1,021.—John Fowler, Jr., of Leeds, England, assignor to W. P. Tatham, of Philadelphia, Pa., for an Improvement in Machinery for Plowing and Tilling Land. Patented in England Sept. 8, 1856:

I claim combining the pulley on the anchor carriage which receives motion from the engine by the pulling of the plows or other implements, with the drum that operates the anchor rope, by means of the intermediate mechanism described, or any equivalent therefor, as described and for the purpose set forth.

1,022.—John Fowler, Jr., of Leeds, England, assignor to W. P. Tatham, of Philadelphia. Pa., for an Improvement in Machinery for Plowing and Tilling Land by Steam. Patented in England Sept. 8, 1856:

I claim combining with the central pair of sustaining wheels and with the frame which carries the two gangs of plows or other tilling instruments, a steering apparatus, substantially as described.

1,023.—John Fowler, Jr., and David Greig, of Leeds, England, assignors to W. P. Tatham, of Philadelphia, Pa., for an Improvement in Machinery for Plowing and Tilling Land. Patented in England Feb. 28, 1856:

We claim mounting two gangs of plows or other tilling instruments in suitable framework, and connecting them with a pair of sustaining and gaging wheels interposed between the two gangs, substantially as described, when this is combined with the pulling ropes or chains and suitable means of attachment thereto, substantially as described, so that by the operation of an engine on one side of a field and suitable anchoring apparatus at the other side, the said instruments can be drawn across the field alternately in opposite directions, as described.

And we also claim mounting the frame which carries the two opposite gangs of instruments on a central axis, so that it may be tilted thereon, substantially as described, in combination with the mode of connecting the ropes or chains with the said tilting frame, or the equivalent thereof, on opposite sides of the axis of vibration, as described, so that by reversing the pull on the ropes, the frame shall be tilted to lift one gang out of action at the end of each course, and draw down into action the other gang for the return course, as set forth.

1,024.—B. F. Hooper, of Birmingham, Conn., assignor to E. N. Baldwin, of Huntington, Conn., for an Improved Machine for Making Braces for Carriage Tops:

I claim the clamping dies in combination with the swaging or shaping dies working in succession, substantially as described, for the purpose set forth.

1,025.—C. L. Johnston, of Little Falls, N. Y., assignor to A. M. Colver, of Albion, Mich., for an Improvement in Rotary Pumps:

I claim the pistons, H H, passing through the cylinder, I, and revolving around a center, G, in the manner specified, when said pistons, H H, are formed thinner in the middle, and with the curved sides, for the purposes and as specified.

1,026.—G. W. Martin, of Morrisania, N. Y., assignor to himself and William Sheppard, of Tremont, N. Y., for an Improvement in Pumps:

I claim the pipes, b and c, valves, n and o, arranged as specified, in combination with the air vessel, d and piston, e, for the purposes and as set forth.

And, in combination therewith, I claim the arrangement of the deflectors, l and m, in the reservoir, h, for the purposes specified.

1,027.—A. C. Mason (assignor to himself, H. H. Mason and D. M. Smith), of Springfield, Vt., for an Improvement in Hooks and Eyes:

I claim the forming of the snaps or spring guards, c, with bent ends, d, which extend into openings, e, in the hooks at the back of the bills, substantially as and for the purpose set forth.

1,028.—J. H. Merrill (assignor to the Merrill Patent Fire-arm Manufacturing Company), of Baltimore, Md., for an Improvement in Breech-loading Fire-arms:

I claim the combination of the shoulders upon the levers and upon the casing of the gun, to take the recoil of the breech plug upon, instead of allowing it to come entirely upon the pivots, and for security against the springing up of the lever, substantially as described.

1,029.—J. H. Merrill (assignor to the Merrill Patent Fire-arm Manufacturing Company), of Baltimore Md., for an Improvement in Breech-loading Fire-arms:

I claim, first, In combination with the lever by which the breech is opened and closed, a projection upon or over which the hammer rests when down upon the nipple, to prevent said lever from rising or opening the breech accidentally, substantially as described.

Second, I also claim, in combination with the lever by which the breech of the gun is opened and closed, a projection which extends under the cap when on the nipple, so that the raising of said lever preparatory to recharging the gun shall throw off the exploded cap and leave the nipple free for a fresh cap, substantially as described.

