

I also claim the lever, V, spring, J', segment gear, U, in combination with the cog, S, and cam, E', and spring, I', in the manner and for the purpose described.

34,397.—J. Lofsoendahl (assignor to himself and N. P. Lindergreen), of Boston, Mass., for Improvement in Spool-holding Devices:

I claim the construction of the bracelet or wristband, A, and hooks, B C, either or both, to form a new and useful implement or device for the purpose set forth.

[This invention consists in attaching one or more hooks to a bracelet or wristband for the purpose of holding the balls or spools of yarn, the bracelet or wristband being placed on the arm of the person knitting, and the ball or spool suspended to the bracelet or wristband by the hook or hooks, so that the yarn may freely unwind from the ball or spool during the process of knitting.]

34,398.—J. W. Wheeler (assignor to H. H. Wheeler), of Cleveland, Ohio, for Improvement in Water Elevators:

I claim a wheel or pulley having a V-shaped channel upon its periphery to receive the chain or rope, the inclined sides, A, of said channel being corrugated laterally and the bottom, C, open, as and for the purpose described.

RE-ISSUES.

1,273.—Moses Marshall, of Lowell, Mass., for Improvement in Pegging Machines. Patented November 5, 1861:

I claim a feeding point so arranged and operated as to enter the hole previously made by theawl and move the machine along, for the purpose set forth.

1,274.—D. B. Rogers, of Allegheny, Pa., for Improvement in Cultivator Teeth. Patented November 1, 1845. Re-issued September 20, 1859, and Extended:

First, I claim making cultivator teeth entire of thin plate steel, the shank or upper part being bent or curved round in front, substantially as described and for the purposes set forth, irrespective of the mode of attaching the tooth to the beam.

Second, Attaching cultivator teeth to the cultivator frame by inserting the upper end of the shank (curved round in front for that purpose), into a suitable hole in the beam, and driving a key or wedge into the cavity of the tooth, thereby pressing the shank against the sides and front of the hole in the beam and thus securing it in its place.

1,275.—C. T. James, of Providence, R.I., for Improvement in Projectiles. Patented February 26, 1856. Re-issued December 11, 1860:

I claim combining with the body of the projectile an expansible packing, substantially as described, and capable of being expanded outwardly against the bore of the cannon, and into the grooves thereof if rifled, by the force of the exploded charge acting inside of such packings, substantially as described.

I also claim connecting the expansible packing with the body of the projectile by clips, which will not prevent the required expansion, and which will insure the rotation of the body of the projectile with such packing as described.

I also claim making the outer surface of the packing of projectiles, intended to be forced into contact with the bore of the cannon and into the grooves thereof, of fibrous, textile, or equivalent non-metallic substance, substantially as described.

DESIGNS.

1,524.—John Eiberweiser and Edward Kettle, of Cincinnati, Ohio, for Design for Stove.

1,525.—H. G. Thompson, of New York City, assignor to the Hartford Carpet Co., for thirteen Designs for a Carpet Pattern.

PATENTS FOR SEVENTEEN YEARS.



The new Patent Laws enacted by Congress on the 2d of March, 1861, are now in full force, and prove to be of great benefit to all parties who are concerned in new inventions.

The duration of patents granted under the new act is prolonged to SEVENTEEN years, and the government fee required on filing an application for a patent is reduced from \$30 down to \$15. Other changes in the fees are also made as follows:—

Table listing fees for various patent actions: On filing each Caveat, \$10; On filing each application for a Patent, except for a design, \$15; On issuing each original Patent, \$20; On appeal to Commissioner of Patents, \$20; On application for Re-issue, \$30; On application for Extension of Patent, \$50; On granting the Extension, \$50; On filing Disclaimer, \$10; On filing application for Design, three and a half years, \$10; On filing application for Design, seven years, \$15; On filing application for Design, fourteen years, \$30.

The law abolishes discrimination in fees required of foreigners, excepting reference to such countries as discriminate against citizens of the United States—thus allowing English, French, Belgian, Austrian, Russian, Spanish, and all other foreigners except the Canadians, to enjoy all the privileges of our patent system (except in cases of designs) on the above terms.

During the last sixteen years, the business of procuring Patents for new inventions in the United States and all foreign countries has been conducted by Messrs. MUNN & CO., in connection with the publication of the SCIENTIFIC AMERICAN; and as an evidence of the confidence reposed in our Agency by the Inventors throughout the country, we would state that we have acted as agents for more than FIFTEEN THOUSAND Inventors! In fact, the publishers of this paper have become identified with the whole brotherhood of Inventors and Patentees at home and abroad. Thousands of Inventors for whom we have taken out Patents have addressed to us most flattering testimonials for the services we have rendered them, and the wealth which has inured to the Inventors whose Patents were secured through this Office, and afterward illustrated in the SCIENTIFIC AMERICAN, would amount to many millions of dollars! We would state that we never had a more efficient corps of Draughtsmen and Specification Writers than are employed at present in our extensive Offices, and we are prepared to attend to Patent business of all kinds in the quickest time and on the most liberal terms.

The Examination of Inventions.

Persons having conceived an idea which they think may be patentable, are advised to make a sketch or model of their invention, and submit it to us, with a full description, for advice. The points of novelty are carefully examined, and a reply written corresponding with the

facts, free of charge. Address MUNN & CO., No. 37 Park-row, New York.

Preliminary Examinations at the Patent Office.

The advice we render gratuitously upon examining an invention does not extend to a search at the Patent Office, to see if a like invention has been presented there, but is an opinion based upon what knowledge we may acquire of a similar invention from the records in our Home Office. But for a fee of \$5, accompanied with a model or drawing and description, we have a special search made at the United States Patent Office, and a report setting forth the prospects of obtaining a Patent &c., made up and mailed to the Inventor, with a pamphlet, giving instructions for further proceedings. These preliminary examinations are made through our Branch Office, corner of F and Seventh-streets, Washington, by experienced and competent persons. More than 5,000 such examinations have been made through this office during the past three years. Address MUNN & CO., No. 37 Park-row, N. Y.

How to Make an Application for a Patent.

