

The Art of Dyeing—No. 3.

RED COLOR ON COTTON—This color is termed the "caloric ray," and imparts a cheerful aspect to rooms looking to the north. It is a striking and gaudy color, by some called vulgar, but it is wrong to apply such a term to any color.

A common red color is dyed on cotton, with two different kinds of vegetable dyes, namely, peachwood and barwood. The latter makes a more permanent color than the former. The cotton being boiled and prepared for operation, is first steeped for about eight or ten hours in a strong decoction of sumac—about three pounds to the ten pounds of cotton, either in yarn or the piece. The goods must never be crowded too close in the vessels in which they are steeped, and no part of them should be suffered to rise above the liquor. This preparation is the same for both kinds of dyewoods. After the goods are lifted out of the sumac (if yarn, they are wrung, if pieces, they are suffered to drip well,) and then entered into the "spirit tub." This is a standing tub of the nitro muriate of tin, described on page 130; in which they receive five turns or handlings, and are then sunk under the liquor for about one hour and a half. They are then lifted, suffered to drip for a few minutes, wrung (if yarn,) and afterwards washed in clean water. If for bar-wood, great care must be exercised that no free acid is left in them; this can easily be detected by tasting them—the usual way. It requires about one pound of bar-wood to color one pound of cotton, and this is always done in a boiler bath. The yarn is wrung up, when washed out of the spirits, or if pieces, they are well dripped and run upon a winch. The bath should be a long rectangular copper kettle for yarn, if heated with a fire underneath, or it should be a water-tight long wooden box if heated with steam. The bar-wood is first introduced, and allowed to boil for about fifteen minutes, then it is put off the boil with a pailfull of cold water, and the goods are entered and handled well over pins, or the winch, for about a quarter of an hour, when the liquor is brought to the boil and kept boiling for half an hour, when the goods will have attained to a good full color. Some enter the goods into the bar-wood liquor when cold, and bring it gradually up to the boil in half an hour, and keep it at this heat for half an hour longer. If the goods are to be dyed with peach wood, about six pounds are used for every ten of the goods. This wood is simply boiled for about fifteen minutes (if finely ground,) then put off the boil, and the clear liquor lifted out into a tub or tubs and equally divided for the quantity of goods to be dyed. The goods are then entered and handled quickly for fifteen minutes, then lifted, and about a small tea cupfull of spirits from the standing tub is added to the liquor, and well stirred. The goods are then re-entered, handled for ten minutes, and being raised, as it is termed, are then lifted, washed, and wrung for drying. Bar-wood reds require much washing if the goods are boiled in the liquor; peach-wood reds require but little washing. Some add two pounds of cam-wood to every eight of bar-wood, but use so much less of the latter dye wood.—Unless the bar-wood is good, and it is easy to deceive the eye with its appearance, a good full color cannot be produced.

Madder is employed for dyeing two kinds of reds on cotton, one a dull brownish red called "Indian," and another the most brilliant of all, "named Turkey red." The former is dyed by preparing cotton with a very light sumac, one pound to ten of cotton in yarn, in the same way as for bar-wood red; then giving it a strong mordant of the acetate of alum. This latter is prepared by dissolving one pound of alum for every ten pounds of cotton, to be dyed in a clean vessel, then adding, in a dissolved state, one ounce of the acetate of lead, stirring all up, and allowing the sediment to fall to the bottom. The clear is then used as a mordant, at a temperature of 160°. The goods are handled in this for about ten minutes, then sunk under the liquor for six hours, after which they are lifted, dripped, and washed

thoroughly. They are then fit to receive the madder dye. This is done in a copper kettle gradually brought up to a boil, and then boiled for half an hour. It takes about 1½ pounds of ground madder roots to dye one pound of cotton (a little sumac is added to the madder). This is an expensive color but very fast. No Turkey reds are dyed in our country; the process is tedious and expensive, and it would perhaps be a waste of space to describe it. A description of the process is to be found in Dr. Ure's old Chemical Dictionary, furnished by M. Papillon, the French gentleman who introduced the art into Britain, but the whole details of the process, as now practiced by the best Turkey-red dyers, is totally different, and the manipulations are much reduced in number.

Madder is the best vegetable coloring matter yet discovered for dyeing red, and were it more generally cultivated in our country, so as to reduce its price, and were the advice of Mr. Partridge, as given in former numbers of the SCIENTIFIC AMERICAN, followed, our country might soon rival, if not surpass, all others in dyeing red colors on cotton. As it is, Scotland supplies us with Turkey red yarn and plain red pieces, and France (if we are not imposed upon,) with Turkey red calicoes. Speaking correctly, Turkey-red is the only pure red dyed on cotton, all the other reds—bar-wood and peach-wood—are dull and brownish when compared with it.

Alizarin is the red coloring matter of madder. Garancine is a product of madder, obtained by submitting it (the madder) for a short time to strong sulphuric acid, washing the latter well out, and then drying the madder so treated for market. Alum is the mordant used for this substance, which only yields its color at a boiling temperature. A little sumac is added in the bath, and the process is about the same as for Indian madder red. We believe its use is confined to calico print works entirely. It gives a more lively color than common madder, and it is not so liable to run upon the white parts of calicoes. Colorine is another product of madder, now extensively used in French calico printworks.

Brazil wood and sapan wood are used for dyeing red in the same manner as peach-wood (Nicaragua). They are finer in quality, and superior, but not so much used because they are dearer. None of them stand exposure to the sun for any length of time, hence they are set down as fugitive colors.

In our next we will describe the modes of coloring silk and wool, red.

Fessel's Gyroscope.

At a late meeting of the Institution of Mechanical Engineers, Mr. C. William Siemens, of London, exhibited a new instrument, the invention of Fessel, of Cologne, by which the stability of the axis of rotation in a revolving body was illustrated in an ingenious and striking manner. The instrument, named a gyroscope, consisted of a small fly-wheel revolving in a frame, attached by gimbal joints at the end of a supporting rod, which was left free to move in any direction, by passing through a ball and socket-joint fixed upon a center pillar. When the fly-wheel was made to rotate rapidly (by means of a string wound on its axis,) in a plane transverse to the supporting rod, but inclined at any angle to it, the fly-wheel maintained itself in whatever inclination it might be placed, although its weight was unbalanced; but at the same time the whole apparatus revolved slowly in a horizontal plane, by turning the central ball and socket-joint. When a counterpoise weight was attached at the other end of the suspending rod, just sufficient to balance the weight of the fly-wheel and its frame, the horizontal revolution did not take place; but when a greater weight was attached, so as to over-balance the rod, a similar revolution took place in the opposite direction to the former one, the fly-wheel maintaining its level in each case, until the velocity of the rotation on its axis became considerably diminished, when it gradually sank down to the lowest position if unbalanced, or rose to the highest position if over-balanced. If the suspending rod and fly-

wheel frame were made forcibly to revolve horizontally faster than, or in the opposite direction to, the self-assumed motion, by applying a sudden lateral force, great resistance was opposed to this extraneous force, and the result was a sudden fall or rise in the fly-wheel and frame, according to the direction of the force applied.

The instrument was shown in action by Mr. Siemens, and he explained that its original invention had arisen from an investigation into the laws of the stability in the axis of the earth's rotation, upon which M. Fessel had been engaged, that had led to the trial of various experiments in rotating bodies; and the present instrument, although not useful in itself, could not but be interesting and servicable as an aid in investigating the action in all parts of mechanism in rapid rotation.—[London Artisan.

Machine for Quarrying Slate.

Slate have heretofore been all cut out in quarries by hand labor. The workmen with picks cut grooves in the rock to the depth required, and then the slate comes off in thin layers the size of the space between the cut grooves, forming rectangular slabs. To supersede this slow method of quarrying slate Henry J. Bremner, of Nazereth, Pa., has invented a machine for which he has applied for a patent. The cutters are operated so as to feed forward and cut out a groove in one direction, the desired length, and then it (the machine) is turned, and the cutters made to cut a transverse groove, and thus proceed until the rock is so grooved that the space between the side and two end grooves or cut channels, forms a slab of the size desired for the slate, when the slate is forced out, and splits easily into as many separate slabs as there have been horizontal layers from the surface to the depth the cutters have perforated. One of these machines has been in operation for some time, and has accomplished more than its inventor anticipated. It is operated by hand, and with one man will cut out more slate in one day than twelve men with picks by hand labor.

A New Repeating Gun.

On another page will be found an advertisement relating to a new repeating gun. An old correspondent sends us the following description of it:—It has a cylinder divided into three chambers, which (the cylinder) is revolved either by hand or a lever. On the right side of the barrel is placed a long tube for holding the powder, and on the other side a tube for holding the balls. The rifle barrel and these two tubes cover the three chambers described. A touch of the finger lets in the charge of powder, the cylinder is to be turned 60°, when a touch upon a catch lets down one ball from the ball tube, and then the loaded cylinder is turned into line with the barrel. He uses Maynard's Primer. One load for this gun consists of as many balls as would fill the barrel.

New Life Car.

Farnham L. Tucker of the city of Brooklyn, L. I., has taken measures to secure a patent for an improved life car, which is formed of a series of hollow cylinders, constructed of sheet metal of a suitable thickness, each of which is divided into compartments by partitions. These cylinders are connected together by rods, when required to form a life raft, and they are also designed as substitutes for life boats.

Another World's Fair Failure.

The failure of the New York World's Fair is not the only failure of the kind. From Bavaria announcements have just been received in regard to the results of the Great Exhibition at Munich, which was held during the last summer. Although a most brilliant display of the triumphs of German industry and art, it has cost the government about one million seven hundred thousand guilders above all the receipts, which is, in part, to be accounted for by the prevalence of the cholera last summer in Vienna and Munich, which probably deterred many from the visits to those cities which they had in contemplation.

TO CORRESPONDENTS.

L. R., of N. Y.—The weight of clock gives it motion; and the person who raised up the weight gave it motion. A spring also moves clock-work, and you may reason from this cause to the effect, that static power must never be connected with dynamics.

M. U. St. J., of N. Y.—We cannot supply the information you desire about those street-sweeping machines.

W. R. & A. W. Jr., of Ill.—The steam brake which you describe is not patentable; the same thing essentially has been refused by the Office. It is not patentable.