1,030.—Langdon Sawyer., of Springfield. Vt., assignor to himself, and A. M. Billings, of Wethersfield, Vt., for an Improved Shade or Curtain Roller:

I claim making the rod or roller, G, so that it can be extended or contracted longitudinally, when the same is combined with the other fixtures, for operating the shade or netting, substantially as and for the purposes described.

[The object of this invention is to so construct the bar under which the netting or shade passes from a spring roller which winds up the netting or shade, as the case may be, that the whole fixture may be applied to window frames varying in widths, and secured therein with very little labor, without employing the usual fixtures which are secured to the window casing and mutilate it. The nature of the invention consists in making said rod under which the netting or shade passes, adjustable longitudinally, and in securing to the ends of this rod the plates or brackets on which the spring roller has its bearings, whereby the roller and bearing plates may be thus extended and thus adapted to, and secured within any ordinary window frame in a substantial manner.]

1,031.—J. O. Whitcomb (assignor to himself and Joseph Dodin), of New York City, for an Improvement in Hemmers for Hand Sewing:

I claim, first, The plate, A, with its rest, e, tongue, c, and thumb strap, B, for holding the folder, C, and supporting the fabric while the hem is folded, substantially as described.

Second, Providing an opening, i i, in the scroll of the folder for the admission of the end of the thumb, substantially as and for the purpose specified.

—Hunter Davidson, of the United States Navy, for Improved Hook for Attaching and Detaching Boats their Davits:

catch, C, the strap, S, and the particular form of hook as it to be fitted to the boat's stem or stern post, so as to with their usual outlines; the whole combined and arscribed.

RE-ISSUE.

N. Wyckoff, of Brooklyn, N. Y., and T. M. Fell, of elville Mines, Va., for an Improvement in Gold Amalgamators. Patented July 26, 1859:

e claim the process of separating gold or silver from other subances by mixing the whole with water, confining it together with mercury within suitable containing vessels, and there by the action of heat commingling the mercury throughout the entire body of water and substances containing the precious metals, substantially as set forth.

[The nature of this invention consists in a process by which the metals gold and silver can be more economically and effectually separated from their ores or the earthy matter in which they are found than has yet been done.]

DESIGNS.

Charles Prosbt, of Hudson City, N. J., for a Design for Window Glass.

W. W. Stanard (assignor to Jewett & Root), of Buffalo, N. Y., for a Design for Stoves (3 cases).

Notes and Queries

J. W., of N. Y.—Good copal varnish is the best known to us for coating the seams of tin buckets used for carrying maple sap, to prevent them from rusting. The varnish, after being applied, should be dried in a warm place, such as an oven heated to a temperature of boiling water. Put it on in two or three successive coats, and dry each time.

F. H. A., of Mass.—It would require volumes of our paper to enumerate all the "wants of the world in the way of chemical processes and manufactures." Any improvement in dyeing, tanning, sugar making, or any of the chemical arts; in the process of making paints, cements, bread, beer, wine, cider, and thousands of other articles, the world is ready to pay for it as soon as it is produced. The field is boundless.

H. R. S., of Pa.—No. 2 of your minerals is red hematite, a good iron ore. No. 1 is magnesian limestone in process of disintegration. The little crystals in it are quartz.

E. R. R., of Ill.—The characters on the slab are merely accidental; similar ones are quite common on mica.

U. B. D., of Mass.—Your idea about the employment of fusible metal in air engines is not new. You will find that it has been used for this purpose by reading page 217 of the present volume of the SCIENTIFIC AMERICAN.

U. B., of Pa.—The boiler feeder to which you refer as having seen at Chester is Giffard's injector. You will find it illustrated and described on page 260, Vol. II. (new series), of the SCIENTIFIC AMERICAN.

W. N., Jr., of Mass.—The silver soap to which you refer has been patented. Sand mixed with soap is not a patentable feature, as some soaps are now made in which there is a mixture of ground pumice stone.