Every applicant for a Patent must furnish a model of his invention, if susceptible of one; or if the invention is a chemical production, he must furnish samples of the ingredients of which his composition consists, for the Patent Office. These should be securely packed, the inventor's name marked on them, and sent, with the government fees by express. The express charge should be prepaid. Small models from a distance can often be sent cheaper by mail. The safest way to remit moneys is by draft on New York, payable to the order of Munn & Co. Persons who live in remote parts of the country can usually purchase drafts from their merchants on their New York correspondents; but, if not convenient to do so, there is but little risk in sending bank bills by mail, having the letter registered by the postmaster. Address MUNN & Co No. 37 Park-row, New York.

Caveats.

Persons desiring to file a Caveat can have the papers prepared in the shortest time by sending a sketch and description of the invention. The government fee for a Caveat, under the new law, is \$10. A pamphlet of advice regarding applications for Patents and Caveats, in English and German, furnished gratis on application by mail. Address MUNN & CO., No. 37 Park-row, New York.

Foreign Patents.

We are very extensively engaged in the preparation and securing of Patents in the various European countries. For the transaction of this business, we have offices at Nos. 66 Rue Chancery-lane, London; 29 Boulevard St. Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we can safely say that THREE-FOURTHS of all the European Patents secured to American citizens are procured through our Agency.

Inventors will do well to bear in mind that the English law does not limit the issue of Patents to Inventors. Any one can take out a Patent there.

Circulars of information concerning the proper course to be pursued in obtaining Patents in foreign countries through our Agency, the requirements of different Patent Offices, &c., may be had gratis upon application at our principal office, No. 37 Park-row, New York, or either of our Branch Offices.

Assignments of Patents.

The assignment of Patents, and agreements between Patentees and manufacturers, carefully prepared and placed upon the records at the Patent Office. Address MUNN & CO., at the Scientific American Patent Agency, No. 37 Park-row, New York.

It would require many columns to detail all the ways in which the Inventor or Patentee may be served at our offices. We cordially invite all who have anything to do with Patent property or inventions to call at our extensive offices, No. 37 Park-row, New York, where any questions regarding the rights of Patentees, will be cheerfully answered.

Communications and remittances by mail, and models by express (prepaid), should be addressed to MUNN & CO., No. 37 Park-row, New York.

Money Received

At the Scientific American Office on account of Patent Office business, during one week preceding Wednesday, Feb. 19, 1862:—

J. B. Van D., of N. Y., \$20; J. G. L., of Del., \$40; B. and B., of Pa., \$20; D. F. M., of Conn., \$40; G. W. P., of N. Y., \$45; W. L. G., of N. Y., \$45; L. C. P., of Conn., \$45; P. J., of N. J., \$25; J. A. L., of N. Y., \$15; O. W. S., of Me., \$15; J. E. S., of N. Y., \$15; J. H. C., of Pa., \$25; H. and B., of Mich., \$10; R. H., of N. Y., \$15; C. and F., of Iowa, \$15; P. H., of France, \$245; A. J. A., of Wis., \$40; R. G., of N. Y., \$15; L. F. L., of Ill., \$15; J. W. K., of Mich., \$15; W. T. G., of N. J., \$15; R. M. G., of Me., \$25; C. W. S., of Me., \$20; C. B. S., of Mass., \$20; J. P., of N. Y., \$20; F. H. C., of N. J., \$20; E. M. and J. E. M., of N. Y., \$45; G. O. T., of Mass., \$60; J. S., of Pa., \$43; W. N., Conn., \$22; W. O. H., of Pa., \$40; A. McF., of Wis., \$25; I. S., of N. Y., \$22; C. N., of N. H., \$25; J. H. V., of Mass., \$15; W. H. H., of Conn., \$30; C. R., of Pa., \$15; C. J. A., of N. H., \$12; W. McK., Pa., \$15; S. B. O., of Cal., \$15; O. S., of O., \$20; G. N. C., of Conn., \$15; H. T. P., of Conn., \$15; A. K. R., of Vt., \$15; E. M. J., of N. Y., \$20; J. A. B., of Mass., \$20; J. A. W., of O., \$20; G. M. Z., of O., \$20; G. W. R., of Ind., \$20; F. V. S., of Pa., \$20; J. H., of N. Y., \$25; J. H. G., of Mass., \$15; R. J., of O., \$25; S. A., of —, —; A. J., of N. Y., \$15; C. C., of Pa., \$20; J. B., of N. Y., \$15; A. J., of Iowa, \$15; J. H. I., of Ill., \$55; E. J. W., of N. Y., \$25; J. S. F., of Ill., \$25; F. and S., of Wis., \$15; K. H. E., of Vt., \$25; S. A. B., of R. I., \$25; J. N. B., of N. Y., \$15; J. J. A., of Mich., \$15; J. Z., of Ill., \$15; J. M. N., of Cal., \$18; M. L. and V., of N. Y., \$15; J. McG., of N. Y., \$15; E. C., of Ky., \$100; V. L., of N. Y., \$10; B. and Van D., of N. Y., \$30; C. C. C., of Mich., \$15; J. L. L., of Pa., \$25; C. E., of Germany, \$160; G. P. and W., of Ill., \$20; H. S. and R., of Vt., \$43; G. W., of N. Y., \$45; A. McN., of N. J., \$25; L. J. and E. D. G., of N. Y., \$25; M. and T., of N. J., \$25; W. H. D., of N. Y., \$30; S. A., of Me., \$15.

Specifications and drawings and models belonging to parties with the following initials have been forwarded to the Patent Office from Feb. 12, to Wednesday Feb. 19, 1862:—

H. S. and R., of Vt.; D. F. M., of Conn.; J. G. L., of Del.; H. J., of Conn.; P. J., of N. J.; A. McN., of N. J.; A. McF., of Wis.; L. J. and E. D. G., of N. Y.; R. J., of O.; J. H., of N. Y.; J. H. C., of Pa.; C. N., of N. H.; W. H. H., of Conn.; J. S., of N. J.; C. J. A., of N. H.; J. S., of N. Y.; K. H. E., of Vt.; O. S., of O.; S. A. B., of R. I.; R. W. G., of Me.; J. S. F., of Ill.; J. H. I., of Ill.; M. and T., of N. J.; J. P., of N. Y.; A. J. A., of Wis.; E. J. W., of N. J.; C. C. and T., of Pa.; H. D., of N. Y.; G. F. J. C., of N. J.; L. and D., of London; B. and Van D., of N. Y.; W. N., of Conn.; C. E. S., of Wis.; L. F., of Germany.