W. M. S., of N. Y.—We do not know of any person engaged in selling patent rights. Your suggestions in regard to preventing collisions on railways we do not think much of. They strike us as cumbersome and unpracticable. You had better however consult with some competent railroad engineer.

J. C., of N. Y.—Your flying machine sketches have been examined, and we can truly say that we think the arrangement novel and ingenious, and we presume a patent may be obtained for it, but candor urges us to caution you against spending much time and money on it. If you seek for mere pleasure it is a good field, but if you study profit and utility you will be disappointed, if your hopes are centered in its success.

J. L. Jr., of Ill.—We discover nothing patentable in Mr. W's. straw cutter.

C. J. B., of Pa.—Don't you see that your plan is in effect to make water run up hill? It will run down of its own gravity, but it will not go back as easily. It will take more power to work your pumps than the water they raise will give back to the wheel.

Pacific—We think your plan of making bricks can be patented. Making a molding as you propose is not patentable. G. W. R., of—Your method of causing the cutter bar to vibrate is not new or patentable. We have seen several plans of mowers in which the same principle is used.

H. H., of N. Y.—A double segmental rack operating alternately upon vertical racks, is an old device, and its change of use could not be secured by patent. You are advised not to apply.

D. W., of Cal.—We have seen the same method of applying water to wheels as is shown in your sketch. It is very similar to the method employed in the Rich wheel.

W. R., of Ala.—Your alleged improvement in lever engines is among the earliest inventions for the purpose.

W. F., of Pa.—We do not consider the device you describe for raising water practicable. We can scarcely see how it will operate at all. We are also doubtful about your being able to secure it by patent.

J. H. H., of Ala.—You are perfectly right about the balancing of the weight on the arms of the upright shaft; you will turn it easier than to have all the weight on one arm; this is transparent.

C. D. A., of N. Y.—Engine indicators are so made that one stroke, or any number of strokes, can be pencilled on the card. We cannot describe to you the method by word.

W. S., of O.—A balloon could not be compressed by rolling it upon a roller, so as to make it descend; the feat is impracticable.

E. L., of Ct.—We think there are chances for securing patents on your inventions. Make models and comply with instructions in our circular. It will be unnecessary for you to come until you are ready to have us proceed for the patent.

J. W. S., of Ohio—It is quite common to construct carriage seats to turn on a pivot, and allow occupants to pass to the back seats. The cross reach you will find illustrated on page 148, Vol. 6, SCIENTIFIC AMERICAN. You cannot secure it by patent.

S. H. W., of Mich.—Saws in the form of an endless belt have been used. A patent cannot now be secured for them.

C. E. G., of Geo.—The arrangement of a common hollow or female auger so as to set it to any desired size for cutting tenons on spokes and felles is not new. The same thing is already done.

J. F., of N. Y.—You can procure the Glasgow Practical Mechanics Journal of Messrs. Stringer & Townsend, No. 222 Broadway, New York. We are much obliged for your favorable opinion of the SCIENTIFIC AMERICAN.

A. B. B., of New Orleans—Air slacked lime has lost its useful effect by absorbing carbonic acid from the atmosphere. You can render it as good as ever by burning it over again. Bogardus mills would be excellent for reducing bricks to powder. You can get them of various sizes, a small one will answer. Furnace ashes would be an improvement, but we cannot give you the proportions of the cement. We will try and get the other information for you, and publish it.

M. C. M., of Washington—Yours is received, accept our thanks.

N. R. R., of Lockport—Your beam appears to be new and useful.

J. H. T., of Conn.—Soda water is just water charged with carbonic acid gas. It is made palatable with extracts of sarsaparilla, strawberries, &c.

J. B., of—Royal blue spirits is simply nitro muriate of tin. The salts of tin are better than the spirits for cotton blue.

W. T., of Tenn.—Your suggestions in regard to laying bricks are very good, but do not involve anything upon which a patent can be secured.

H. L., of Mass.—The idea you suggest in regard to quenching fires in ships is not new. We have had a similar plan proposed to us before.

W. H., of Pa.—You could not obtain a patent for an improvement in reaping and mowing machines by constructing the cutting apparatus on the principle of shears.

T. R., of R. I.—We cannot give the information desired about the Solar Compass. You had better address E. & G. W. Blunt, 179 Water street, who are manufacturers of philosophical instruments.

Money received on account of Patent Office business for the week ending Saturday, Jan. 6:—

J. P., of N. C., \$20; R. D. N., of N. H., \$30; S. G., of R. I., \$25; J. R. A., of N. Y., \$30; J. P., of N. Y., \$10; T. M. C., of Me., \$30; I. W., of Wis., \$55; H. S. W., of N. H., \$30; M. F. C., of N. J., \$20; L. J. W., of N. J., \$20; C. A., of N. J., \$55; I. W. McG., of N. Y., \$25; H. S. A., of N. Y., \$30; J. J., and H. F. M., of Ind., \$30; C. W., of Ct., \$30; F. P. E., of Pa., \$30; A. B., of N. Y., \$30; L. & D., of Va., \$250; F. Y., of Ky., \$30; D. W. H., of Mo., \$25; P. L. S., of N. Y., \$25; J. S. J., of N. Y., \$55; L. T., of N. Y., \$20; G. D., of Ky., \$30; W. T. Jr., of N. Y., \$30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Jan. 6:—

L. R., of N. Y.; G. R. T., of N. Y.; S. G., of R. I.; G. A., of N. Y.; A. M., of Ct.; Z. H., of O.; D. W. H., of Mo.; P. L. S., of N. Y.

(For the Scientific American.)

Lateral Motion of the Earth.

A motion of the earth, in the direction of its poles, so as to change its axis of diurnal rotation, would cause a corresponding change in the equator, and in latitudes; and the waters of the ocean flowing towards the equator, as it changed, would change the bed of the ocean also. Now it is said that "observations of latitude, which are made with extreme nicety, indicate no changes of this kind." On the other hand, history informs us, that there has been a considerable change in the temperature of some climates; and navigators inform us, that fossil remains of plants and animals, which grow only in tropical or temperate climates, are found near the arctic regions, and the marine fossils which are found all over the land, and our extensive prairies (which with the exception of their grassy covering, are probably just as the ocean left them,) indicate that the whole Mississippi valley has once been the bed of the ocean.

To account for these apparent changes on our globe, the theory of upheavals and depressions has been adopted as the most plausible one heretofore offered. And though we can readily understand how islands and mountains, may be formed by upheavals, we cannot so readily conceive how whole continents may emerge from the ocean by such means. For if they are upheaved in parts at a time, each part must break the crust of the part to which it is attached, and so leave indications of rents or chasms all over the country, similar to those seen by Kendall in his expedition to Mexico. And if the whole or large tracts of land were upheaved at a time—then the ocean must have retreated, if not precipitately, at least at a rate which would have been perceptible in a few years; appearances in this State do not lead to either conclusion, nor do they warrant the conclusion that the axis of the earth has ever been changed by a comet; for in that case the waters must have retreated more precipitately than they would have done in the first-named case. On the contrary the land here indicates that the waters retired at a very slow and imperceptible rate, for then many freshets in the rivers must have overtaken the ocean at or near each point of recession, and their waters mingling with those of the ocean, would spread out and deposit their alluvium over the land in the vicinity of the rivers, and when the ocean had departed, the alluvium or soil would be deeper there than anywhere else; and this deposit would be in proportion to the magnitude of the rivers and the extent of country which had been washed by their waters. Such is the fact: the soil is deeper and the land richer on the streams (where the land through which they run is not too much broken—for in that case it would wash off again) than at other places. And on the Missouri river, in this and the adjacent counties, three or four feet is no uncommon depth for the soil, even upon the high lands, where they are level enough to retain it, and it is in some places five or six feet deep, in as many miles from the river. This gradually thins off as it recedes from the river, till it reaches an average depth, which is perhaps fifteen or twenty miles. In this soil there is no gravel, for it is a fine rich loam, just such as would float to a considerable distance in the water before it subsided. And as a large portion of it must have been washed off again by the tides and waves of the ocean, and by rains, before it could be protected by a covering of grass, it must have been much deeper when the ocean first left it.

As the lines of the public surveys in this State were run at a variation from the magnetic meridian, it must have been for the purpose of running them on the true meridian, but they now point about one degree to the east, in this county, for every eighteen or twenty years of time since the surveys were made. In 1843 I built a brick house, and by the compass ranged it with the public lines, but found that it ranged to the east of the mean pole; I again took another observation on the 5th inst., eleven years afterwards, and from the best calculation I could

make from memory, it had advanced a little more than a half degree still further to the east. A cause for such a motion of the earth I think exists in the moon; three of the grand divisions of our globe, Europe, Asia, and Africa, lying close together in the northern hemisphere; and the southern hemisphere being covered principally with water; which latter obeys the attraction of the moon as it passes, but returns to its former level by the attraction of the earth, when it has passed, whilst the land must move in a body, that is, the whole northern hemisphere must move towards the moon and remain as the moon left it, unless it be attracted on the opposite side with the same force, when that side comes under the moon's influence. But here again, as in the southern hemisphere, the Pacific Ocean interposes and prevents the moon from acting upon it with the same power; in other words, the bed of the ocean being more distant from the moon than the land on the opposite side when that is under the moon, it cannot act upon it with the same intensity that it does upon the land. The earth's diurnal rotation will not prevent a lateral motion; for if a wooden ball, with one side heavier than the others, be given a rotary motion in water, the heaviest side will slowly turn to the bottom, without changing the axis of its rotary motion in regard to the water, whilst it changes 90 degrees in regard to the ball.