M. M., of Mo.—Lard oil is not an artificial mixture; it is obtained from lard by submitting it to severe pressure in presses constructed for this purpose. You will find the process fully described in Morfitt's work on soaps and candles. It requires a peculiar apparatus to manufacture it.

E. W., of N. Y.—For a complete equation of time several circumstances must be taken into account, such as the change in the earth's orbit, the precession of the equinoxes, &c.; but the most important of these, next to the elliptical form of its orbit, is the inclination of the earth's axis to the plane of its orbit.

C. S. P., of N. Y.—We have never seen an explanation of the twinkling of the stars that was at at all satisfactory.

P. H. W., of N. Y.—We also have observed that acorn-shaped rifle bullets make a smooth round hole in a target.

W. N. R., of Wis.—We should perhaps be better able to give the reason of water rising in your wells during a south wind, if we were familiar with the topography of the region.

J. S. M., of N. Y.—The yeast plant will produce fermentation in suitable liquor. If the fermentation is allowed to continue, it first turns starch into sugar, then the sugar into alcohol, and lastly the alcohol into vinegar.

J. P., of Ala.—We do not remember the particulars relating to the anesthetic effects of the oxyd of glycerine, but we consider it a very unsafe substance to tamper with.

A. H. S., of N. Y.—We have not seen a weighing device such as you describe, and we think a patent may be obtained for it.

A. H. P., of Iowa.—We are not aware that any machine has ever been constructed for punching metal, for the purpose you describe, although the work could undoubtedly be done by machinery provided the demand would warrant it.

T. D., of Pa.—We advise every person who wishes to purchase advertised machines, to examine them for himself and not trust altogether to to the opinions of others, as regards their qualities. There is no patent on the common mode of making enameled cloth. You will find a detailed description of the French process for making it on page 265, Vol. XIV. (old series), of the SCIENTIFIC AMERICAN.]

F. D. H., of Md.—Boil a strong solution of fustic and add a very minute quantity of the sulphate of copper and a little logwood, and apply it warm to the leather with a sponge; it makes a good dark olive-green color.

H. & V., of Ind.—The portable engine illustrated on page 408, Vol. I., present series, of the SCIENTIFIC AMERICAN, affords an answer to your inquiries respecting the advantages of securing the mechanism to a bed plate. You surely have not examined it carefully, or you would have perceived that the power is taken equally from both sides of the boiler, so as to prevent racking on one side.

Money Received

At the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 13, 1861:—

S. E. A., of N. Y., $15; J. D. B., of N. Y., $15; E. B., of N. Y., $40; M. J. K., of N. Y., $15; J. N. D., of Iowa, $15; L. H. D., of Iowa, $15; G. B., of N. Y., $25; L. S. B., of N. Y., $25; S. M. S., of Iowa, $30; F. F., of N. Y., $15; S. F., of Ohio, $25; S. W., of Mass., $35; L. F. B., of N. H., $10; S. S. H., of N. Y., $40; T. C., of N. Y., $20; M. & L., of Conn., $15; L. A. B., of N. Y., $10; J. J. K., of Ill., $25; J. A. H., of Ind., $20; E. R. B., of Ill., $20; W. B., Jr., of N. Y., $100; F. C., of N. Y., $20; J. R., of N. Y., $20; G. W. S., of Maine, $20; I. P., Jr., of N. Y., $25; J. G. W., of N. Y., $40; G. G. C., of Mich., $15; E. G., of Mass., $12; H. L. B., of Conn., $25; J. T. S., of Wis., $100; A. B. C., of N. Y., $15; E. H., of Vt., $10; D. S., of Mass., $15; G. S. R., of Ill., $15; S. S. H., of Maine, $10; C. R., of Ill., $25; A. M., of Pa., $25; H. L. P., of Mich., $15; S. C. D., of Conn., $25; C. C., of Ind., $20; C. & P., of Ill., $10; M. L. P., of Ind., $15; W. C. F., of Maine, $15; H. W., of N. Y., $15; W. K., of N. Y., $20; B. D. H., of N. Y., $25; K. & T., of N. Y., $30; C. F., of N. Y., $30; H. Y., of N. Y., $40; N. C., of N. Y., $20; J. W. H., of N. J., $15; D. E. S., of Maine, $15; F. G. L., of Iowa, $15; J. H., of N. Y., $15; C. R., of Vt., $15: N. L. A., of N. Y., $25; S. D. L., of Mass., $10; T. C. H., of N. Y., $15; C. & W., of Maine, $16; D. O. F., of Mass., $40; R. R., of N. Y., $15; J. L. A., of N. Y., $15; J. G., of N. Y., $15; L. O. W, of N. Y., $25; H. W., of N. Y., $15; G. W. D., of Ohio, $25; J. E. M., of Pa., $25; E. D. C., of Vt., $10; A. H. T., of N. J., $50; J. H., of N. J., $10; C. E. L. H., of Conn., $22; A. B. C., of N. Y., $15; J. R. R., of Mass., $40; J. H. F., of Ky., $50; W. W., of Cal., $25; A. E. K., of Pa., $25; P. H. S., of Cal., $106; W. C. & J. D., of N. Y., $25; C. H. C., of Mass., $25; F. B. B., of N. Y., $25; R. W., of Vt., $25; J. A. W., of N. Y., $25; H. N., of N. Y., $25; E. W. G., of Mass., $25; L. F. L., of Cal., $20; J. K. P., of Mich., $15; S. P., of N. Y., $25; T. H., of Cal., $75; P. S. of N. Y., $25; C. W. S., of Maine, $15; A. C. K., of N. Y., $28; I. W. H., of N. J.