E. L., of N. Y.—H. L. Lloyd & Co., map publishers, No. 25 Howard street, have issued by far the best map of the United States we have yet seen.

L. R. R., of Pa.—We are not advised of any efforts on the part of the Canadian Parliament to modify the patent laws of the provinces.

E. A. D., of Mass.—Gumshellac dissolved in alcohol makes a water-proof glue sufficiently adhesive we should think for paper.

J. F. A., of New Brunswick.—Hydraulic cement is the proper substance for plastering your water vat. It must be wet in small quantities and put on immediately. If suffered to stand half an hour after it is wet before being applied, it is spoiled.

J. B., of N. J.—You can bleach leaves by hanging them in a barrel and burning a little sulphur in the barrel. The product of the combustion of sulphur is sulphurous acid which is a powerful bleaching agent, and a gas.

F. E., of Mass.—It was asserted that saltpeter confined in one of the stores in New York was the cause of several explosions during a large fire, but experiments have failed to confirm such assertions.

R. H. J., of Ill.—Operators on telegraph lines frequently communicate with one another by touch without a sounding magnet. No visitors are now permitted to stand in the vicinity of the sounding magnet in the telegraph offices.

L. C. C., of Mass.—The gun powder engine to which you refer is not patented. We do not think such an engine is suitable for propelling your air ship.

A. J. K., of Ill.—We do not know where you can obtain a hollow iron wire tube about 1/8th of an inch in diameter.

H. B., of C. W.—Aniline colors are not suitable for coloring glass by being melted in a crucible for blowing.

L. E. H., of Conn.—About the time the article to which you refer about perpetual motion, appeared in the Journal of Commerce, we published the article in full in the SCIENTIFIC AMERICAN. We refer you to the back volumes of the paper.

G. H. W., of N. Y.—On page 198, Vol. IV. of the SCIENTIFIC AMERICAN, you will find the regulation about the admission of engineers into our navy.

R. J., of Ill.—You will find tables of the weight of round and square rolled iron on page 184 of "Nyström's Mechanic's Pocket Book," published by J. B. Lippincott & Co., Philadelphia. Muntz metal is composed of 6 parts copper and 4 of zinc.

S. C., of N. Y.—Porcelain is gilded by painting finely comminuted gold on to the surface mixed with a fusible frit. It is then allowed to dry and is put into a potters kiln and fired. Messrs. Haughtwout, Broadway, this city, ornament their own porcelain.

A. E. J., of Conn.—The silicate of potash renders wood hard and impervious to moisture, if it is washed with dilute muriatic acid after the silicate has become dry.

S. O. C., of N. Y.—The composition for rockets consists of one pound of gunpowder to two ounces of soft charcoal in powder and one and a half ounces of saltpeter. For the largest rockets add some sulphur and iron filings. Mix these ingredients dry. The composition may be varied and you can use just such a quantity of it as will answer for the size of the rocket you require.

V. P. F., of Vt.—It has been proposed to us several times to propel a vessel by a steam jet acting upon the water through a tube at the stern, but the mode is not good, on account of the condensation of so much steam without producing mechanical propelling action in the vessel. A jet of water has been applied in this manner without success. This was Rumsey's mode of propelling vessels and was used upon the first steamboat in America.

E. & R., of —.—Zinc is manufactured by the Lehigh Zinc Co., Bethlehem, Pa., to whom we refer you for particulars.

C. S., of Ohio.—You will find a full account of the Bessemer process in the back volumes of the SCIENTIFIC AMERICAN to which we refer you. Unless you can show good reason for your delay, in applying for a patent on your improvement in the manufacture of iron, the office might refuse to allow your claim on the ground of abandonment. It will not do for an inventor to look on and see another develop and put into public use an improvement and then come forward after the delay of two or three years and make claim to it. This practice will not do.

C. T., of Phila.—Horn is softened by boiling it in water. It becomes so pliable that it may be molded under pressure into almost any form. In order to render horn smooth it should be scraped when it is softer after being boiled. It may be scraped so thin as to become almost transparent. The nitrate of silver is employed to stain it black and nitric acid colors it yellow.

W., of N. Y.—The lens having the highest magnifying power is the double convex, and its power is in proportion to its convexity.

J. G. W., of N. Y.—The application of several charges in the barrel of a musket, to be discharged in succession, one after another is not new, as a patent was granted in 1825 to J. Mould, London, for thus constructing fire-arms.

SPECIAL NOTICE—FOREIGN PATENT.—The population of

Great Britain, is 30,000,000; of France, 35,000,000; Belgium, 5,000,000; Austria, 40,000,000; Prussia, 20,000,000; and Russia, 60,000,000. Patents may be secured by American citizens in all of these countries. Now is the time, while business is dull at home, to take advantage of these immense foreign fields. Mechanical improvements of all kinds are always in demand in Europe. There will never be a better time than the present to take patents abroad. We have reliable business connections with the principal capitals of Europe. Nearly all of the patents secured in foreign countries by Americans are obtained through our agency. Address Munn & Co., 37 Park row, New York. Circulars about foreign patents furnish free.

RATES OF ADVERTISING.

Twenty-five Cents per line for each and every insertion, payable in advance. To enable all to understand how to compute the amount they must send in when they wish advertisements inserted, we will explain that ten words average one line. Engravings will not be admitted into our advertising columns; and, as heretofore, the publishers reserve to themselves the right to reject any advertisement they may deem objectionable.

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 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 secondhand or poor engravings, such as patentees often get executed by inexperienced artists for printing circulars and handbills from, can be admitted into these pages. We also reserve the right to accept or reject such subjects as are presented for publication. And it is not our desire to receive orders for engraving and publishing any but good inventions or machines, and such as do not meet our approbation in this respect, we shall decline to publish.