This motion of the earth may not be in a true plane, for the emergence of the new land and the submergence of the old, may change the center of attraction, and so give it a kind of oscillating motion. But it is probable that it has been near enough to a true plane, to have drawn the greatest part of our continent from under the Pacific Ocean. If there is no error in the facts stated, nor in the conclusion arrived at from them, some point, probably in the United States or its Territories, is going due east at this time; west of that point is going north of east; and east of it, south of east. And the influence of the American continent would throw the line of due southern movement rather west of a central line running north and south, through the above-named grand divisions, and some line in the Pacific Ocean, running in the same direction, to the North, so that our continent on the north-eastern shore of that ocean is enlarging. As the bed of the ocean is continually becoming richer by the washings from the land, and the land poorer from the same cause: "He turneth the rivers into a wilderness," and "turneth the wilderness into a standing water."—Ps., and so makes the ocean the great renovator of the land. H. POLLARD.
Lexington, Mo., Dec. 29, 1854.

(For the Scientific American.)

Purifying Salt.

I notice a suggestion in your very judicious remarks appended to an article upon the "Manufacture of Turks Island Salt," which, according to Dr. Ure in the following extract, will bear a much more extended application than has been given it, and will perhaps answer the purpose of your correspondent, C. P. Stratton, of Oregon. I allude to the use of caustic lime to purify the solution of chloride of sodium of the saline springs of that region:—

"The chloride of magnesium or bittern, not only deteriorates the salt very much, but occasions a considerable loss of weight. It may, however, be most advantageously got rid of, and converted into chloride of sodium (common salt) by the following simple expedient:—Let quick-lime be introduced in equivalent quantity to the magnesia present, it will precipitate this earth, and form chloride of calcium, which will immediately react upon the sulphate of soda in solution with the production of sulphate of lime and chloride of sodium. The former being sparingly soluble, is easily separated. Lime, moreover, decomposes directly the chloride of magnesium, but with the effect of merely substituting chloride of calcium in its stead. But in general there is abundance of sulphate of soda in brine springs to decompose the chloride of calcium. The best way of pro-

ceeding with saline water, would be to add to it, in the settling tank, the quantity of lime equivalent to the magnesia, whereby an available deposit of this earth would be obtained (mixed with Ca. O. + So. 3) at the same time that the brine would be sweetened. Water thus purified may be safely crystallized by rapid evaporation."

The lime should be added in the state of "milk" or "cream of lime," in order to insure its diffusion through the brine.

M. P.

Baltimore, Dec. 29, 1854.

New Marine Engine.

In the SCIENTIFIC AMERICAN of September 23rd, I find an article on Steam Engines, wherein the Editor states that an iron steamship from Havre, having an engine of a peculiar construction, visited New York.—The ship has two engines, with two steam cylinders for each—the one a small high pressure, and the other double the size, which receives the steam from the first, and works it expansively, and is connected with the condenser. This, he says, is the Wolf principle, and, he believes, is its first application to a steamship.

Now, if the Editor of the SCIENTIFIC AMERICAN would condescend to inquire down in this Esquimaux country, he would find that the engine he so much admires has been invented and patented by a backwoods boy of this Province of the name of Tibbets, and that a fast boat of his own construction is now running on the St. John, and has been for the last seven or eight years; that he has since built two others on the same principle, and has a mill propelled in the same way.—He has also started two others in Canada, the whole of which have worked to a charm. If Brother Jonathan will only call this way we will not only enlighten him on steam, but prove also to him that "we are some pumpkins" at building clippers.—["Wakeful," St. John's Chronicle, N. B.

["Wakeful" must be a very near relation to "Rip Van Winkle." If he has nothing more new in steam than such engines to show Brother Jonathan, it will be a long time before the latter calls that way, to be enlightened on steam; and the innocence of "Wakeful" respecting the Tibbets' novelty of engines applied to steamboats and mills, is just what might be expected in an Esquimaux country, but not in New Brunswick, where the SCIENTIFIC AMERICAN has long been known and read. Such engines were applied to steamboats in this city twenty years ago, but we never saw them applied to ships, excepting in the one to which the above paragraph refers. That steamship was built in Glasgow, by Elder & Randolph. Double cylinder engines, like those of Tibbets, have long been employed on the Thames ferry boats.—The original inventor of such engines was Jonathan Hornblower, of Cornwall, England, in 1781—the uncle of Chief Justice Hornblower, of New Jersey. "Wakeful" can see an engraving of this engine on page 98 of Galloway's History of the Steam Engine, published in 1832.

Fusible Plugs.

MESSRS. EDITORS—What is the best alloy for a fusible plug for a steam boiler? I see by a report, in your paper, of a Committee of the St. Louis Steamboat Engineers, that they have no confidence in the fusible plug. We use in our boilers a brass plug 1½ inches diameter; drilled 1¼ inches, and filled with lead, and have not, as yet, had one fail; we had previously used an iron plug ¼ inch dia., drilled ¾ inch, and filled with lead, but had one case of failure; the lead, in six months' use, became so changed that the boiler was burned without melting the plug. We now use the large size, and recommend our customers to renew the lead every three months. If you know of any better way, please let us see it, and oblige yours, respectfully,
CHAS. W. KIMBALL.

Springfield, Mass., Dec. 29, 1854.

[We do not know of any fusible plug equal to the one our correspondent describes, and we are confident the information he furnishes on the subject will be appreciated by our engineers.

Inventors! Attention.

MESSRS. EDITORS—There appeared in Newton's Journal, some time last summer, a notice of an application for a patent for improvements in japanning leather, communicated to Mr. Newton from abroad, and the notice was published in about twenty days after a caveat was filed for improvements in japanned or patent leather, in the archives of the Patent Office at Washington. Now it lately appears, in the SCIENTIFIC AMERICAN, that letters patent are secured to A. V. Newton, of London, for improvements in japanning leather, the partial details of which sufficiently identify it with the caveat at Washington, to warrant the belief that it was derived therefrom.

It was the intention of the American inventor to patent his invention abroad, believing his caveat or invention safe in the meantime, until he could procure the means to do so; he has therefore either suffered injustice, or it is his fault in not being better informed, and it is such information which is now sought from the SCIENTIFIC AMERICAN.

The writer is aware of the importance of simultaneous patents at home and abroad, but supposed that caveats were an exception.

E. M. C.

Providence, R. I., Dec. 30th, 1854.

[It will be very difficult to explain the circumstances connected with this case,—they are very singular, and should serve as a caution to American inventors who intend to secure foreign patents. The English application should, as a general thing, be made first; owing to the law granting patents in England for imported inventions. Inventors who intend to secure patents abroad should be exceedingly careful of those to whom they entrust their business. Our correspondent, although well known to us, has not informed us who the inventor is to whom he refers. He may have suffered injustice from some party, but we cannot tell; he is the best judge of this himself.

Rhode Island Coal.

E. Cort, of Taunton, Mass., writing to the Providence Journal, thus speaks of the above named coal:—

"In looking over one of your late papers, I see a word to the capitalists of Rhode Island on the subject of coal. You say that it is not yet in use for making steam. I wish to tell you that I have made steam with Rhode Island coal for five years. I first used the coarse coal, then the nut size, and for three years I have burned the pea coal (that is the cheapest kind,) and all with satisfaction. I made no change in the grates. Any person wishing to see Rhode Island coal burn, can do so by calling at Albert Field's Tool Factory, Taunton. This is the third winter that I have burned it in my cooking stove. My wife prefers Rhode Island coal to the Pennsylvania."

Croup.

A medical correspondent of the New Hampshire Journal of Medicine states, that for three years he has used alum in croup, and in all that time has not seen a fatal case which was treated with it from the beginning. He usually gave about ten grains, once in ten minutes until vomiting is induced, using at the same time tartar emetic or the hive syrup freely—the latter subduing the inflammation, while the alum has more of a repulsive action.

Cure for Palpitation.

A lady about forty years old, says the Journal of Health, who has suffered severely from periodical attacks of palpitation of the heart, from the age of twelve years, has found immediate and permanent relief from the use of soda water. It appears from experiments since made, that carbonic acid gas is the active curative agent.

Chloroform Counteracted.

Dr. Robert de Lambelle, a distinguished physician of Paris, announces that a shock of electricity, given to a patient dying from the effects of chloroform, immediately counteracts its influence, and returns the sufferer to life.

SPARK ARRESTER TO HEAT FEED WATER.

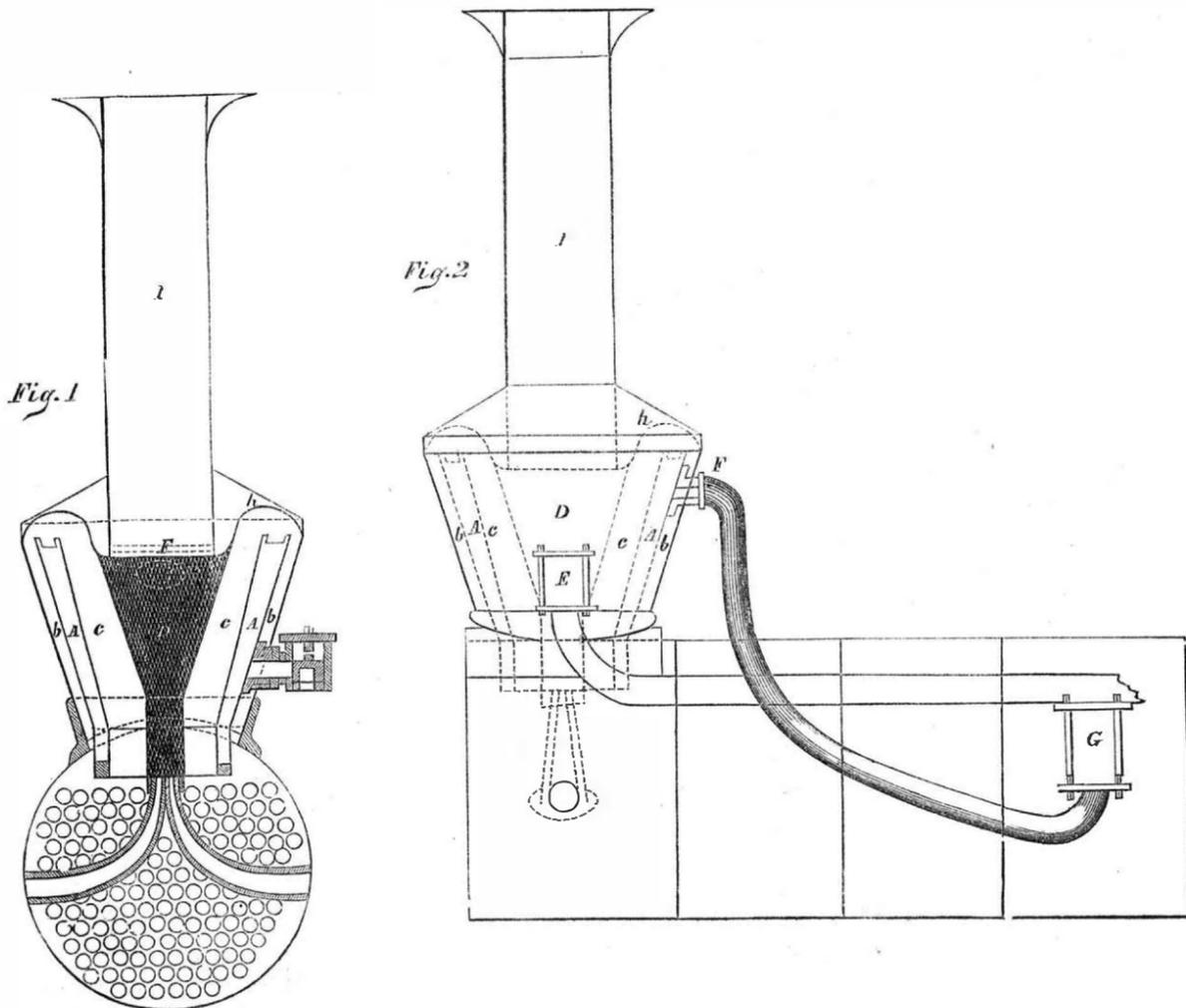
The annexed engravings are views of an improved arrangement in Spark Arresters for heating the feed water of locomotives, for which a patent was granted to R. A. Wilder, of Schuylkill Haven, Pa., on the 31st of last October.