Specifications, drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending April 13, 1861:—

K. & T., of N. Y.; G. B., of N. Y.; W. & F., of Tenn.; E. H., of Vt.; F. W. L., of N. Y.; C. R., of Ill.; C. W. C., of N. Y.; N. C., of N. Y.; B. D. N., of N. Y.; C. & P., of Ill.; L. A. B., of N. Y.; J. S. McC., of N. Y.; J. H., of N. Y.; S. D. L., of Mass.; G. & S., of Ohio; L. S. B., of N. Y.; I. P., Jr., of N. Y.; S. F., of Ohio; A. M., of Pa.; S. C. D., of Conn.; J. J. K., of Ill.; J. E. M., of Pa.; J. J. H., of Ky.; C. E. L. H., of Conn.; E. G., of Mass.; H. L. B., of Conn.; C. F., of N. Y.; H. Y., of N. Y.; R. R., of N. Y.; J. R. M., of Texas; P. C., of N. Y.; H. W., of N. Y.; C. C., of Ind.; G. R. B., of Ill.; G. W. T., of N. Y.; W. C. & J. D., of N. Y.; A. H. T., of N. J. (2 cases); R. W. of Vt.; P. A. M., of France; S. P., of N. Y.; J. A. W., of N. Y.; W. W., of Cal.; A. E. K., of Pa.; A. C. K., of N. Y.; I. W. H., of N. J.

New Books and Periodicals Received.

THE BIBLIOTHECA SACRA. Published by Warren & Draper, Andover, Mass.

The number of this most able theological review for the present quarter contains a profound article by the Rev. James McLane, D.D., of Brooklyn, on "Geology and the Bible." It is one of seven essays by different learned authors on as many subjects.

THE TRIUMPHS OF INVENTION AND DISCOVERY. By J. Hamilton Fyfe, published by Nelson & Sons, London, Edinburgh and New York.

This is a very neatly printed and illustrated volume, containing short biographies of the great European inventors of modern times, justly commencing with Coster and Guttenberg, the inventors of printing with single movable types. The histories of printing; the steam engine; the iron manufacture; the electric telegraph; the cotton manufacture, &c., are given briefly and written well; but Mr. Fyfe does not seem to be acquainted with American inventions, which is a great loss to himself and his countrymen.

Foreign Chemical Color Patents.