For further particulars, address—

MUNN & CO., Publishers SCIENTIFIC AMERICAN, New York City

AMERICAN EDUCATIONAL SERIES.—A FULL COURSE OF PRACTICAL AND PROGRESSIVE TEXT BOOKS, FOR SCHOOLS, ACADEMIES, INSTITUTES AND COLLEGES. PUBLISHED BY IVISON, PHINNEY & CO., Nos. 45 and 50 Walker Street, New York City.

ROBINSON'S COMPLETE MATHEMATICAL SERIES. The most complete, most practical and most scientific series of mathematical text books ever issued in this country. In twenty volumes. These books are unequalled in style, typography and binding; in graduation, new and original methods and practical applications. With the improvements and additions recently made, it is the only series by one author, adapted to every grade of scholarship in the common school, academy, college and university. This country. Robinson's Conic Sections and Analytical Geometry is now ready. It is a beautiful volume, and a student who has been moderately successful in acquiring Algebra can readily understand this work. Price, \$1.50

The Key to Geometry and Trigonometry, Conic Sections and Analytical Geometry is also ready. This work contains full and clear solutions, as well as cuts for the illustration and demonstration of all the problems in the above-named works. Price, \$1.50

GRAY'S BOTANICAL SERIES. This series is now complete, and forms the most full, scholarly and attractive apparatus for the study of Botany to be found in the language. The books have recently been warmly indorsed by Professors Agassiz, Silliman, Torrey, Henry and nearly every scientist of eminence in the country, and by Drs. Lindley, Hooker and other distinguished Botanists in Europe. Within the past year they have been introduced into hundreds of colleges, academies and institutes in this country, and into the University of Cambridge, England; University of Edinburgh, Scotland; Trinity College, Dublin, and are now under consideration of the Privy Council, with reference to adoption in the Normal Schools of Great Britain. The retail price is, for Gray's "How Plants Grow," A Botany for Young People. Handsomely illustrated, \$.75 Gray's Lessons in Botany, 362 drawings, 1.00 Gray's Manual of Botany. (School edition), 1.50 Gray's Manual and Lessons. In 1 vol., 2.00 Gray's Manual, with Mosses, &c. Illustrated, 2.50 Gray's Structural and Systematic Botany. (Revised and improved edition of Botanical Text Book), 2.00

SCIENTIFIC TEXT BOOKS. These books embody the latest researches in physical science, and excel in their lucid style, numerous facts, copious illustrations (over 700), and practical applications of science to the arts of every-day life. Wells' Science of Common Things, With cuts, \$.75 Wells' Natural Philosophy, 372 cuts, Revised, 1.00 Wells' Principles of Chemistry, 242 cuts, 1.00 Wells' First Principles of Geology, 250 cuts, 75 Hitchcock's Anatomy, Physiology and Laws of Health and Exercise. (New.) 373 cuts, 1.00 Hitchcock's Geology. Newly revised and re-written, 1.25 SPENCERIAN SYSTEM OF PENMANSHIP. The Spencerian system is superior to all others, because it makes better penman than any other system. It is easily taught, readily acquired, and written with the greatest rapidity. Bryant & Stratton's School Book-keeping, \$.75 Bryant & Stratton's High-School Book-keeping, 1.75 Bryant & Stratton's Counting-house Book-keeping. In press. We shall be happy to send our Educational and Mathematical Circulars to those teachers who will give us their address. The most liberal terms will be given for first introduction. 9 ct

TO MAP AGENTS. Roanoke Island, Elizabeth City, Edenton, Fort Henry, Fort Donelson, Mill Spring, and all other places made noted by the war, are all MAPPED OUT PLAINLY

H. H. LLOYD & CO.'S LARGE NEW SOUTHERN STATES MAP. The corrected edition is ready to-day. Also, eight other kinds of war maps and charts. Two new ones just out. Specimens 25 cents each, postage prepaid (stamps taken.) See new catalogue and circular. H. H. LLOYD & CO., No. 25 Howard Street, New York City.

50 VARIETIES OF BURR STONE GRAIN MILLS.—Prices \$60 to \$500. Illustrated catalogues furnished. EDWARD HARRISON, New Haven, Conn.

VARIETY OF SECOND HAND MACHINISTS TOOLS and a superior 40-horse steam engine and boiler for sale by EDWARD HARRISON, New Haven, Conn.

GOLD PENS AND HOLDERS, AT WHOLESALE prices.—Fine Gold Pen and Silver Extension Case, \$1.50; Bank Pen and Holder, \$1.25; pens repointed, 25 cents each, equal to new, on receipt of the above prices, in stamps or otherwise. E. S. JOHNSON, No. 15 Maiden Lane, New York City. 9 ct

FULTON'S COMPOUND, FOR CLEANSING STEAM boilers of scale.—This article is powerful to remove scale, and will not injure the boiler. Western agents, WALWORTH, HUBBARD & CO., Chicago, Ill. Sole proprietor, E. H. ASHCROFT, No. 22 Sudbury Street, Boston, Mass. 9 ct

FOR SALE.—AN UPRIGHT RESAWING MACHINE, adapted for resawing boards for boxes in perfect order, ready for running. Price, \$50. Also one cylinder boiler, with fittings complete ready for setting up. Cost \$124; will be sold for \$65, cash. Address ROBERT L. SMITH, Stockport, Columbia Co., N. Y. 1 ct

COUNTERFEIT DETECTOR.—AN INGENIOUS AND entirely new invention for detecting counterfeit coin having been made and brought into practical use, I am desirous of finding a suitable person to introduce it into general use, on conditions that will be advantageous to any one disposed to undertake an engagement of this kind. Please address, with references, WILLIAM PAINTER, Fallston, Harford County, Md. 2 ct

IMPORTANT TO MANUFACTURERS AND DEALERS in Portable Machines, such as Grinding Mills for Flour, Feed, Coffee, Drugs, Paints, &c., or Corn Shellers, Cone Crushers, Straw, Hay or Root Cutters. In short, all machines requiring the use of fly wheels. See "Bryant's Improved Mode of Using Fly Wheels," illustrated on page 144, Vol. VI. (new series) SCIENTIFIC AMERICAN. For further particulars, or for the purchase of State or County rights, address J. BRYANT, M. D., Brooklyn, N. Y. 9 ct

