

OUR TITLE PAGE AND INDEX.

We invite the attention of our readers to the beautiful title page printed on this number of the SCIENTIFIC AMERICAN. It was designed by A. Lumley, and engraved by R. Ten Eyck, whose skill in the art is so well attested in our columns every week. As a specimen of engraving on wood, and as a felicitous design, we doubt if a more superb thing of the kind was ever published. The center of the page is adorned by the figure of Minerva, expounding the laws of natural philosophy. In the upper view on the left are to be seen specimens of the unrivaled steamboats which ply on Long Island Sound and the Hudson river, and an ocean steamship; while on the right are shown those floating palaces of our western rivers, which furnish cheap and comfortable modes of transit. Below there is represented a perfectly correct view of the interior of the principal office of the Scientific American Home and Foreign Patent Agency, showing the various examiners, draughtsmen and clerks engaged in their professional duties. On the right of this interior view is represented a portion of the United States Patent Office at Washington, while on the left is shown an exterior view of the SCIENTIFIC AMERICAN Office, Park Building, this city.

The Index which we publish this week will, we doubt not, be highly valued by all those readers who have preserved their numbers for binding. As the first volume of the "new series" of the SCIENTIFIC AMERICAN contains about double the amount of letter-press given in any of its predecessors, within the same space of time, and as many attractive and valuable features of novelty are embraced in the reading matter, we deemed it incumbent on us to correspondingly enlarge and otherwise improve (by sub-divisions) the list of contents, which will be found more ample and comprehensive than any we ever previously published, and reflects much credit upon S. F. Cohen, our careful and competent proof-reader, who collated the same.

Next week we shall furnish our readers with another full page engraving of over twenty-five practical working machines, illustrating almost every department of mechanism and engineering. Thus brilliantly do we close the first, and shall inaugurate the second, volume of the new series.



ISSUED FROM THE UNITED STATES PATENT OFFICE FOR THE WEEK ENDING DECEMBER 13, 1859.

[Reported Officially for the SCIENTIFIC AMERICAN.]

* * Pamphlets giving full particulars of the mode of applying for patents, size of model required, and much other information useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

26,403.—Luther Adams, of Blanchester, Ohio, for an Improvement in Car Couplings:
I claim the combination and arrangement of the latch, c, f, spring, h, and plates, h', when constructed and made to operate substantially as described for the purposes set forth.

26,404.—Peter B. Baker, of Wall Hill, Miss., for an Improvement in Cotton-seed Planters:
I claim the arrangement of the teeth, b, b, in front of the drill- opener, C, and the scraper, G, secured upon the spring runners or shoes, E, E, in combination with the seed drum, D, substantially in the manner and for the purpose specified.

26,405.—Nelson Barnum, of St. Louis, Mo., for an Improved Sash-fastener:
I claim the lever, H, the adjustable connection, G, and the springs, J and F, and bolt, I, or their equivalents, in combination with the yielding strip, B, for the purpose specified.

26,406.—A. R. Bartram, of Redding, Conn., for an Improvement in Running Gear of Vehicles:
I claim attaching the front axle, A, to the bolster, B, by means of the sleeves, b, b, fitted loosely on the bolster and connected with the bar, C, which is attached to a circle-plate or any suitable swivel connection, between the said bar and axle—when said parts, substantially thus arranged, are used in connection with thills or a draft pole attached rigidly to the axle, A, for the purpose set forth.

26,407.—Alexander Beckers, of New York City, for an Improved Double Eye-piece for Optical Instruments:
I claim connecting a stereoscope or other optical instrument with double eye tubes, sight tubes, or eye pieces, each of which being shaped or turned off one piece in the form of an obliquely-intersected and molded hollow cylinder, substantially in the manner and for the purposes as described.

26,408.—Elizabeth Bellinger, of Mohawk, N. Y., for an Improved Composition for Kindling Fire:
I claim the inflammable gum paste composed of Kaurie gum, camphor and wax in about the proportions stated, when combined with friction-match paste, placed on kindlers for fires, in the manner and for the purposes set forth.