Figure 1 is a transverse section, and fig. 2 is a side elevation. The same letters refer to like parts.

The invention consists in the arrangement

of the flues, water space, and spark arrester, and the cooling of the smoke and sparks, and the heating of the water, preparatory to its entrance to the boiler, in a very efficient manner. A is a water chamber holding 20 gallons, into which the feed water is pumped for the purpose of being heated before passing to the boiler. *b* and *c* are flue spaces surrounding the water chamber, and connecting with the open pipe, I, through the spark

wire. D is the spark arrester cone attached to the arched covering, *h*, of the flue spaces, and fitting closely around the exhaust pipes to arrest the sparks without causing any obstruction to the exhaust steam, as is the case with the use of deflectors. E is an attachment of feed pipe to the heater; T and G are attachments of pipe conveying the heated feed water to the boiler. Smoke and heat pass from the fire box upwards through the



flue space, *b*, then down into the space, *c*, into the perforated or wire cone, D, and thus heat the water in A. The apparatus is constructed of boiler plate, and is stayed with bolts in the same manner a fire box. It is simple and is adapted to the use of both wood and coal-burning locomotives. Mr. Wilder is Superintendent of the Mine Hill and Schuylkill Haven Railroad, on which road they have been in use for the past

twelve months on ten engines (both kinds), during which time they have proved very satisfactory, and have cost nothing for repairs. By a simple arrangement the water can be forced through the heater back to the tank when it is not required for the boiler. He has not been able to make correct experiments regarding the exact amount of fuel saved by its use, but he is convinced from general observation made by those running

the engines, that it amounts to twenty per cent., and cannot be less than fifteen. The railroad on which it has been tested is one of the most difficult to manage in the world, and its success there will, no doubt as it should, arrest the attention of all those who, as managers and engineers, are connected with other railroads.

More information may be obtained by letter addressed to Mr. Wilder.

Improvement in Corn Planters.

The annexed engravings are views of the improved Corn Planter, for which a patent was granted to William Redick, of Uniontown, Pa., on the 29th of August last.

Figure 1 is a perspective view of the machine; figure 2 is a section of a side elevation, and fig. 3 is an enlarged view of a conducting tube. The same letters refer to like parts.

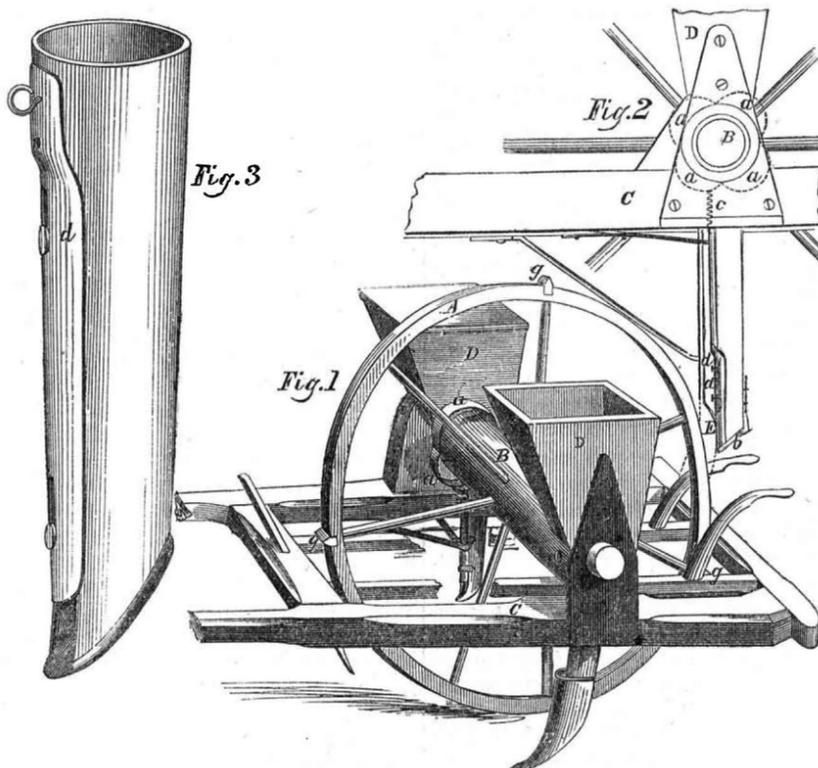
The cams are arranged on the axle, the markers on the periphery of the carrying wheel, and the valves at or near the bottoms of the seeding tubes, with their several operative parts, for the purpose of causing regularity in the marking, and dropping of the seed, however irregularly the motion or speed of the machine may be.

A is the carrying wheel upon which the machine is supported and drawn over the ground to be planted; B is the axle, fastened to the wheel so as to move with it. The axle extends out each side of the wheel a suitable distance, and is provided with cells at regular intervals, which receive from the hopper and carry to the seeding tubes the grains to be planted. These cells are provided with screws, the heads of which fit the cells, so that by the running in or out of these, the depth of the cell will be increased or diminished, so as to carry around only the regulated quantity of grains to be planted. In planting check rows, each alternate screw is raised to the periphery of the axle, so as to pass through the hopper without receiving

any grains therefrom. When drilling, all the screws are sunk, so that every cell shall carry out its quota, and in this case the valves

in the tubes are hooked in the second or lower hole, so as to remain all the time open. C represents one of the shafts; they are

REDICK'S CORN PLANTER.



curved near enough together at their points, to suit the working of the horse, whilst at the axle where the teeth or shoes are arranged, their width may conform to the distance between the rows of corn. D is the seed box, there being one on each side of the wheel, or on each end of the axle, said hoppers diminishing in width from top to bottom, where they are open to allow the grains to drop into the cells. E is a tooth or shovel, there being one in advance of each seeding tube, for opening up a furrow into which the corn is dropped, the earth falling in over it, when the machine passes, as in ordinary operations. The bottoms or lower ends of the tubes fit in behind these teeth, so as to protect them from accident, by striking against any obstructions, or from filling with dirt.

a a a a are four cams arranged around the axle, B. *b* is a rod having its lower end attached to the valve, *d*, and its upper end pressed up against the cams by a spring, *c*, so that said spring and rod opens and closes said valve at every depression and swell of the four or quadruple cam. There is an inclined bottom on the tubes, made of spring steel, so as to yield, should a grain be caught in the valve, and allow it to be thrown out when the valve again opens. The markers, *g g g g*, of which there are four on the periphery of the wheel, A, must bear such relative position to the cams as that they shall arrive at the exact point where the seeds are to be deposited, after making due allowance for the time that the seed occupies in falling from the hopper or cylinder to the valve.

In relation to the construction and operation of this machine, Mr. Redick states, in his specification, that the devices which he uses have been employed before, separately, on seeding machines, but not combined, and that it was by observing the defects of their separate results, that he was enabled to unite them, to produce a practical operative machine that can lay off the ground, and drop the seed at the marks previously made, without any variation caused by the unequal speed of the horse. In the old machines, the variable speed of the horse caused irregular planting, because the markers had a variable, and the seeds an unchanged, velocity. "By my arrangement of the cams, valves and markers," he says, "I have brought the machine practically to perfection in this particular, as the distance that the grains have to fall, allows the markers to come to the precise point, and should the markers vary the least from the exact point, either in over-reaching or falling short of it, the operator, by the handles, can raise up or draw back the machine, to bring it right."

More information may be obtained by letter addressed to the patentee at his place of residence, Uniontown.

Improved Folding Chair.

Various plans of folding chairs have been brought before the public; that is, chairs convertible at will into a couch. They are no doubt very useful for invalids, and on this account, if well made, have solid claims upon public patronage. Some defect must have characterized all those heretofore constructed, or else they would have come into more general use; this at least is a reasonable conclusion. An improved chair of this character has just been designed by Seth D. Woodbury, of Lynn, Mass., who has taken measures to secure a patent for the same. The back of the chair and the foot board are secured by hinges to the seat, and so connected together that both back and foot board can be inclined to any angle, or placed horizontally so as to form a couch or chair for sitting or reclining at ease in any position desired.

Spring Balances.

An improvement in spring balances has been made by Elisha P. Beckwith, of New London, Conn., who has applied for a patent. It consists in surrounding the spring balance with a cylindrical funnel of sheet metal, or other proper material, and having its periphery graduated so that not only the weight of the article is determined, but also its cost, at a given price per pound.