25 CENTS IN \$1 CLEAR SAVING.—ALL SUBSCRIBERS to all Newspapers and Periodicals should immediately send a 3-cent stamp for circular of "Rural Keystone Club" to P. B. SUTTON, Ransom, Pa. 9 ct

JACQUARD MACHINES, WITH APPURTENANCES manufactured and put up. Looms for narrow goods, from silk ribbon to cotton tape, built to order on the most approved principles. W. P. UHLINGER, No. 1, 621 North Third Street, Philadelphia, Pa. 9 ct

75 CENTS A YEAR. SAMPLE COPIES SENT FREE. "Mrs. Hankins' Paper."—Cheapest Fashion Pictorial and most perfect Family Paper in the world, uniting all the elegancies of refinement and beauty, with the plain utilities of life. M. GAUNTT, No. 59 Walker Street, New York City. Country agents wanted. 5 ct

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. Also one 30-horse steam engine, good as new, will be sold cheap. For sale at Nos. 55 and 57 First Street, Williamsburgh, and No. 74 Beekman Street, New York. GUILD, GARRISON & CO. 1 ct

MECHANICS AND INVENTORS, AROUSE. NOW IS THE TIME TO THINK, TO INVENT AND to develop new inventions.

Now is the time to secure Patents and have them ready for the renewal of business or for traffic. Now is the time to make arrangements for the manufacture of new and useful articles of all kinds. Now is the time to secure Patents in England, France, Belgium and other European countries.

Inventors, wake up! Messrs. MUNN & CO., proprietors of the SCIENTIFIC AMERICAN, No. 37 Park-row, N. Y., having a branch office in Washington continue to solicit Patents as usual on the most extensive scale and in the best manner. They have acted as attorneys for more than 15,000 patentees, to all of whom they refer. All who want their patent business done with despatch, and on reasonable terms, should address or apply as above.

Pamphlets of advice to inventors, in different languages, about Patents, &c., furnished free. MUNN & CO. are permitted to refer to Hon. Judge Mason, Hon. Joseph Holt, Hon. W. D. Bishop, Ex-Commissioners of Patents.

NEW YORK EMERY WHEEL COMPANY, MANUFACTURERS OF SOLID EMERY WHEELS.

These wheels are consolidated upon an entirely new and scientific principle. Composed of pure Turkish Emery, free from glue, rubber, vulcanite, and all other glutinous substances; they are the only legitimate Emery Wheel ever introduced into the market. They are manufactured of every number of Emery, fine or coarse, moulded to every size, and made in quality to any degree of hardness. They are true, and carefully balanced; and, as they always present an even surface, and do not glaze, are unequalled for cutting, grinding, sharpening and polishing purposes. Their durability and efficiency commend them, as a matter of economy, to all workers in metals. We subjoin the following from many testimonials:—

MORGAN IRON WORKS, NEW YORK, Nov. 30, 1861. NEW YORK EMERY WHEEL CO.—Gentlemen: Having given the Patent Solid Emery Wheel a trial by you a severe trial, I do, without hesitation, pronounce it the best wheel I have ever used, as it cuts quick, wears slow, and does not glaze or soften by friction. Respectfully yours, JOHN GALLIGHER, Foreman Morgan Iron Works.

A descriptive circular, containing a list of prices, &c., will be forwarded on application. Address NEW YORK EMERY WHEEL CO., No. 28 Frankfort Street, New York. 4 ct

FOR SAW GUMMERS.—TO GUM LARGE CIRCULAR or other saws address DOLE & SILVER, Salem, Ohio. 8 ct

NONPAREIL WASHING MACHINE.—THIS MACHINE has been subjected to the severest tests, and is giving entire satisfaction. Send for free circular to OAKLEY KEATING, No. 73 South Street, New York. 5 3/4 ct

LANTH'S PATENT SHAFTING, PISTON RODS, MANUELS, Plates, &c., of iron or steel. Address the subscribers (who are the only manufacturers under Mr. Lanth's patents in the United States, and who have the exclusive control of said patents), for circulars containing statements of the results of experience made by William Fairbairn, of Manchester, England, and Major William Wagon of U. S. A., also other valuable testimonials. JONES & LAUGHLIN, Pittsburgh, Pa. 1 ct

PAGE'S PATENT DRAW LIME KILN.—BEST IN THE World.—Burns with wood or hard or soft coal. Coal not mixed with stone. Also, Benton's Patent Spoke Machine—the best known. For Rights address C. D. PAGE, Rochester, N. Y. 3 10 ct

IRON PLANERS, LATHES, FOUR SPINDLE DRILLS Milling Machines, and other Machinists' Tools, of superior quality on hand and finishing, and for sale low. For description and prices address NEW HAVEN MANUFACTURING COMPANY, New Haven, Conn. 12 ct

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The Hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer, Nos. 37 and 38 Park-row New York. 1 13 ct

WANTED.—A MANUFACTURER IN EACH STATE for the celebrated Fisher's Wrought-Iron Mower now four years successfully introduced into the several States. A liberal arrangement would be made with a responsible purchaser or agent in each State, to be supplied from Alliance, Ohio. Address HENRY FISHER, Alliance, Ohio. 7 3 ct

TO OIL REFINERS.—PERSONS ENGAGED IN OIL refining can obtain a recipe, on moderate terms, giving full information how to refine and deodorize rock oil, by applying to THOMAS PARRY, Pittsburgh, Pa. 6 10 ct

J. A. ORCUTT & CO., ALBANY, N. Y., MANUFACTURERS.—Leather case-hardening coal; also, all kinds foundry facings. Lehigh per bbl., \$2.50; sea coal per bbl., \$1.75; charcoal, per bbl., \$2.25; soapstone per bbl., \$1.75; prepared facing, 1 1/2 cents per pound. 6 4 ct

A MESSIEURS LES INVENTEURS—AVIS IMPORTANT. Les Inventeurs non familiers avec la langue Anglaise, qui préféreraient nous communiquer leurs inventions en Français, peuvent nous adresser dans leur langue natale. Envoyez nous un dessin et une description concise pour notre examen. Toutes communications seront régies en leur faveur. MUNN & CO., SCIENTIFIC AMERICAN Office. No. 37 Park-row, New York. 2 ct

NEW YORK OBSERVER FOR 1862.—IN ASKING the aid of all who may desire to extend the circulation of the New York Observer, it is proper for us to state distinctly the position it occupies with reference to the present condition of public affairs in our beloved country.