26,409.—John H. Birdsell, of West Henrietta, N. Y., for an Improvement for Bolting and Cleaning Clover Seed:
I claim, first, Operating the bolts, A, A, so as to impart to them an oblique alternately rising and falling motion, by means of the double crank, D, E, guide rods, F, F, arms, G, H, and connecting rods, B, B, or their equivalents, in the manner and for the purposes set forth; it being understood that I claim the above only when applied to bolting clover seed.

Second, I claim arranging a trough, I, provided with endless conveyors, J, as set forth, for the purpose of returning the unhulled seed or hullings to be again submitted to the operation of hulling, as described.

[This invention consists in giving the two bolts, when the machine is in operation, an oblique alternating motion, so that they will alternately rise and fall, keeping at the same time always parallel to each other, for the purpose of more effectually separating the cloverpods from the straw by giving to it a dropping motion, while at the same time it is propelled to the rear of the machine. It further consists in providing an endless conveyor so arranged that it will convey the seed which have not been effectually hulled back again to be submitted to the process, for the purpose of more thoroughly freeing it of its hulls.]

26,410.—William Blessing, of Jeffersonville, Ohio, for an Improvement in Seed-planters:
I claim the arrangement of the top portion of the distributor made with a semi-lunar opening and the recess under the covered portion of the said top, when the periphery of the top is made with the chaff openings, I, on either side of the reciprocating seed bar so that said bar, by its reciprocating action shall work out the chaff through the passages, I, H, on either side of the seed bar and thus prevent choking the distributor.

26,411.—Jeremy W. Bliss, of Hartford, Conn., for an Improved Striking Apparatus for Gongs:
I claim, first, Arranging the striking mechanism of a bell substantially within the hollow of the bell, when the wire which actuates that mechanism moves in lines parallel to the axis of the bell or nearly so, as described.

And lastly, I claim a rock-shaft arm arranged with reference to the bell, substantially as described, in combination with a slide, a spring catch, and a hammer, and hammer wire and proper springs; the whole constituting a striking apparatus, substantially as herein set forth.

26,412.—John Broughton, of New York City, for an Improvement in Grinding Mills:
I claim, first, The double and reverse-acting conical grinding surfaces, B, F, constructed and operated substantially as herein set forth.

Second, In combination with a revolving grinder and hollow case or drum, A, I claim the wings or fan blades, J, operating substantially as and for the purpose set forth.

[This invention relates to certain improvements in metallic grinding mills, the class formed of a cone or frustum of a cone revolving within a co-centric and stationary shell. The object is to prevent the clogging and consequent heating of the mill, and at the same time obtain a perfect and rapid grinding operation with a very simple and economical arrangement of parts.]

26,413.—Peter M. Brown, of Carrollton, Ill., for an Improvement in Portable Fences:
I claim giving such a shape to the slots at each end of the sections of my improved fence that the said sections can be securely interlocked with each other by means of supporting posts of the within described shape, in such a manner that the said sections can be either lengthened or shortened when they are put up for use, substantially as set forth.

26,414.—Isaac Y. Chubbuck, of Roxbury, Mass., for an Improvement in Fan Governors for Steam-engines:
I claim combining the main spindle, C, of the fan governor with the stem or spindle, B, of the valve, by means of a toothed arc formed upon or attached to the extremity of the crank arm which carries the fan and a toothed sector upon the valve stem, the said crank arm being attached to a sleeve fitted to the spindle, C, and the whole being otherwise arranged substantially as described.

[This invention consists in a novel mode of combining the spindle of a fan governor with the stem of the regulating valve, whereby the governor and valve are brought together in a very compact form, without arranging the governor upon the valve spindle, and thereby tending to draw the said spindle out of truth and so interfering with the proper operation of the valve.]