Scientific American.

NEW YORK, JANUARY 13, 1855.

Useful Reading.

It is frequently necessary for editors, like preachers, to enforce by reason and argument, good old doctrines of personal and public policy, and we do not know one that requires to be so often alluded to as that which is embraced in the title of this article. But, as the finest strain of music soon gluts and palls the ear by frequent repetition, so does a continual harping on one subject—however necessary and useful it may be—soon satiate the mind. Prudence, therefore, compels us to select this subject only at considerable intervals of time, and under peculiar public circumstances.

At the present time, amid all the cries of distress which come up from every quarter, and amid all the general prostration of business, we are creditably informed that foolish amusements and trashy literature were never better patronized in our city. We are convinced from the great number of flaming advertisements of silly and contemptible new books, that the sale of them must be enormous. We think this affords no great cause for national congratulation, as it regards an improvement in general intelligence or taste. Real useful works—those which appeal to the understanding, and exercise the more noble faculties of the mind, have but a limited circulation in comparison with blood-and-thunder stories, and puerile works of fiction. This is to be regretted, for, as food and drink are to the body so is reading to the mind. Good reading makes the mind healthy and strong; poor reading on the other hand, befools and enervates it. As much care should be exercised in selecting reading for its quality, as in selecting food; for the mind is as susceptible of being poisoned as the body. There are thousands upon thousands whose minds have become so debilitated by wretched literature, that they cannot sit down and read any solid article whatever; and these persons—at least many of them—might have become ornaments of society, or might have distinguished themselves in many important positions, if they had not chosen to feed upon the husks, in preference to the solid golden grains, of literature. Any mind, however strong, may become weak by a great deal of indifferent reading. Youth, however, is the most trying period of life, as it respects the formation of literary tastes and habits. Parents, therefore, should be very watchful of the books and periodicals which they allow in their families. They should endeavor to induce habits of reflection in their children, and enjoin upon them the study of such authors, and the reading of such periodicals as incite the mind to profitable thinking. To do this, the means should always be adapted to the ends desired to be obtained. Can any father who has a son learning a trade, suppose that his son can ever become an intelligent mechanic (as he would no doubt like to see him,) if he never reads a periodical devoted to science and mechanism? The thing is preposterous. The young mechanic who never reads a solid useful work relating to his trade, will drag at the lowerspoke of the wheel; he must be insane if he supposes there is any chance for him distinguishing himself in his trade, or at anything else, unless he improves his mind by storing it with useful information. Every young man, therefore, who desires to excel and to distinguish himself, must be careful of his reading. Many of those books and periodicals which weak minds call *dry*, are the choicest gifts of literature. We know that it requires much effort to acquire a liking for reading those works and periodicals which give the mind labor. It is a hard task to concentrate the thoughts upon an author, when at the end of every page the mind must pause to revolve what has been read, and seek some rest; but young men should endeavor, at all hazards, to acquire a liking for such kinds of reading, for those who do not, never can rise to be mentally influential

or respected. There are two maxims, viz: "knowledge is power," and "there is no royal road to knowledge," both equally true, and deserving to be deeply engraven on every young man's mind, for no ignorant man ever has or ever can become powerful or distinguished, and no man can become intelligent without labor.

Will our young mechanics think of these things, and apply their hearts to wisdom, so that with all their getting they may get *understanding*.

Doings of the Patent Office.

The largest number of patents ever granted during a single week since the establishment of the U. S. Patent Office, was the issue under date of January 2nd,—the total number of grants being over eighty.

It is understood that among the patents now granted are several cases which have been lingering in the office for the last year or more, and that with the present delivery nearly all the old unfinished business of the department is cleared out. It is also understood that applications for patents will in future be acted upon with comparatively little delay.

Inventors should remember that the great seal and parchment of a patent are in themselves of no value. But it is the claims which they certify to that are of worth. A valuable improvement may be so sacrificed by a botching of the specification and claims, that the patent, when issued, shall only be worth the picture of the Patent Office which the document bears.

Commissioner Mason is entitled to, and will receive the thanks of all inventors for the rigorous and efficient manner in which he has conducted the affairs of the Patent Office. The number of patents issued during the last year is much greater than during any year previous. The personal labor which the Commissioner has gone through with, in order to develop and rejuvenate the Office is truly immense. He has swept out a labyrinth of rubbish, besides carrying forward a giant load of other work, and now his department stands forth life-like, active, and strong. In the name of all American inventors, again, we thank him.

Of the long list of patents issued last week, nearly *one quarter of the whole* were obtained through the SCIENTIFIC AMERICAN Patent Agency.

Anthracite Coal in England.

Two correspondents have written to the London *Mining Journal* respecting the employment of anthracite coal in grates in England, and both of them assert they have resided in America. They both speak highly of this coal, but state it cannot be used in houses but with grates or stoves like those in common use with us. They speak highly of our clear atmosphere in comparison with that of London, simply because we burn anthracite, and the Londoners bituminous coal. One of these correspondents corroborates what we said in giving advice, about three months ago, to our Pennsylvania friends "not to form a company for exporting their coal to England, as it would prove a losing affair." He says the Welsh anthracite, and some from Pembroke-shire, are equal to the best American, and can be obtained at "a much cheaper rate." The other advocates its employment for smelting iron, as well as for raising steam and other purposes, and concludes that there is anthracite coal in Wales alone to last England for a thousand years to come. Our friends in Pennsylvania may rest assured that any attempts to export anthracite coal to England will redound to their loss, which would be a cause of regret to us.

All Over with England.

We see it stated by a number of our cotemporaries, that Clinton Roosevelt—a lawyer of our city—who lately sailed for Russia, has sketched the plan and calculated the cost of a wonderful campaign, on a piece of parchment so small that he can carry it about secretly on his person without fear of detection, and that his plans are so profound that the Czar under his able advice will car-

ry the war next year into Great Britain itself. Let England look out in season, or by next year every soldier in the Crimea may find his breath cut short by a piece of sticking plaster, or some such wonderful breath stopping agent, projected from some new ordinance of Mr. Roosevelt's invention. We think, however, there must be some mistake about the plan of the campaign being sketched on a very small piece of sheepskin by Mr. R., as has been stated; those who have made the statement cannot be acquainted with his profuse and comprehensive genius. Again we say to Uncle John Bull, look out for an attack on *Yar-mouth* next year.

Mill Stone Dress.

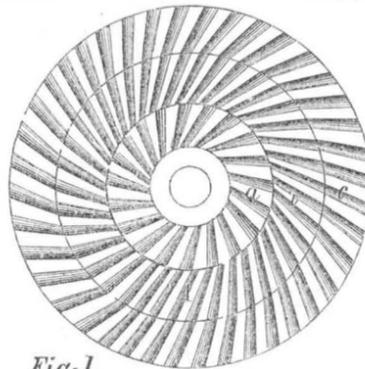


Fig. 1

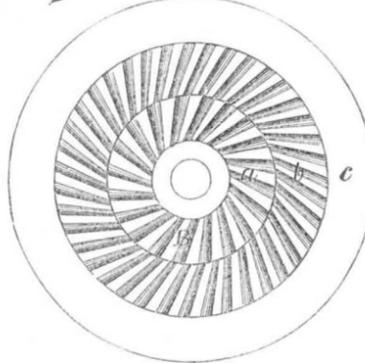


Fig. 2

The annexed figures are views of a runner and bed stone, having an improved dress, for which a patent was granted to Perry Dickson, of Blooming Valley, Crawford Co., Pa., on the 12th of last September.

A, fig. 1, is the runner stone, and B, fig. 2, is the bed stone. The figures show stones of four feet in diameter, with the grinding surface reduced to three feet. There should be about twenty furrows in the course, *a*, more or less, according to the texture of the stone, and draughted two and a half inches by the center of the eye. If the stones, however, are very close in the texture, they should have three inches of draught. The second course of furrows, *b*, has double the number of *a*, and these are draughted at least five inches by the center. The ground mass is more liable to clog in the furrows when well pulverized, than when partly ground, which makes more draught necessary in course *b* than *a*. The outside course of furrows *c*, in runner A, are not intended to grind, but merely to operate as conveyors in delivering the ground mass from between the stones. The bed stone, B, from course *b*, is dressed down below the grinding surface or top of the *lands*, about one-fourth of an inch, and is always kept so dressed, to allow the mill to deliver freely under all circumstances.

The object of this invention is principally to reduce the diameter of the grinding surface of millstones, and thereby avoid the necessity of having a great draught to the furrows, by which means a more certain action of them is secured.

Mr. Dickson has sent us quite a long article, giving his views on the peculiar action of grinding stones, both as it respects their draught and size, which we will endeavor to present clearly in as few words as possible.

The furrows of millstones should operate as shears in grinding grain, but in order to grind cool, with ordinary or largesized millstones, the furrows are draughted so much that those of both stones cross one another at right angles, or nearly so, and shears will not cut with blades working at right angles. In order to get grain through large stones, it

is necessary to have a large draught, and this makes a very uncertain grinding mill. Large stones, with the usual amount of draught which is given to them, grind unevenly. If the miller allows them to run free, they throw out a portion of the ground mass in coarse particles, while the rest is well pulverized. And if the miller lets them run close enough to grind all the grain fine, he spoils the greater quantity by trying to grind the less. But mill stones of small diameter do not require much draught. Their small draught makes the furrows work like shears, and they have no slip. They also grind cool, as the furrows can be made deeper.

Practical and theoretical men have disputed about the qualities of large and small mill stones: the former claiming more work for the small ones by the same power applied, and the latter disputing such a conclusion. But small stones will grind more grain than large ones with a given amount of power, because they discharge the grain at once when it is sufficiently ground. Large stones on the contrary over-grind some of the grain and thus waste power.