Having always maintained the duty of good citizens in all parts of the land to stand by the Constitution, in its spirit and letter, when that Constitution was assailed and its overthrow attempted, we accordingly at once gave a cordial support to the Government in its patriotic endeavor to assert its lawful authority over the whole land. Believing secession to be rebellion, and when attempted, as in this case, without adequate reasons, to be the highest crime, we hold

- 1. That the war was forced upon us by the unjustifiable rebellion of the seceding States.
2. That the Government, as the ordinance of God, must put down rebellion and uphold the Constitution in its integrity.
3. That every citizen is bound to support the Government under which he lives, in the struggle to reestablish its authority over the whole country.
4. That the Constitution of the United States is the supreme law of the Government as well as of the people; that the war should be prosecuted solely to uphold the Constitution and in strict subordination to its provisions; and the war should be arrested, and peace concluded, as soon as the people now in revolt will lay down their arms and submit to the Constitution and laws of the land.

The distinctive features of the Observer are:
1. It is printed on a double sheet, so as to make two complete newspapers, one devoted to secular and the other religious matters; and these may be separated so as to make two complete journals, while the price for both is no greater than is charged for many papers smaller than either one of the two.
2. It gives every week a brief synopsis of the most interesting events in all the denominations, including those that are called Evangelical and those that are not; as every intelligent Christian wishes to be well informed respecting all of them.
3. It gives a well-digested epitome of the News of the Day, Foreign and Domestic, prepared with great labor and care, so that the reader is sure to be put in possession of every event of interest and importance to the public.

The foreign correspondence of the Observer is unrivaled, and has long commanded the admiration of intelligent men.

- TERMS FOR NEW SUBSCRIBERS.
1. To each new subscriber paying in advance \$2.50 for one year, we will send the paper and a copy of our Bible Atlas, with five beautiful colored maps.
2. To the person obtaining subscribers we will give \$1 for each new subscriber paying \$2.50 in advance.
3. To any person now a subscriber sending us one new subscriber and \$4 we will send both papers for one year.
Specimen numbers of the New York Observer will be sent gratis to any address that may be forwarded to us for that purpose.
The state of the country renders it impracticable for us to send gratis to the churches that a new and earnest effort be made to extend the principles of good government and sound religious truth into all the families of the land. In every neighborhood there must be some who do not now take a religious newspaper, and who might with a little exertion be induced to subscribe.

SIDNEY E. MORSE, JR., & Co., Editors and Proprietors, 37 Park Row, New York

ALBANY IRON WORKS, TROY, N. Y.—SEMI-STEEL Plates and Forgings.—We are prepared to furnish forged shapes of this approved metal, and without unnecessary delay, having large facilities for production. Among the uses to which this material is now applied, and with great success, we name, rifled cannon for government use; also rifle and musket barrel shapes, locomotive engine tires, locomotive engine axles, straight and crank, car axles, crank pins, plates for locomotive fire box, flue sheets, &c. It is peculiarly adapted for shafting, indeed, for all purposes where strength and rigidity are required, its tensile strength ranging from 90,000 to 118,000 lbs. to the square inch, nearly double that of the best iron.—Cast-steel forgings up to 500 lbs. each, likewise furnished. Communicate and inquire to C. M. WINSLOW & CO., A. I. Works, Troy, N. Y., will be promptly responded to. Parties at the West can be supplied on addressing their orders to A. S. WINSLOW, Cincinnati, Ohio. 15 6m

TODD & RAFFERTY, ENGINEERS AND MACHINISTS, manufacturers of stationary and portable steam engines and boilers. Also, fax, hemp, tow, oakum and rope machinery, machinists' tools, mill gearing, shating, &c. Iron and brass castings and general machinery merchants. Depot and store—No. 13 West Street, New York, where a general supply of railroad and manufacturers' findings may be had. Works at Paterson, N. J. 22 3m

SOLID EMERY VULCANITE.—WE ARE NOW MANUFACTURING wheels of this remarkable substance for cutting, grinding and polishing metals, that will outwear hundreds of the kind commonly used, and will do a much greater amount of work in the same time, and more efficiently. All interested can see them in operation at our warehouse, or circulars describing them will be furnished by mail. NEW YORK BELTING AND PACKING CO., Nos. 37 and 38 Park-row, New York. 1 13 ct

PUMPS! PUMPS!! PUMPS!!!—CARY'S IMPROVED Rotary Force Pump, unrivaled for pumping hot or cold liquids Manufactured and sold by CARY & BRAINERD, Brockport, N. Y. Also, sold by J. C. CARY, No. 2 Astor House, New York. 14 ct

WHAT EVERY FARMER, MECHANIC, AMATEUR and well-regulated household wants—one of Parr's Tool Chests, fitted up with a complete assortment of tools, such as saws, planes, hatchets, hammers, chisels, draw shaves, rules, files, augurs, &c. Will pay for itself in one year in saving of carpenter's bills. Planter's size contains 92 tools, price, \$30 each. Gentleman's size contains 80 tools, price, \$20 each. Youth's size contains 62 tools, price, \$13 each. Boys' size contains 44 tools, price, \$8 each. Made of the best cherry and ash exterior, French polished with brass trimmings and lifting handles, and drawers to contain every article. Superior tools sharpened and set ready for use. Packed in cases and shipped to any address on receipt of the price, by the manufacturer and inventor. Also, a new and useful tool chest, suitable for the holidays, containing 15 tools, price \$4 each; 10 tools, price \$3 each; 8 tools, price \$2 each. GEORGE FARR, Buffalo, New York. 22 ct

RIFLED CANNON.—PARTIES INTERESTED IN Rifling cannon or guns can see the most expeditious and economical machine ever invented for that purpose by application to H. G. NORTON & CO., No. 100 Liberty Street, New York City. 6 4 ct

MACHINERY.—S. C. HILLS, No. 12 PLATT STREET, New York, dealer in Steam Engines, Boilers, Planes, Lathes, Chucks, Drills, Pumps; Morsing Tenoning and Sash Machines; Woodworth's and Daniels' Planers, Dick's Punches, Presses and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c.