26,415.—Hezekiah Conant, of Willimantic, Conn., for an Improvement in Machines for Winding Thread on Spools. Patented in England June 22, 1859:
I claim, first, The combination, substantially in the manner set forth, of a traverse changer with right and left hand screws, and with nuts which are alternately in gear with such screws; the combination operating as a whole substantially in the manner and for the purpose described.

Second, I claim a traverse changer provided with successive steps or teeth, substantially such as is before described, and acting upon lips as set forth.

Third, I claim a stop motion, substantially such as is described, for causing the machine to come to rest when a spool is filled, in combination with automatic apparatus, substantially such as set forth, for regulating the length of motion and change of direction of motion, of a guide through which the thread is delivered on to a bobbin or spool.

Fourth, I claim adjustable lips, substantially such as set forth, in combination with a traverse changer, whereby spools of different lengths may be wound by the use of the same traverse changer.

Fifth, I claim mounting the presser and thread guide directly upon or attaching it firmly to the traverse rod, as before described, whereby the machine is cheapened and performs its work more accurately.

And lastly, In combination with apparatus substantially such as described, for governing automatically the motions of a thread guide, I claim a tension apparatus and stop motion which arrests the motion of a machine when a thread breaks, substantially by the mode of operation set forth.

26,416.—John B. Cornell, of New York City, for an Improvement in Sash Weights:
I claim, as a new article of manufacture, my improved metallic sash-weight, the peculiarity of which consists in its having a series of annular grooves formed at suitable distances from each other, in the lower portion of said sash-weight, for the purpose set forth.

26,417.—Thos. R. Crosby, of Newark, N. J., for an Improved Machine for Wiring Blind Rods:
I claim, first, The use, in wiring machines, of the yielding mouth to hold the wire when being driven and formed, substantially as described.

Second, I claim the use of the adjustable slide, K, substantially in the manner and for the purposes described.

Third, I claim in said machines the use of the dog, V, in the end of the arm, E, substantially in the manner and for the purposes described.

Fourth, I claim the combination together of the driver, O, and the yielding mouth formed by the rack, D, and plate, I, substantially as described.

26,418.—R. Crowley, of New York City, for an Improvement in Needle Wrappers:
I claim the incision of the wrapper, as shown at d, d, so as to expose the heads of the needles and produce a covering or flap, B, of the form shown, or equivalent form, as and for the purposes set forth and described.

26,419.—Jonathan Cutler, of Chicopee, Mass., for an Improved Machine for Making Clasp:
I claim, first, The sliding former, A, and the vibrating lever, B, in combination with the die and punches, in the manner described.

Second, The reciprocating ring, C, to actuate the slide former, A, in combination with the revolving cam, D, and lever arm, I, and pin, M.

Third, The center spring pin, W, to press the blank down through the die plate on the forming bed, Y, in the manner described.

Fourth, I claim the whole arrangement in combination, as an organized automatic machine, in the manner and for the purpose specified, substantially as set forth.

26,420.—O. H. Dennis, of Altona, Ill., for an Improvement in Seeding-machines:
I claim the combination and arrangement of the cylinder, G, of circular cutters, I, with the cultivating and opening teeth, c, c, and with the sowing cylinder, H, substantially in the manner and for the purposes set forth.

I also claim, in combination with the above, the arrangement of the loosely binged harrows, N, N, in relation to each other, and to the frame of the machine, and in combination with the arms, P, P, rack-shaft, O, lever, Q, and catch, R, substantially as specified.

26,421.—D. S. Fancher, of Logansport, Ind., for an Improvement in Stone-loading Wagons:
I claim, first, The inclined frame or bed, A', and the hinged drop, B, in combination with the friction rollers, c, c, and the windlass, a, b, b, for the purpose set forth.

Second, I claim the receiving table, A, in combination with the clamps, E, E, D, substantially as described and for the purpose set forth.

26,422.—J. W. Fawkes, of Christiansa, Pa., for an Improvement in Steam Plows:
I claim, first, The arrangement of the clutch, r, levers, M, N, rod, O, lever, b', and button or projection, c', on the chain, F', whereby the pulleys, c, c, of the shaft, E, and stopped automatically at the proper time for the purposes set forth.

