the imperfections of water faucets; the one illustrated herewith is an improved form of water faucet and embraces some novelties in the arrangement of its parts. It is also economically manufactured, as all of it can be made in a lathe. In Fig. 1, we have a perspective view which represents the external appearance of the faucet, and in Fig. 2 a section through the middle. The chamber, A, of the

**BROUGHTON'S IMPROVED FAUCET.**

cock is bored out inside, and has a shell or valve, B, fitting easily within it; this valve and the chamber are faced off truly at the bottom and set upon a leather washer, C. In the bottom of the chamber and valve are two holes, D, through which the water rushes, when they are turned in line with each other by the handle screwed into the valve as shown, which also serves as the spout; there is also a leather washer between the chamber and the elbow-pipe. This faucet will wear a long time without getting leaky, and by simply screwing up the nut, E, the valve is forced down upon its seat again. This is a very neat and durable article, and will give good satisfaction. It was patented through the Scientific American Patent Agency, on Sept. 8, 1863; for further information address the inventor John Broughton, Chicago, Ill., or J. W. Oakman, 192 Fulton street, New York.

Agassiz's Museum.

Professor Agassiz, who is at once a wise and a modest man, said in the *Atlantic Monthly*, not long ago, that all his investigations in science had served only to convince him how little he really knew. Yet this great man, who lacks self-assertion while he enriches the store of our knowledge, is daily doing useful work for American science. He not only delivers a regular course of lectures in the Lawrence Scientific School at Cambridge, but prepares magazine articles and writes masterly volumes on natural history, finds time to undertake long journeys for scientific observation and directs the affairs of the Museum of Comparative Zoology in Boston.

The last report of this museum, just published in Massachusetts, shows some curious facts. Professor Agassiz, in his account of its operations for the year 1862, says that its collection embraces 100,000 specimens, representing 6,000 species, all preserved in alcohol. In the collection of the British Museum, which is now superior to that of Paris, there are but 20,000 specimens. This numerous collection in Boston necessarily permits an extensive system of exchanges, so that the whole country receives benefit from the

operations of an institution which owes its foundation to Professor Agassiz's private gift of his own collection. Of birds, there are now in the Boston Museum more than 3,000 specimens; of reptiles, there are 174 different species; of fishes, 374 species and 2,799 specimens—ichthyology being Agassiz's specialty. This is a remarkable exhibit of the wonderful growth of a collection which is only four years old, but which is already the finest existing picture-gallery of the animal kingdom.

Firing Cannon Under Water.

Last year it was reported that an engineer in Boston had perfected a contrivance by which a gun of any size could be fired under water. Some interesting ex-

periments on this subject at Portsmouth, England, are thus described:—
“A stage was erected in the harbor within the tide-mark; on this an Armstrong 110-pounder was mounted, loaded, and aimed, at low water, at a target placed also within the rise of the tide. When both gun and target were covered by the water to a depth of six feet the gun was fired by means of a tube. The targets were placed at from twenty to twenty-five feet from the muzzle of the gun. One was composed of piles and oak planking of a thickness of twenty-one inches; another consisted of the hull of an old vessel, the *Griper*, laid on a mud-bank; a third was made up of three inches in thickness of iron boiler-plates, bolted together and backed with timber. On all these the effect of shot and shell from the submerged gun was very startling. The wooden target was pierced through and through, the iron target was broken into pieces and driven into the backing, the solid shot passed right through both sides of the vessel, making a huge hole through which the water poured in torrents. A shell, with percussion fuse, burst in entering, opening up a chasm of five feet by three in the planking, shattering the ribs and bursting up the deck beams above.”

Our ordnance bureau ought to look to this matter. If it is practicable to load and fire cannon under water, then the defence of harbors will receive a new help; and iron-clads, no matter how heavily they are armored above water, will be as weak and defenceless against such a submerged battery as the merest shell of a wooden frigate.

Steamboating on the Lakes.
The *Cleveland Herald*, in speaking of the changes that are taking place in the construction of steam vessels for the navigation of the great Northern Lakes says:—

“The days of ‘floating palaces’ and side-wheel steamers on our lakes for passenger travel, have almost entirely passed away. There is, we believe, at this time but one regular and exclusive line of side-

wheel steamers (the Michigan Central Railroad Line between Detroit and Cleveland) now on our lakes. The screw steamers, or propellers, have superseded all others, for passengers as well as freight, and it will not be many years before a ‘side-wheeler’ will be looked upon with as much curiosity as a ‘stern-wheeler’ is at the present time. The change from stern and side-wheels to the screw has been rapid and successful. It is now very seldom that we hear of the building of any other description of steamboat on the whole line of lakes. They have proved themselves to be more safe, substantial and economical as carriers of freight, and are now being built with all the accommodations and luxuries of the old-time ‘floating palaces’ for passengers. In fact our lakes are now covered with a fleet of ‘propellers’ that combine the convenience, beauty and swiftness of the old side-wheel steamers, with the safety, durability and great carrying capacity of the ‘screws.’

An eight-day clock whose machinery is made from soup bones is among the novelties of the Cincinnati sanitary fair.

THE
Scientific American,

FOR 1864!

VOLUME X.—NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Tenth Volume (New Series) commenced on the first of January. This journal was established in 1845, and is undoubtedly the most widely circulated and influential publication of the kind in the world. In commencing the new volume the publishers desire to call special attention to its claims as

A JOURNAL OF POPULAR SCIENCE.

In this respect it stands unrivaled. It not only finds its way to almost every workshop in the country, as the earnest friend of the mechanic and artisan, but it is found in the counting-room of the manufacturer and the merchant; also in the library and the household. The publishers feel warranted in saying that no other journal now published contains an equal amount of useful information; while it is their aim to present all subjects in the most popular and attractive manner.

The SCIENTIFIC AMERICAN is published once a week, in convenient form for binding, and each number contains sixteen pages of useful reading matter, illustrated with

NUMEROUS SPLENDID ENGRAVINGS

of all the latest and best inventions of the day. This feature of the journal is worthy of special note. Every number contains from five to ten original engravings of mechanical inventions relating to every department of the arts. These engravings are executed by artists specially employed on the paper, and are universally acknowledged to be superior to anything of the kind produced in this country.

The publishers of the SCIENTIFIC AMERICAN promise to present, as during preceding years, all the latest improvements in Steam Engineering, War Vessels, Ordnance—military and naval, Fire-arms, Mechanics' Tools, Manufacturing Machinery, Farm Implements, Wood-working Machinery, Water-wheels, Pumps and other Hydraulic Apparatus, Household Utensils, Electric, Chemical and Mathematical Instruments, Flying Machines and other Curious Inventions—besides all the varied articles designed to lighten the labor of mankind, not only in the shop and warehouse, but in every place where the industries of life are pursued.

From its commencement the SCIENTIFIC AMERICAN has been the earnest advocate of the rights of American Inventors and the

REPERTORY OF AMERICAN PATENTS.

In this important department, so vitally connected with all the great interests of the country, no other journal can lay any claim whatever, as in its columns there is published a weekly Official List of the “Claims” of all patents granted at the U. S. Patent Office.

THE PRACTICAL RECIPES

alone are oft-times worth more to the subscriber than the amount a whole year's subscription

TERMS OF SUBSCRIPTION.

Two volumes of the SCIENTIFIC AMERICAN are published each year, at \$1.50 each, or \$3 per annum, with correspondingly low terms to Clubs; \$1 will pay for four months' subscription. The numbers for one year, when bound in a volume, constitute a work of 322 pages of useful information, which every one ought to possess. A new volume will commence on the first of January, 1863.

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