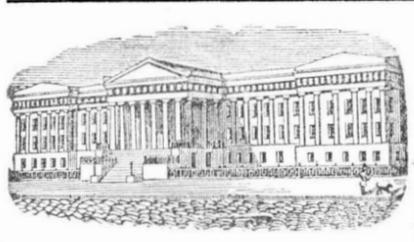
All small mills have heretofore used pressure spindles in some shape or other, except one in Buffalo, which is run with four or five times the common velocity, in order to perform, by great speed that which others perform by pressure. Pressure spindles are objectionable on many accounts, and small millstones, backed up high to add sufficient weight, become top heavy and useless. By the above improvement, small stones, in effect for grinding, are made out of large ones, which latter gives the necessary pressure without adding top weight to the spindle, and thus the advantages of both are secured. Each of the furrows in this millstone dress has exactly the same draught at any distance from the center of the stone, and will grind evenly, and not as in the old fashioned dress, of furrows.

The claims for this improvement will be found on page 14, this Volume SCIENTIFIC AMERICAN, and more information may be obtained by letter addressed to Mr. Dickson at Blooming Valley.

Colored Atlas of Chemistry.

Edward L. Youmans, author of the colored chemical chart, encouraged by the favor with which that elementary work was received, has extended that principle of teaching chemistry, in a new work of the above name, issued by D. Appleton & Co., this city. It is a handsome large volume, containing thirteen beautifully colored plates, not only explanatory of chemical compounds, but chemical action. The chemistry of combustion and illumination, likewise that of respiration, in animals and plants, is clearly set forth by the colored plates, so as to exhibit the same at a glance to the most common understanding. We like this work of Mr. Youmans amazingly, both on account of its peculiar method of representing the different substances by different colors, and different sized squares, but also because of its brevity and clearness of description. It is a valuable book for academies, and the higher classes in common schools. That Mr. Y. is a believer in the plurality of worlds, no one will doubt after reading the following eloquent closing paragraph of his work:

"If, therefore, our sun, the great center of vital dynamics, and fountain of life-impulsions, which has charge of the destiny of our planet, alike its atoms and its masses, be but a solitary star among the countless hosts of the celestial spheres; if the earth be a scene of life, beauty, and intelligence, only by virtue of its astronomical relations; if the messenger of God, the solar beam, comes through the spacious amplitudes a hundred millions of miles, to illuminate and vivify and people an otherwise desolate globe; if the life-exciting forces traverse stellar distances and belong to astral systems, can we imagine even for a moment, that the phenomena of life are limited to our earth? Can there be a question that organization is the product of a plan of agencies which comprehends the physical universe, and that the effect must be as universal as the cause?"



LIST OF PATENT CLAIMS Issued from the United States Patent Office. FOR THE WEEK ENDING JANUARY 2, 1885.

MACHINES FOR BORING, PLANING, AND SLOTTING METALS—Norman Aylsworth, of Rochester, N. Y.: I claim the so arranging of the several operative parts of a machine for turning, boring, and cutting key seats in car wheels, cranks, and other machinery, as that the three several operations may be completed from the same centers, without unchucking said piece of machinery, by which means more perfect work can be done than when the piece is removed or re-chucked for two or more successive operations, the whole being achieved in the manner set forth.

U' and W', worked by cams R' and levers E and E', as well as by weights Z and Z', as described; said pulleys, when connected, acting upon the upper shafts V or V', running in the supports Q or Q', for approaching the wood up to the tool holders after the completion of each set of boxes.

I also claim as a part of my invention the cylindrical adjustable packing for the arms of the blower, in combination with the drum and blower arms, substantially in mode of construction and operation and for the purposes set forth.

STEAM RAIL-ROAD CAR BRAKES—Henry Miller, of New York City: I claim, first, the arrangement of the cylinder, the pipe, D, and the branch-pipe, d, of each car, substantially as described, to wit: the pipe, D, inclining downwards from each end of the car, and the pipe, d, inclining downwards from the lowest point of the cylinder towards the point of junction with the said pipes, so that the condensed water may all run from the pipes and cylinder, and escape therefrom or be conveyed into a suitable receptacle, provided with proper means of escape, as set forth.

CHUCK FOR TURNING ELLIPTICAL CYLINDERS—Pulaski S. Cahoon and S. F. Ross, of La Grange, Mo. We claim, first, The arranging of the ring, F, upon the sliding standard, F, and combining it with the lathe spindle, B, by means of the slide, E, substantially as and for the purpose set forth.

GRINDING MILLS—Amory Felton, of Troy, N. Y.: I do not claim separately either of the parts herein described. But I do claim the combination of the cylinder, B, concave, C, cap, H, and reciprocating teeth or fingers, e, the concave and cap being provided with spiral flanches, c, the above parts being constructed and arranged substantially as shown, and for the purpose as set forth.

PAINT BRUSH—Wm. Hicks, of Steubenville, Ohio: I claim, firstly, the arrangement, substantially as herein shown and described, of the brush-holder, B, with the reservoir handle, A, regulating valve, g, and branch or feed, f, conveying the color on to the top of the brush, essentially as specified.

Secondly, in combination with the self-feeding paint brush or pencil, the adjustable guide-roller, k, to facilitate the run of the brush in its desired course, and at a speed corresponding with a free flow and a continuous supply of color to and on the brush, and serving to form a rest at various angles of operation or hold of the brush; the said roller being arranged to run on the outside of the lateral spread or splay of the brush, and on the off side of it, as and for the purposes set forth.

PRINTING PRESS—Sidney Kelsey, of Erie, Pa.: I claim, first, feeding or conveying the sheets to the form by having the carriage, H, formed of two parts, g, h, and arranged substantially as shown, so that the edge of the sheet may be grasped between the two parts of the carriage as it is moved between the platen and bed.

Second, I claim the fly, W, operated as shown, viz: by means of the pulley, C, attached to the carriage, H, by a cord, c, said pulley being hung on the shaft, X, which is provided with a spring, a, as set forth.

FOLDING LIFE BOATS—C. Locher, of New York, N. Y.: I do not claim hinging or pivoting the ribs to the keel, or to a central frame, so as to be folded or extended at pleasure. But I claim connecting the folding ribs by means of a chain or chains being applied, substantially as described, to spread all the ribs once, and when spread to serve the purpose of keeping all in place.

PRINTING PRESS—James Lewis, of Prattsville, N. Y.: I claim, first, the employment or use of the fly, D, constructed, arranged and operating in the manner and for the purpose set forth.

Second, I claim the combination of the fly, D, cylinder, B, and bed, C, when the above parts are arranged, operated as shown and described.

PADLOCKS—Thomas Slaight, of Newark, N. J.: I do not claim the tumblers, E, separately, nor the guard-bar, for they have been previously used; but I do claim,

First, The employment or use of a dog, C, constructed as shown, or in an equivalent way, so that the pressure of the shackle upon the dog, or plate, C, which has a slot, D, through it, in which the crank, E, of the shaft, F, fits, whereby the tumblers are directly connected to the crank, and a rotary motion given the crank-shaft, without the intervention of the usual piston and connecting rods, as shown.

Second, I claim the combination of the dog, C, guard-bar, D, with the stud, J, upon it, and slotted tumblers, E, arranged as shown, and operating in the manner as set forth.

CRANK CONNECTION IN DOUBLE-PISTON STEAM ENGINES—John Smith, of Cincinnati, Ohio: I do not claim the employment of two pistons within a cylinder, separately.

But I claim in the employment or use of two pistons, B, B', connected by a cross head or plate, C, which has a slot, D, through it, in which the crank, E, of the shaft, F, fits, whereby the pistons are directly connected to the crank, and a rotary motion given the crank-shaft, without the intervention of the usual piston and connecting rods, as shown.

BRACE FOR PIANO FRAMES—Dwight Gibbons, of Rochester, N. Y., assignor to Frederick Starr, of same place: I do not claim any method of bracing from the suspended point of the plate, F, to the iron frame, rest-plank, or back, knowing them to be in use.

But I claim the use of a diagonal brace, extending above the plate and strings, operating in the manner and for the purpose substantially as set forth.

REPEATING FIRE ARMS—Joshua Stevens, of Chicopee Falls, Mass., assignor to the Massachusetts Arms Company: I claim so combining the trigger, the hammer, and the mechanism for rotating the cylinder, that by a simple pull on and during the back movement of the trigger, the hammer shall be discharged or set free from the trigger (so as to fall on the nipple when the touch-hole of one chamber of the cylinder is in connection with it) and the cylinder subsequently rotated so as to bring up to the percussion nipple or its equivalent, the touch-hole of the next chamber of the series thereof. And in combination with the mechanism for turning the cylinder and that for locking and unlocking it, I claim a cam pin (projecting from the hammer) or its equivalent, for preventing the cylinder from being unlocked, or for locking it, in case the movement of the trigger is so rapid as to render the cylinder liable to be rotated before the charge fired by the action of the hammer has left the chamber.

I do not claim joining an impelling pawl directly to the lower part of a percussion hammer, so that by the reciprocating movement of the hammer, the said pawl may be moved against and drawn away from the ratchet of the revolving cylinder.

Nor do I claim joining a lever directly to the trigger, so that by the movement of the trigger such lever may be moved against one tooth of the ratchet, or drawn back over the next succeeding tooth and against a spring acting upon the rear end of the lever.

But I claim the described and represented arrangement and combination of the trigger and its spring, a rotary tumbler separate from the trigger, and moving on a separate pin or fulcrum, turning mechanism of the cylinder and the locking and unlocking mechanism thereof, by which arrangement and combination, during and by a back and forward movement of the trigger, the cylinder will be locked or unlocked, and have an intermittent rotary motion imparted to it, and the cock or percussion hammer be actuated essentially as specified.

I also claim the bearer, x, or its equivalent, in combination with the turning lever, L, and the part or tumbler to which is connected or jointed, and by which motion is imparted to the turning lever, as specified, this combination obtaining an important advantage, as explained.

RE-ISSUES.

MOWING MACHINES AND HARVESTERS—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim the combination of the bar that supports the cutter with a diagonal lever held down at its inner end, substantially as described, and resting upon the axle of the carriage as a fulcrum, or upon some other equivalent support that will perform the function of a fulcrum, whereby the outer end of the cutter bar is held up, substantially as set forth.

ARRANGEMENT OF JOINTS FOR ATTACHING TRUCKS TO HARVESTER FRAMES—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim the arrangement of a flexible joint in the line of the cutter, or thereabout, in such manner that the machine will bend freely up and down along this line to keep the cutter as nearly as may be, at a uniform height from the surface of smooth or undulating ground.