Second, In combination with the above, the brake, R, and pawl, d, when applied to the machine to operate simultaneously, as and for the purpose described.

26,423.—Thos. B. Fogarty, of Charleston, S. C., for an Improvement in Gas Meters:
I claim, first, The combination with the water reservoir, B, and the revolving measuring drum, H, of an inclined feed wheel, E, substantially as and for the purposes set forth.

Second, The arrangement of the overflow pipe, K, in combination with the water reservoir, meter chamber, and dry well, L, and pipe, N, in the manner substantially as set forth.

Third, The arrangement of the water inlet, S, R, substantially in the manner and for the purposes set forth.

[This invention consists, first, in the arrangement of an inclined wheel within a separate reservoir made by elongating the case of the meter; and in fixing upon the periphery of this wheel suitable buckets which shall alternately dip into the water contained in said reservoir, and convey the same into the main reservoir, thereby maintaining a correct water line under all ordinary circumstances, and effecting an equitable registration of gas. It consists, secondly, in preventing the meter from being overcharged; by the employment of a pipe extending up near the water line, and communicating from the supply reservoir to the bottom of the dry well in front of the meter, so that should any attempt be made to overcharge the reservoir, the water will escape through this pipe, and rise into the dry well and stop the flow of gas completely. Also, in a peculiar arrangement of the water inlet pipe, so that it will have no communication with the body of the meter.]

26,424.—A. M. Ford and C. W. Warner, of Jericho, Vt., for an Improvement in Horizontal Water-Wheels:
We claim the construction and arrangement of the lifter, c, and band, d, as shown in Fig. 1, and of the buckets, a, and b, combined in the manner and for the purposes substantially as set forth.

26,425.—Geo. Foster, of Brooklyn, N. Y., for an Improvement in Axles or Shafts:
I claim a shaft or axle collar in its character, and composed of a series of wrought iron rods, or tubes, covered and held together by a casting cast upon the same, and forming the journal wheel, bearing section wheel and pulley.

26,426.—W. P. Goolman, of Dublin, Ind., assignor to himself and Saml. B. Morris, of Wayne county, Ind., for an Improvement in Mole Plows:
I claim, first, The lever, F, rigidly attached to a pivoted mole, R, in the described combination with the rack, F, the whole being constructed and arranged and operating substantially as and for the purposes set forth.

Second, The cam, D, in the described combination with the coulters, Q, and adjustable pivoted mole, R, operating substantially as and for the purpose set forth.

26,427.—Magnus Gross, of Washington, D. C., for an Improvement in Preserving Flesh and Meats:
I claim the application of an air-tight apparatus of displacement to which hydrostatic pressure is applied, for the purpose and in the manner set forth in the specification.

26,428.—Chas. Hadfield, of Brooklyn, N. Y., for an Improvement in Sticks for Exhibition Rockets:
I claim the rocket stick enclosing or in connection with a magazine of powder, in the manner and for the purposes set forth.

26,429.—H. Halvorson, of Cambridge, Mass., for an Improvement in Candle Molds:
I claim the combination with an outer tube, A, of the inner elastic slit tube, B, applied and operating substantially as and for the purpose set forth.

And in combination with the elastic tube, B, I claim the tip, c, of elastic or yielding material, applied and operating substantially as and for the purpose described.

26,430.—Ira Hann, of Hope, N. J., for an Improved Washing Machine:
I claim the combination of the fixed rubber board, n, with the removable rubber, m, friction roll, presser carriage, a, b, and operating lever, F, B, and M, the whole arranged and operating as specified for the purposes described.

26,431.—J. S. Harbison, of Sacramento, Cal., for an Improvement in Bee-hives:
I claim placing the bee comb, known as worker cells, in a horizontal or nearly horizontal position, so that the cells shall be vertical or nearly vertical instead of horizontal, by the means, or their equivalents, substantially as set forth and represented.