The following are condensed descriptions of several patents lately taken out in England, connected with the chemical art of manufacturing and applying colors:—

Purples from Coal Tar Products.—R. Smith, a well known chemist, has obtained beautiful colors, not only from aniline, but other bases found in coal tar. He takes a saturated solution of aniline, toluidine, xylidine, cumidine, or either of them in water, and adds a solution of chlorine in water. The proportions are from 1 to 3 equivalents of chlorine to one equivalent of the bases. The mixture is allowed to stand for twelve hours, when a black precipitate is found at the bottom of the vessel. This is washed with water, then mixed with a solution containing about five per cent of soda. In about two hours the solution is filtered. The precipitate is now boiled until the coloring matter is dissolved, when it is filtered, and a small quantity of the chloride of calcium added. This separates the coloring substance, which is collected in a filter, and washed well with cold water. The coloring matter is now dried, and may be afterward dissolved in alcohol, or wood spirit, and is then ready for dyeing or printing. The color so obtained is a bright purple, similar to that called *mauve*, which is obtained from aniline by mixing it with manganates, or the bichromate of potash.

Coloring and Gilding Leather and other Fabrics.—A patent has been secured by R. A. Brooman (being a communication from abroad) for an improvement in printing in relief, and in color, and in gold or silver. The material or fabric to be ornamented or colored is passed between a pair of rollers, one of which is metal, and has the desired pattern sunk or cut out on it, while the other roller is the counterpart, and is formed of gutta-percha or hard paper, with the pattern in relief. For printing with one color only, a distributing roller is placed in contact with the relief roller, and as it revolves, the color is supplied to its surface. For printing in several colors, the inventor uses what he terms "cliche" rollers of gutta-percha, which have their surfaces in relief. The fabric is passed through in a piece as in calico printing, and the pattern is printed in color, and embossed at one continuous operation. When portions of the pattern are to be gilded, the rollers print sizes or mucilage on the parts, and when the fabric passes through, the gilding is applied in powder dusted upon it. This adheres to the prepared surface, and when dried it may be run between pressure rollers to smooth it down.

Panphiteic Acid—New Color Agent.—H. Johnson has obtained a patent (communicated from abroad) of a peculiar new coloring matter obtained from several plants and vegetables. When vegetables are treated with steam, or boiling alkaline water, a coloring substance is extracted from them, and precipitated. This is placed in a stoneware vessel, mixed with nitric acid, and evaporated. The residuum thus obtained contains panphiteic acid, and it is now placed in distilled water, and washed. Resins, gums, wax, and all vegetable exudations may be converted into panphiteic acid, by first dissolving them in alcohol, ammonia, or bisulphuret of carbon, then submitting such solutions to the action of strong nitric acid; or the wax, &c., may be first treated with nitric acid, and secondly, with the alcohol or other solvent. Panphiteic acid produces a yellow dye, and by mixing it with the prussiate of potash, it imparts a light green color to silks and woolens, by simply dipping them into a solution of it. Panphiteic acid, obtained from catechue, can be employed for dyeing shades of olive green on cotton, by preparing the fabric first in a bath containing a solution of nitrate of iron.

Purple-blue Color.—Mr. Johnson has also obtained a patent for a new purple-blue color, derived from indigo, and designed for dyeing and printing on textile fabrics. Take, say 20 lbs., of anhydrous bisulphate of soda, and heat it until it becomes fused. In this condition, about one pound of pulverized indigo is added to it gradually, and the mixture constantly stirred to prevent it from sticking to the bottom of the vessel, which may be a cast iron kettle. The mass now swells, and becomes very dark in color, and disengages a great deal of gas. By taking a little of it out occasionally upon a glass rod, and stirring it among some clear water in a glass tumbler, the progress of the operation is tested; as soon as it colors the water a violet red, no more indigo should be added. The mixture should now be of a pasty consistency. About 147 gallons of hot water are then placed in a cask, and the mixture poured into it and actively stirred; this precipitates the coloring matter, which is a beautiful purple-blue, of a peculiar and brilliant color.

FISHER'S CARRIAGE WHEEL.

The improvement here illustrated has received the commendation of persons familiar with the art of carriage making, and promises to be extensively introduced. In the description, similar letters represent corresponding parts in both figures.