ARRANGEMENTS FOR CONTROLLING HARVESTER CUTTERS—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim controlling the flexure of the machine, hinged so that it will bend in the line of the front edge of the cutting apparatus, or thereabouts, by means of an adjustable stop and arm or their equivalent, in such manner that the cutter will be kept at the proper elevation on smooth ground, will be free to rise and fall to conform to a gently undulating surface and will be restrained from descending into furrows or other sudden and narrow depressions, while it will be free to rise to any extent required for passing over boulders, stumps, or other like protuberances in its path, substantially as specified.

HARVESTERS HAVING A LEADING TRUCK—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim the leading carriage to carry the driver in a position in advance of the cutter, where he can readily see obstructions, and observe the character of the surface of the ground in time to adjust the machine properly for operating upon any given part of its path before reaching the same, in combination with a cutter carriage joined to the leading carriage by a hinged bar, or other flexible connection, the cutter carriage being provided with an adjusting lever or arm, and extending forward to the leading carriage where it can be conveniently reached by the driver to enable him to raise and lower the cutter, as required.

FRAME CONSTRUCTION OF TRIANGULAR HARVESTERS—John H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim constructing the frame which supports the cutting apparatus of a triangular or trapezoidal form, one of its acute angles being at the end of the finger bar next the standing grain, so that the frame will not bear against the standing grain back of the finger bar, and will permit the wheel which supports the outer end of the platform to be placed a considerable distance within the end of the finger bar, yet sufficiently far from the frame and at the same time not too far back of the center of weight to poise or balance the machine properly.

HARVESTERS—John H. Manny, of Rockford, Ill., antedated Sept. 24, 1852, dated originally Nov. 23, 1852: I claim, first, the arrangement of the track scraper at the outer end of the machine, and the wheel or wheels which support the opposite end of the machine, whether driving wheels or not, in such relative position that the wheels while the machine is cutting one swath, will run in the track cleared by the former, while the machine was cutting a previous swath, as set forth, but in this patent I make no claim to the track scraper.

Second, the projection, 7, on the under side of the upper bars, 5, of the top, m, of the finger in combination with the chamfer or recess on the lower inside corners of said bars, to counteract the tendency of wire grass, and other fibrous obstructions to pass in between the cutter bar, e', and the sides of the recess in the upper part of the finger in which it is guided.

Third, forming the guard-finger, o, of two parts, m and n, interlocked at the point, substantially as set forth, so that grass cannot lodge in the joint and form an impediment to its entering between the stalks of the standing grain.

Fourth, in combination with the raker's stand or seat, I claim the removable platform or raking bottom constructed with a wing that extends from the outer end of the cutter over the frame, and holds up the butt of the straws above the stubble which otherwise would obstruct the discharge of the grain from the platform, substantially as set forth.

CUTTER FINGERS OF HARVESTERS—John H. Manny, of Rockford, Ill., dated originally April 19, 1852, antedated Dec. 9, 1852: I claim constructing the lower part of the finger, or the upper, or both, with a recess on either side in front of the finger bar, whereby the clogging of the cutting apparatus is effectually prevented, as described.

I also claim constructing the finger so that the sides of its upper half will overhang those of its lower half, the cutter playing between the two, substantially as set forth.

I also claim bevelling the upper corners of the shank of the lower part of the finger, o, of two parts, m and n, e, thereon, in the position and for the purpose described.

H. Manny, of Rockford, Ill., dated originally Sept. 23, 1851: I claim constructing the frame which supports the cutting apparatus of a triangular or trapezoidal form, one of its acute angles being at the end of the finger bar next the standing grain, so that the frame will not bear against the standing grain back of the finger bar, and will permit the wheel which supports the outer end of the platform to be placed a considerable distance within the end of the finger bar, yet sufficiently far from the frame and at the same time not too far back of the center of weight to poise or balance the machine properly.

HARVESTERS—John H. Manny, of Rockford, Ill., antedated Sept. 24, 1852, dated originally Nov. 23, 1852: I claim, first, the arrangement of the track scraper at the outer end of the machine, and the wheel or wheels which support the opposite end of the machine, whether driving wheels or not, in such relative position that the wheels while the machine is cutting one swath, will run in the track cleared by the former, while the machine was cutting a previous swath, as set forth, but in this patent I make no claim to the track scraper.

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I also claim constructing the finger so that the sides of its upper half will overhang those of its lower half, the cutter playing between the two, substantially as set forth.

I also claim bevelling the upper corners of the shank of the lower part of the finger, o, of two parts, m and n, e, thereon, in the position and for the purpose described.

DESIGNS

PARLOR STOVES—James Wager, Volney Richmond, and Harvey Smith, of Troy, N. Y.

COOKING STOVE—Garretson Smith, Henry Brown, and Joseph A. Read, (assignors to I. G. Abbott, and A. Lawrence,) of Philadelphia, Pa.

PARLOR COOK STOVES—Garretson Smith, Henry Brown and Joseph A. Read, (assignors to I. G. Abbott and A. Lawrence,) of Philadelphia, Pa.

STOVES—Garretson Smith, Henry Brown, and Julius Harzer, (assignors to I. G. Abbott, and A. Lawrence,) of Philadelphia, Pa.

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BACK NUMBERS AND VOLUMES—We have the following numbers and volumes of the SCIENTIFIC AMERICAN, which we can supply at the annexed prices:—Of Volume 5, forty numbers; price in sheets, \$1; bound, \$1.75. Of Volume 6, all; price in sheets, \$2; bound, \$2.75. Of Volume 7, all; price in sheets, \$2; bound, \$2.75. Of Volume 8, none complete, but about 30 numbers in sheets, which will be sold at 50 cents per set. Of Volume 9, complete in sheets, \$2; bound, \$2.75.

We are able to furnish all the back numbers of the present volume of the SCIENTIFIC AMERICAN, and to new subscribers we shall continue to send the back numbers as long as we have them, so as to render their volumes complete.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patentee, and enclosing \$1 for fees for copying.

PATENT LAWS, AND GUIDE TO INVENTORS—We publish and have for sale, the Patent Laws of the United States—the pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office. Price 12 1/2 cents per copy.

RECEIPTS—When money is paid at the office for subscriptions a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bona fide acknowledgement of the receipt of their funds.

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All advertisements must be paid for before inserting.

THE CLASSES OF THE MECHANICS' INSTITUTE, 1 Bowery, are now being formed for instruction in the following branches, under eminent teachers: Machine Drawing, Prof. Beaumont; Figure and Landscape, Prof. Kaufmann; Architectural, Prof. Paton; French and German, Prof. Lechweiss. Terms, \$3 per course of twenty lessons. For particulars apply at the Institute day or evening.

IMPORTANT IMPROVEMENT—In Rotary Planing, Tonguing and Grooving Machines. Patented November 21st, 1854. These machines have been thoroughly tested, and their superiority over all others proved beyond a doubt. They will plane very much better and faster than any others now in use, never tearing or throwing out loose knots. Applications for rights and machines, or for further particulars can be made to the patentee, JAMES A. WOODBURY, Winchester, Mass., Jan. 5, 1855. 18 2*

A NEW REPEATING GUN—Caveat deposited. In a gun likely to supersede all others, will please consult Z. C. ROBBINS, Esq., Washington City. 1*

STEAM BOILERS—One 6 and one 8 horse Boiler, for sale very low for good trade or cash. They are the best kind for using a small space. Address, post-paid, W. O. HICKOK, Harrisburgh, Pa. 1*

FOR SALE—My interest in Hatfield's Patent Lumber Sauting Machine, with the tools for manufacturing them. An admirable investment for a small manufacturer in brass. Address, post-paid, W. O. HICKOK, Harrisburgh, Pa. 1*

MATHEMATICAL AND OPTICAL INSTRUMENTS—The undersigned has just opened a new and extensive assortment of the above instruments, his own selection made in Europe. It should also be kept in mind that he has the exclusive agency for the sale of the justly celebrated Swiss Drawing Instruments. Transits, Levels, and Surveyors Compasses made to order. C. T. AMSLER, 211 Chesnut st., Philadelphia, Pa. 8 60cwt*

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—MESSRS. MUNN & CO., Publishers and Proprietors of the SCIENTIFIC AMERICAN, continue to prepare specifications and drawings, and attend to procuring patents for new inventions in the United States, Great Britain, France, Belgium, Holland, Austria, Spain, &c., etc. We have constantly employed under our personal supervision a competent board of Scientific Examiners, which enables us to despatch with great facility a very large amount of business. Inventors are reminded that all matter entrusted to our care are strictly confidential, and hence it is unnecessary for them to incur the expense of attending in person. They should first send us a sketch and description of the invention, and we will carefully examine it, state our opinion, and the expense of making an application, if deemed new and worthy of it. Models and fees can be sent with safety from any part of the country by express. In this respect New York is more accessible than any other city in our country. Circulars of information will be sent free of postage to any one wishing to learn the preliminary steps toward making an application.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents.

It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

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UNITED STATES PATENT OFFICE.

Washington, Dec. 15, 1854. ON THE PETITION of William Perrin, of Lowell, Mass., praying for the extension of a patent granted to him on the 24th day of March, 1841, for an improvement in machine for cutting square joint dovetails, for seven years from the expiration of said patent, which takes place on the 24th day of March, 1855.

It is ordered that the said petition be heard at the Patent Office, on Monday, the 12th of March next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 2nd of March; depositions and other papers relied on as testimony, must be in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

It is also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvaniaian, Philadelphia, Pa.; Scientific American, New York, and Patriot, Concord, N. H., once a week for three successive weeks previous to the 13th day of March next, the day of hearing.

CHARLES MASON, Commissioner of Patents. P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 17 3

UNITED STATES PATENT OFFICE.

Washington, December 9, 1854. ON THE PETITION of Moses and Samuel Penock, of Kennett Square, Pennsylvania, praying for the extension of a patent granted to them on the 12th day of March, 1841, for an improvement in "seed drills," for seven years from the expiration of said patent, which takes place on the 12th day of March, 1855.