[This invention consists in placing the bee comb, known as worker cells, in a horizontal or nearly horizontal position, so that the cells shall be vertical or nearly vertical, in order to facilitate the labors of the bees in making the green cells.]

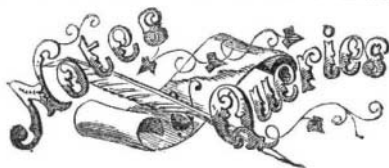
26,432.—Wm. Hoffman, of Benicia, Cal., for an Improved Butler's Tray:
I claim, as a new article of manufacture, a single-handed butler's tray, furnished with a hinged, or pivoted handle, so as to be detached or swung out of the way, to facilitate the placing or removing of articles upon it, and to economize room and space in carrying or stowing it away, as set forth and explained.

in the oven is equalized and the vapors or gases evolved in the oven are absorbed and carried off, as described.

I also claim the arrangement of parts by which I supply the fire with heated air, said arrangement consisting mainly of the apertures in the front plate or doors and the grate, &c.

And finally, I claim making the plate of that part of the oven which extends under the grate, in the manner substantially as described, and connected with a receptacle for ashes at the bottom for the purpose of discharging the ashes that fall from the grate, as described, whereby I am enabled to heat this part of the oven more effectually and equally, and to avoid the burning out of the grates, as described.

NOTE.—Out of the number of patents in the above list—sixty—all which were issued last week, TWENTY-FOUR of them were cases which were prepared and prosecuted through the Scientific American Patent Agency.



E. P., of Conn.—Porcelain or china-ware is ornamented with metallic oxides, which are ground up with a fusible flux, painted on the porcelain, then fused in a furnace and afterwards burnished with a proper tool.

S. B., of N. J.—If your theory is correct regarding atmospheric electricity always being minus, all the accidents which have occurred to life and property from lightning must have been by upward strokes from the earth, not downward, as is generally supposed.

J. T., of Ind.—You say of Koch's mode of applying muscular power:—"This method of applying power is much the same as the old spring pole lathe. The bow-drill, and many other common machines, act upon the same principle.

W. A. K., of Mass.—To draw hollow wire in a tapering form for blow-pipes, it must be drawn over a tapering or conical mandrel of the exact size which it is desired to make the tube.

W. A. S., of Ohio.—We do not know where you can procure one of Bittelle's stitching machines.

H. L. C., of N. J.—We cannot recommend any lamp as being perfectly safe for burning the explosive fluid composed of four parts alcohol and one of turpentine by measure.

H. A. B., of N. Y.—Soft gold solder is composed of four parts gold, one of silver and one of copper. You can make it much softer by adding brass, but, in proportion as you add base metal, the solder becomes more liable to oxidize.

H. M. Brown, of Richmond, Va., wishes to purchase the best machinery in use for making brooms.

W. B. L., of Ill.—You state that you cannot get fresh plaster-of-Paris to stick on the back of your mill-stone—that it always peels off when the stone is set in motion.

T. C. R., of Wis.—The word "equivalent," in a claim, is quite superfluous. By the decisions of the United States courts, all claims cover equivalents.

C. C. P., of Ohio.—You will find articles on crystals in most of the hand-books of chemistry, which will probably give you all you want to know on the subject.

G. E. S., of Pa.—We can see no reason why a concentric is not as good as an eccentric fan. We suppose you intend to employ it for a blower. We therefore advise you to be careful in so constructing it that the air will not escape backwards over the points of the wings.

E. C. J., of Ill.—The amount of gas required to raise 75 pounds 300 feet high, depends on its temperature, and it can be compressed indefinitely according to the pressure to which it is subjected.

J. A., of Mass.—Exhaust steam may be conveyed into water so as to prevent the noise; this is frequently done.

W. A. S., of Ill.—The price of large plate glass, say 5x10 feet and 1/2 of an inch thick, is from \$3 to \$3.50 per square foot.