STEAM TRAPS FOR RELIEVING ENGINES OF CONDENSED WATER, and all other purposes. For trial and circular address C. A. DURGIN, No. 335 Broadway, New York City. 7 4 ct

CENTRIFUGAL SUGAR MACHINES—MESSRS. ASPINWALL & WOOLSEY'S patent.—George B. Hartson, No. 111 East Forty-second Street, continues to execute orders, and gives his personal attention to the erection of the above machines, and will also furnish plans and estimates for complete sugar refineries, with all the latest improvements. 22 6m

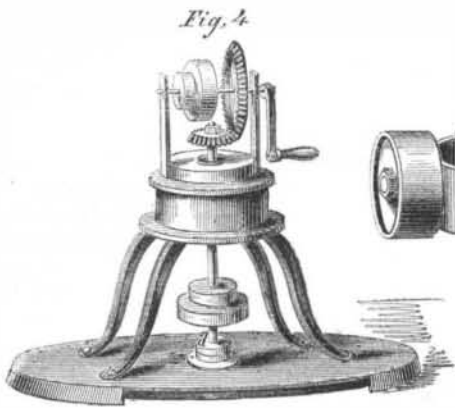
C. W. MERRITT, NO. 86 CEDAR ST., NEW YORK City.—Dealer in engineers' supplies, india rubber, hemp, cotton and Tuck's packing oils, waste emery cloth, bolts, nuts and washers steam and water gages, &c. 6 4 ct

J. K. BRICK & CO., MANUFACTURERS OF CLAY Retorts, Gas and Green House Tile, Fire Brick, Oven Tile, &c Van Dyke Street, near Van Brunt, Brooklyn, N. Y. 6 13 ct

Improved Mode of Hanging Flywheels.

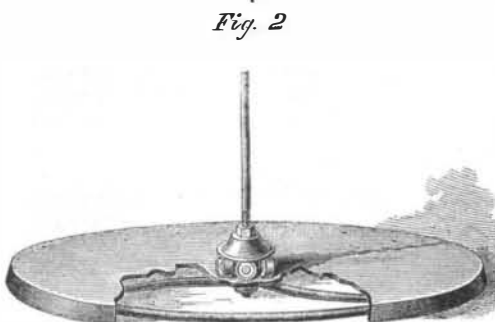
The accompanying engravings illustrate an improved mode of hanging flywheels, which is quite novel, and possesses some important advantages over the plans in general use. The wheel is placed in the base plate of the machine on a vertical shaft, and the shaft may either run in a step in the usual way, or it may be supported by a collar running on friction rollers.

Fig. 1 of the engravings represents the wheel as applied to a grinding mill, with the shaft resting in a step in the cross bar, *a*, which crosses the base plate of the machine beneath the wheel. The base, *b*, is a large circular disk as shown, supported by a narrow rim, thus affording a space in which the flywheel, *c*, is placed.



BRYANT'S NOVEL MODE OF HANGING FLYWHEELS.

Fig. 2 represents the shaft of the wheel supported by a collar running on friction rollers, the wheel in this case being secured to the extreme lower end of the shaft. The rollers are attached to a ring as represented on an enlarged scale in Fig. 3; the shaft passing through the axis of the ring, and the rollers running upon the upper surface of the base plate. In this case the rollers and ring are inclosed in a tight box, *d*, as shown in fig. 4, here the wheel is represented as applied to a rice and coffee huller.



Among the advantages of this mode of applying flywheels are the following:—

1st. Wheels may be used of any desirable diameter, and as the efficiency of a flywheel depends as much upon its diameter as upon its weight, wheels of equal efficiency may be used much lighter than those of the usual form.

2d. The shaft running on a step, or on rollers, there is very little friction.

3d. The flywheel is entirely out of the way where it does not incommode the operator nor endanger his limbs.

4th. While a flywheel suspended in the usual manner upon the side of a mill causes the mill to be top heavy, and in case of any wobbling in the wheel resulting from inaccuracy in its hanging, tends to shake the mill, this flywheel by being placed in the broad base gives remarkable steadiness to the machine.

A patent for this invention has been applied for and will soon be issued. Further information in relation to it may be obtained by addressing the inventor, J. Bryant, M. D., Brooklyn, N. Y. [See advertisement on another page].

SHOE STRINGS FOR SOLDIERS.—A correspondent assures us that the strings furnished with army shoes are of the most wretched quality. The most suitable shoe strings are those made of tanned calf skin. Most of the cotton shoe strings sold at present are rotten.

Ether and Chloroform.

We find the following letter from C. B. Foster, M. D., in the *Dental Cosmos*:—

In the last number of the *Dental Cosmos*, allusion is made to the fact that while chloroform is preferred in Europe as an anæsthetic, it is regarded in our own country as more fraught with danger than ether; and the question is asked, whether "this apprehension is well grounded?"

Having employed both agents somewhat extensively since their first introduction, I would state, as the result of my experience, that chloroform is the most to be relied on for the production of complete anæsthesia. Its action upon some organisms, however, is so prompt that great caution is always required. In

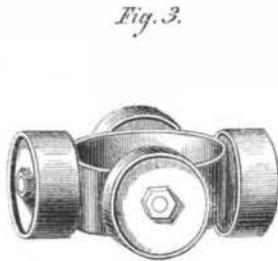


Fig. 3.

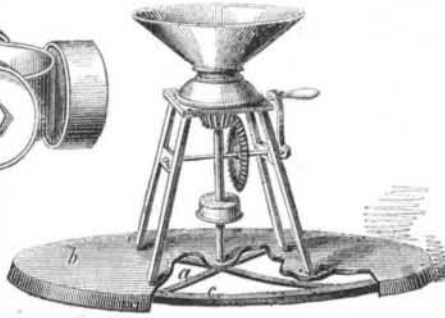


Fig. 1.

some cases five or six inhalations will produce entire insensibility. Its effects also appear to be accumulative, patients often being more unconscious some minutes after than at the moment of its withdrawal. Under its influence, at times, the circulatory and respiratory functions are interrupted to an alarming and dangerous, if not to a fatal extent. Ether is less prompt and persistent, and is not liable to exert so unfavorable an influence upon the action of the heart and lungs. In the hands of most persons it is undoubtedly less dangerous than chloroform.