The wheels, D, are composed of several metallic truss felloes, *f*, the tire, *t*, tubular spokes, *s s*, with the binding rods, *c*, the hub, H, and its enclosing cap, C. The axle is composed of two spindles *s' s''*, and the shell or tube, B. The hub, H, is cast of brass or other suitable material in form of a cup or hollow cylinder, and has a stem in its center as seen in Fig. 2, with a square taper hole in it, to which the shank of the spindle, *s*, is fitted; being secured thereto by the nut, *h*, outside. The felloes represented by the several letters, *f*, are made in skeleton form, as seen in Fig. 1 and in segments, each being of a length corresponding with two of the spaces between the spokes, so as to receive one spoke in the middle, the felloes having a rim nearly as wide as the tire with a web, *w*, in the middle, extending from one spoke to another. The holes in the felloes which receive the outer ends of the spokes, *s*, are contracted so as to form the shoulder, *i*, seen in Fig. 2, against which the ends of the spoke rest.

The binding rods, *c*, are provided with a center sunk head *c'*. The tire is drilled to match the spoke holes in the felloes, and the rods, *c*, are put in through the tire, *t*, the hollow spokes, *s*, and the rim of the hub, H; receiving the nuts, *g*, on the inside of

Fig. 1

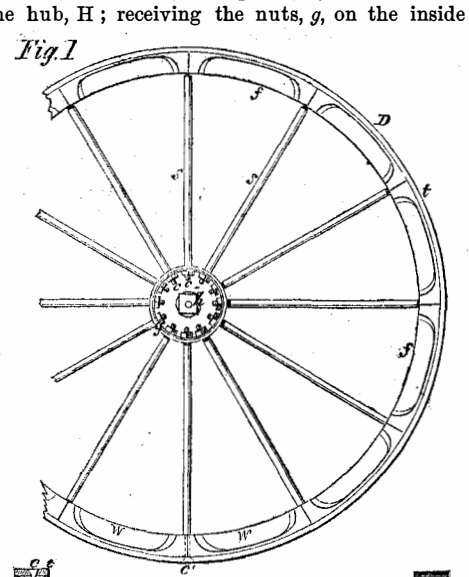
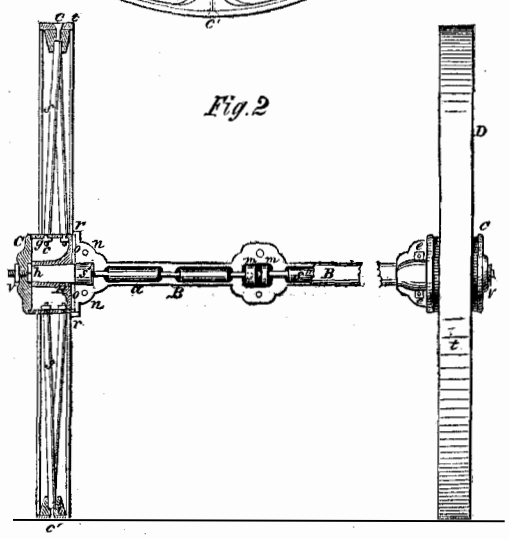


Fig. 2



the hub; by means of which arrangement the several parts are drawn together securely, and then the open end of the hub is closed by the ornamental cap, C, which is securely attached by the nut, *v*. The spokes, *s*, should be connected alternately with the outer and inner end of the hub as shown in Fig. 2. The tube of the axle, B, is made in two parts with recesses, *a a a*, for the lubricating material. It is provided with flanges, *n*, in the center and at each end, through which the bolts, *e*, pass to secure the parts together. On each end of the tube is a rim, *r*, which encircles the inner end of the hub, H, to prevent sand, &c., from working in between the revolving parts. A washer, *o*, is placed between the end of the tube and the hub, for the purpose of diminishing the friction of these parts. The spindles, *s'* and *s''* are made alike except at the ends where they meet, where the point of *s''* enters the end of *s'*, as shown by the dotted lines. The end of each spindle is enlarged to prevent the wheel from spreading apart; the enlargement coming against the shoulder, *m*, of the tube. The reach and side braces for connecting the front and rear axle may be attached to the tube, B, by the bolts, *e*.

By the construction of this wheel it will be seen that it is both light and strong, and as it is made wholly of metal, if it is kept properly painted, it will be very enduring.

The patent for this invention was procured through the Scientific American Patent Agency, December 18, 1860, and further information in relation to it may be obtained by addressing the inventor, J. P. Fisher, Rochester, N. Y.

FROM THE STEAM PRESS OF JOHN A. GRAY.