B. C. S., of Tenn.—For a small gymnasium, the first thing required is a ladder, to be suspended over the boys' heads for them to swing on by their hands.

J. J. S., of N. Y.—We are not aware that the heat conducting power of india-rubber or gutta-percha has been measured; it is small, however, we should think smaller than that of marble or any of the substances in your list.

D. J. S., of N. Y.—Your letter, regarding the strength of wrought-iron beams, will be answered in our next.

Money Received

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, Dec. 17, 1859:—

- D. B. S., of N. J., \$10; H. & J., of Ohio, \$30; J. V. T., of Ill., \$25; S. W. R., of Mich., \$35; A. H. C., of Wis., \$30; G. & G. N. M., of Conn., \$30; N. A. P., of Tenn., \$25; J. W. M., of Mass., \$25; P. C., of N. Y., \$45; H. M., of N. J., \$30; F. & M., of Mass., \$30; J. B. M., of N. Y., \$30; E. M., of N. Y., \$30; J. S. L., of Pa., \$30; T. B., of N. Y., \$47; J. G. W., of Ga., \$30; W. S. K., of Conn., \$30; G. & R., of Mass., \$17; E. A. S., of Pa., \$30; J. B., of N. Y., \$25; S. C. H., of N. Y., \$55; G. E. H., of N. Y., \$10; R. C. H., of N. J., \$30; T. C. R., of Wis., \$35; B. D. & Co., of Pa., \$25; J. G., of Ga., \$30; L. B. D., of Wis., \$50; M. P. W., of R. I., \$25; E. B., of N. Y., \$30; E. M., of Ind., \$30; O. H., of N. Y., \$30; W. E. B., of N. Y., \$30; J. D. M., of Pa., \$25; J. M. K., of Vt., \$33; G. B. L., of N. Y., \$25; G. McK., of Ill., \$30; J. A. C., of C. W., \$30; R. H., of N. Y., \$25; L. L., of Mich., \$20; J. M. L., of R. I., \$35; R. M. C., of Mich., \$25; H. H., of N. Y., \$30; J. M. D., of N. Y., \$30; P. Ver V., of N. Y., \$25; G. C. D., of Ohio, \$15; H. L. B., of Ill., \$30; R. S., of Conn., \$20; T. B. & Co., of Va., \$35; C. V. L., of Texas, \$55; V. M. B., of Pa., \$25; G. M., of Vt., \$40; J. K., of N. Y., \$30; H. M. P., of Mo., \$35; C. & L., of N. J., \$15; J. P. M., of Ind., \$20; G. D., of Ohio, \$30; B. & W., of Pa., \$30; W. S., of N. Y., \$30; G. K., of N. Y., \$35; L. P. M., of N. Y., \$25; S. F. Van C., of Cal., \$55; I. H., of Ind., \$25; H. R., of Mass., \$100; I. W., of Maine, \$30; L. F., of Mass., \$30.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Dec. 17, 1859:—

- S. W. R., of Mich.; B. D. & Co., of Pa.; J. S. L., of Pa.; S. F. Van C., of Cal.; J. W. M., of Mass.; P. Ver V., of N. Y.; R. H., of N. Y.; T. B., of N. Y.; G. K., of N. Y.; J. V. T., of Ill.; J. D. M., of Pa.; R. S. of Conn.; H. V., of N. Y.; W. H. McN., of N. Y.; N. A. P., of Tenn.; C. B. W., of N. Y. (3 cases); J. B., of N. Y.; J. M. L., of R. I.; E. M., of N. Y.; R. M. C., of Mich.; V. D., of N. Y.; V. M. B., of Pa.; L. B. D., of Wis. (2 cases); B. & A., of Pa.; A. B., of N. Y.; P. A. C., of C. W.; J. P. M., of Ind.; J. H., of Ill.; G. B. L., of N. Y.; I. H., of Ind.

HINTS TO OUR READERS.