Like most medicinal agents, ether and chloroform act differently on different persons. Upon some ether does not operate as an anæsthetic; in such cases chloroform will generally accomplish the object. When not acquainted with the susceptibilities of the patient, it is not well to administer chloroform, except as a last resort, when ether has failed to produce the desired effect. The injurious effects of chloroform, to which reference has been made, may be avoided almost wholly, if care be taken to admit a good supply of atmospheric air. By attention to this, the patient may be brought under its influence so gradually that the operator will be enabled to withdraw it upon the first manifestation of unfavorable symptoms.

Diseases of Watchmakers.

Dr. Perron, of Besançon, where there are more than 3,000 persons engaged in the manufacture of watches in his paper adverts to the mischief which accrues from the constant manipulation of copper. His conclusions are as follows:—1. The molecular absorption of the salts and oxides of copper give rise to gastric irritation, diarrhea, fever, &c.—in fact, to the symptoms of poisoning all but in degree. 2. Successive slow poisonings of this kind deranges the health of the workman, and powerfully predisposes him to phthisis (a disease of frequent occurrence among the Besançon watchmakers). 3. They require him to take corporeal exercise, carried even to fatigue, and justify the frequent employment of evacuants and sudorifics. 4. Manipulations of copper or other metals should be interdicted to thin and excitable persons of a dry, bilious temperament, and who have any congenital or acquired disposition to phthisis. 5. This affection is best prevented by the use of succulent aliments, and tonic drinks, the thorough ventilation of the workshops, great cleanliness, frequent tepid bath, wearing the moustache.

MAKING TEA.—Water for making tea should be used the moment it boils. The reason assigned is that if it is boiled some time, all the gas that is in it escapes with the steam, and it will then not make tea of the best flavor. Clear, pure, soft water is best.

Horse Railroads and Snow.

In Boston, where the snow lies all winter, the city railroads are compelled to keep their tracks covered with snow for the accommodation of sleighs, and when the snow gets a certain depth they have to abandon their cars and use sleighs. This is getting to be such a serious annoyance to the great body of the people who use the horse cars, that the newspapers are loud in their condemnation of the arrangement. The *Traveler* states that 50,000 persons were incommoded by the stoppage of the cars for one day. It says:—

It is now conceded that those roads are a great public convenience and afford a very safe mode of traveling; that they promote the growth of commercial cities. Europe is fast introducing this American improvement. City ordinances which contravene the general legislation of the State, which forbid the companies that have invested capital for public accommodation to keep their tracks open, which authorize the removal of their rails in case they perform their usual and prescribed duties, deserve the closest scrutiny and raise new issues.



OF THE
SCIENTIFIC AMERICAN.

THE BEST MECHANICAL PAPER IN THE WORLD.

EIGHTEENTH YEAR.

VOLUME VI.—NEW SERIES.

A new volume of this widely circulated paper commenced on the 4th of January. Every number contains sixteen pages of useful information, and from five to ten original engravings of new inventions and discoveries, all of which are prepared expressly for its columns.

The SCIENTIFIC AMERICAN is devoted to the interests of Popular Science, the Mechanic Arts, Manufactures, Inventions, Agriculture, Commerce, and the Industrial pursuits generally, and is valuable and instructive not only in the Workshop and Manufactory, but also in the Household, the Library and the Reading Room.

The SCIENTIFIC AMERICAN has the reputation, at home and abroad, of being the best weekly journal devoted to mechanical and industrial pursuits now published, and the proprietors are determined to keep up the reputation they have earned during the seventeen years they have been connected with its publication.

To the Inventor!

The SCIENTIFIC AMERICAN is indispensable to every inventor, as it not only contains illustrated descriptions of nearly all the best inventions as they come, but each number contains an Official List of the Claims of all the Patents issued from the United States Patent Office during the week previous; thus giving a correct history of the progress of inventions in this country. We are also receiving, every week, the best scientific journals of Great Britain, France and Germany; thus placing in our possession all that is transpiring in mechanical science and art in these old countries. We shall continue to transfer to our columns copious extracts from these journals of whatever we may deem of interest to our readers.

To the Mechanic and Manufacturer!

No person engaged in any of the mechanical pursuits should think of doing without the SCIENTIFIC AMERICAN. It costs but four cents per week; every number contains from six to ten engravings of new machines and inventions which cannot be found in any other publication. It is an established rule of the publishers to insert none but original engravings, and those of the first-class in the art, drawn and engraved by experienced artists under their own supervision.

Chemists, Architects, Millwrights and Farmers!

The SCIENTIFIC AMERICAN will be found a most useful journal to them. All the new discoveries in the science of chemistry are given in its columns, and the interests of the architect and carpenter are not overlooked; all the new inventions and discoveries appertaining to these pursuits being published from week to week. Useful and practical information pertaining to the interests of millwrights and mill-owners will be found published in the SCIENTIFIC AMERICAN, which information they cannot possibly obtain from any other source. Subjects in which planters and farmers are interested will be found discussed in the SCIENTIFIC AMERICAN; most of the improvements in agricultural implements being illustrated in its columns.

TERMS.

To mail subscribers:—Two Dollars a Year, or One Dollar for six months. One Dollar pays for one complete volume of 416 pages; two volumes comprise one year. The volumes commence on the first of JANUARY and JULY.

CLUB RATES.

Five Copies, for Six Months.....	\$4
Ten Copies, for Six Months.....	8
Ten Copies, for Twelve Months.....	15
Fifteen Copies, for Twelve Months.....	23
Twenty Copies, for Twelve Months.....	28

For all clubs of Twenty and over, the yearly subscription is only \$14.00. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Western and Canadian money, or Post-office stamps, taken at par for subscriptions. Canadian subscribers will please to remit 25 cents extra on each year's subscription to pre-pay postage.

MUNN & CO., Publishers,
No. 37, Park-row, New York

FROM THE STEAM PRESS OF JOHN A. OPAY.