BACK NUMBERS.—We shall hereafter commence sending the SCIENTIFIC AMERICAN to new subscribers from the time their subscriptions are received, unless otherwise directed; the back numbers can be supplied from the commencement of the volume to those who may order them.

INFALLIBLE RULE.—It is an established rule of this office to stop sending the paper when the time for which it was prepaid has expired, and the publishers will not deviate from that standing rule in any instance.

PATENT CLAIMS.—Persons desiring the claim of any invention which has been patented within 14 years can obtain a copy by addressing a note to this office, stating the name of the patentee, and date of patent when known, and enclosing \$1 as fee for copying.

INVENTORS SENDING MODELS to our address should always enclose the express receipt, showing that the transit expenses have been prepaid. By observing this rule we are able, in a great majority of cases, to prevent the collection of double charges.

GIVE INTELLIGIBLE DIRECTIONS.—We often receive letters with money inclosed, requesting the paper sent for the amount of the enclosure, but no name of State given, and often with the name of the post-office also omitted.

SUBSCRIBERS to the SCIENTIFIC AMERICAN who fail to get their papers regularly will oblige the publishers by stating their complaints in writing. Those who may have missed certain numbers can have them supplied by addressing a note to the office of publication.



INVENTORS, MACHINISTS, MILLWRIGHTS, AND MANUFACTURERS.

The SCIENTIFIC AMERICAN is a paper peculiarly adapted to all persons engaged in these pursuits, while to the Farmer, House-keeper, and Man-of-Science, it will be found of equal interest and use.

The SCIENTIFIC AMERICAN has been published FOURTEEN YEARS, and has the largest circulation of any journal of its class in the world. It is indispensable to the Inventor and Patentee; each number containing a complete official list of the claims of all the patents issued each week at the United States Patent Office, besides elaborate notices of the most important inventions, many of which are accompanied with engravings executed in the highest degree of perfection.

To the Mechanic and Manufacturer the SCIENTIFIC AMERICAN is important, as every number treats of matters pertaining to their business, and as often as may be deemed necessary a column or two on the metal and lumber markets will be given; thus comprising, in a useful, practical, scientific paper a Price Current which can be relied upon.

The SCIENTIFIC AMERICAN is published weekly in a form suitable for binding, each number containing sixteen pages of letter-press, with numerous illustrations, making a yearly volume of 832 pages of useful matter not contained in any other paper.

Terms.

Two volumes will be issued each year; but there will be no change in the terms of subscription, as the two yearly volumes together will be Two Dollars a Year, or One Dollar for Six Months.

Club Rates.

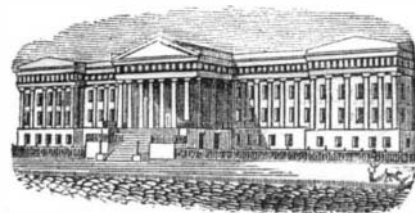
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Ten Copies, for Six Months.....\$8
Ten Copies, for Twelve Months.....\$15
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When persons order the SCIENTIFIC AMERICAN they should be careful to give the name of the Post-office, County, and State to which they wish the paper sent. And when they change their residence, and wish their paper changed accordingly, they should state the name of the Post-office where they have been receiving it, and that where they wish it sent in future.

IMPORTANT TO INVENTORS.



AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure Patents for Inventors in the United States and all foreign countries on the most liberal terms.

Consultation may be had with the firm, between NINE and FOUR o'clock, daily, at their PRINCIPAL OFFICE, No. 37 PARK ROW, New York. We have also established a BRANCH OFFICE in the CITY OF WASHINGTON, on the CORNER OF F and SEVENTH STREETS, opposite the United States Patent Office.

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 Chancery Lane, London; 29 Boulevard St. Martin, Paris; and Rue des Eperonniers, Brussels.

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

A pamphlet of information concerning the proper course to be pursued in obtaining Patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the Principal Office or either of the Branches. We also furnish a Circular of information about Foreign Patents.

Messrs. MUNN & CO.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands.

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ImmEDIATELY after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the following very gratifying testimonial:—

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