It is ordered that the said petition be heard at the Patent Office on Monday the 26th day of February next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 16th day of February, 1855; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvaniaian, Philadelphia, Penn.; Scientific American, New York; and Enquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the 26th day of February next, the day of hearing.

CHARLES MASON, Commissioner of Patents. P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 17 3

REMOVAL.—McALLISTER & BROTHER, Opticians, Philadelphia, have removed from the old stand, (established in 1793,) 48 Chestnut street, to the new and spacious building which they have recently erected 184 Chestnut st. (sign of Franklin's Head,) below Eighth street. With increased facilities they will continue to conduct the Optical, Philosophical, and Mathematical Instrument Business in all branches.

MATHEMATICAL DRAWING INSTRUMENTS—Separate and in cases. T-Squares, Ivory Protractors, Surveyors' Chains, Tape Measures, Microscopes, Spy Glasses, Spectacles, Thermometers, Barometers, Magnets, Hygrometers, Compasses, Lightning Rod Points, Camera Lucidas, Hydrometers, Camera Obscuras, &c. &c. &c. A priced and illustrated Catalogue furnished on application, and sent by mail free of charge. McALLISTER & BRO., 184 Chestnut street, (below Eighth street, opposite Masonic Hall,) Philadelphia. 17 2

MACHINERY—S. C. HILLS, No. 12 Platt st., N. Y. dealer in Steam Engines, Boilers, Planers, Lathes, Chucks, Drills, Pumps; Mortising, Tenoning, and Sash Chucks; Woodworth's and Daniel's Planers; Dick's Planes, Presses, and Shears; Cob and Corn Mills; Harrison's Grist Mills; Johnson's Shingle Mills; Belting, Oil, &c. 7 63w

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER.—TESTIMONIALS—"I certainly would not exchange it for any boiler I have ever seen or used."—W. Burt, Esq., Kal., Mich.

"It is the most economical boiler and produces more steam of a better quality than any I have ever used."—A. Low, Esq., Franklin County, Albany, N. Y.

"I am well pleased with the principle of this boiler, and believe it to be the best in use."—L. E. Webb, Esq., Guilford, Conn.

"We find evaporation per 1 lb. of coal to be equal to 13,000 lbs. water."—Rep. Messrs. Ehnman & Cook, Engineers.

Orders for Boilers promptly filled. Descriptive circulars obtained on application at the Company's office. Rights negotiated for the United States, England, France, and Belgium. W. F. PHELPS, Sec'y Irving Boiler Co. 347 Broadway. 10 60w*

WIRE ROPE OF IRON AND COPPER.—For Mines, Inclined Planes, Hoisting and Steering purposes, Ropes or cables, &c., much safer and far more durable than the best hemp or hyde ropes. Also for Sash Weights, Dumb Waiters, Lightning Conductors, &c. CHARLES W. COPELAND, No. 64 Broadway. 14 60wt

HARRISON'S MILL, PRICE LIST, &c.—These Mills are warranted to give satisfaction.

Table with 4 columns: Size of stone, Cash price of single geared mills, Do. of double geared do., Bush, they grind in 10 h, Horse power required, Revolutions per minute, Size of pulleys, Width of do., Height of center of pulley from the floor, Weight of Mills, Height of do. with hopper.

MACHINE GROUND CIRCULAR SAWS.—(Patent applied for.) Mill men would do well to try these saws, are perfectly free from thin or thick places, can be used thinner and with less set, and run faster than any other hitherto made. All diameters and thicknesses warranted perfectly true. HENSHAW & CLEMSON, 31 Exchange Street, Boston. 11 8*

DICTIONARY OF TECHNICAL TERMS.—In French, English, and German. A new work presenting all the terms used in science and art. The terms are first given in French, then in English, and German. It is the first of three volumes arranged differently, and is a very useful work. For sale at this office, price \$1.31. 11 8*

THE FRENCH EXHIBITION.—Parties who have applied for space in the French Palace of Industry, and who do not intend to be present at the Exhibition, are recommended by the undersigned to arrange with Messrs. Gardissal & Co., No. 29 Boulevard St. Martin, Paris, who are prepared to put upon Exhibition, attend, and effect sales of articles intrusted to their care. It is a responsible concern. S. H. WALES, State Commissioner, Scientific American Office.

YOU CAN GET THE NEW YORK WEEKLY SUN three months for 25 cts.; six months 50 cts.; one year, 75 cents, 18 months \$1. Or three copies one year, \$2; eight copies \$5; twenty-five copies \$15; and by canvassing for subscribers you may get one of the five cash prizes—\$50, \$20, \$15, \$10, and \$5—for the largest lists sent in before 3rd Feb. Specimen copies gratis.—Send letters and money (post-paid) to MOESSER, BEACH, Sun Office, New York. 6

BUFFALO MACHINERY DEPOT.—Terrace St. and 36 Lloyd st., Buffalo; J. W. HOOKER, Proprietor, H. C. Brown, Superintendent, offers for sale Machinists' tools of all kinds: Engine Lathes, Planers, Drills, Chucks, Boring Mills; also machinery of all kinds on hand or furnished to order. 7 1f

CIRCULAR SAW MILLS.—The undersigned manufacture for sale Child's Patent Circular Saw Mills for cutting lumber from logs of any size, with 40 and 24 inch to 48 and 54 inch saws. Also single mills with 36 inch to 72 inch saw. These machines are arranged capable of cutting more lumber in a given time than any other saw mills in use. H. WELLS & CO., Florence, Hampshire Co., Mass. 17 4*

STAVE AND BARREL MACHINERY.—Hutchinson's Patent. This machinery which received the highest award at the Crystal Palace, is now in daily operation there. Staves, heading, &c., prepared by it are worth to the cooper 20 to 40 per cent. more than when finished in any other way. Special attention is invited to the improved Stave Jointer. Apply to C. B. HUTCHINSON & CO., Crystal Palace, or Auburn, N. Y. 18 1f

PATENT DRIERS.—Zinc Driers, Graining Colors, Stove Polish, Gold Size, &c., &c., 114 John street, New York. QUARTERMAN & SON, Manufacturers. 1 6m

NEW HAVEN MANUFACTURING COMPANY Machinists' Tools, Iron Planers and Engine Lathes of all sizes. Hand Lathes, Grinding Stones, Drills, Cutters, Chucks, &c., on hand and being built by the quantity, which enables us to sell low. For cuts giving full description and prices, address New Haven Manufacturing Co., New Haven, Conn. 13 1f

HARRISON'S GRAIN MILLS.—Latest Patent.—\$1000 reward offered by the patentee for their equal. A supply constantly on hand. Liberal Commissions paid to agents. For further information address New Haven Manufacturing Co., New Haven, Conn., or to S. C. HILLS, our agent, 12 Platt Street, New York, 13 1f

STEAM ENGINES AND BOILERS FOR SALE.—One second hand five-horse engine with tubular boiler. One second hand two-horse portable engine and boiler. THOS. PROSSER & SON, 25 Platt street, 14 1f

FELTING FOR STEAM BOILERS AND SHIPS.—Manufactured by J. H. Bacon, Winchester, Mass., for sale at W. & J. MORRISON'S, No. 9 Maiden Lane, N. Y., and T. C. BACON & CO.'S, corner of Union and North sts., Boston, Mass. 15 5*

NORCROSS ROTARY PLANING MACHINE.—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent. Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York; or Boston, 27 State street, and Lowell, Mass. 16 6m

CHEAP LIGHT.—A. M. MACE, manufacturer of 20 atmospheric or Benzole Gas Machines, from 2 to 1000 lights. All orders promptly executed corner of Main street and Harrison avenue, Springfield, Mass. 15 3m*

IRON PLANERS.—NEW PATTERN.—Now building, and for sale on better terms than any others in the country of same quality. Address New Haven Manufacturing Co., New Haven, Conn. 11 1f

COTTON AND WOOLEN MANUFACTURERS' Supplies of every description; also machinery of all kinds; wrought-iron Tackle Blocks of all sizes; Leather Belting superior oak tanned; Bolts, Nuts, and Washers of all sizes on the most reasonable terms. 6 13*

A. L. ARCHAMBAULT'S Portable Steam Hoisting Engines, for loading and discharging cargoes, raising iron ore from mines, sinking shafts, pile driving, &c. Also arranged for driving Portable Saw Mills. The Engine may be moved by a team on any road. Made only by the inventor, S.-E. Corner of 15th and Hamilton streets, Philadelphia, Pa. 14 4*

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

VAIL'S CELEBRATED PORTABLE STEAM Engines and Saw Mills, Bogardus' Horsepowers, Sash Chucks, Saw and Grist Mill Irons, pile driving, Saw Gunners, Ratchet Drills, &c. Orders for light and heavy forging and castings executed with dispatch. 8 1y*

NORTHVILLE MACHINE WORKS.—Manufacturers of Machinists' Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathes for turning chair stuff, &c. of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 8, 1854. TAFT & GLEASON. 50 1y*

MACHINISTS' TOOLS.—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River), manufacturers of Lathes, Iron Planers, Drills and other machinists' tools 50 6m*

Science and Art.

Color and Dress.

RED DRAPERY—Rose-red cannot be put in contact with the rosier complexions without causing them to lose some of their freshness. Dark red is less objectionable for certain complexions than rose-red, because, being higher than this latter, it tends to impart whiteness to them in consequence of contrast of tone.

GREEN DRAPERY—A delicate green is, on the contrary, favorable to all fair complexions which are deficient in rose, and which may have more imparted to them without inconvenience; but it is not so favorable to complexions that are more red than rosy, nor to those that have a tint of orange mixed with brown, because the red they add to this tint will be of a brick-red hue. In the latter case a dark green will be less objectionable than a delicate green.

YELLOW DRAPERY—Yellow imparts violet to a fair skin, and in this view it is less favorable than a delicate green. To those complexions which are more yellow than orange it imparts white; but this combination is very dull and heavy for a fair complexion. When the skin is tinted more with orange than yellow, we can make it roseate by neutralizing the yellow; it produces this effect upon the black-haired type, and it is thus that it suits brunettes.

VIOLET DRAPERIES—Violet, the complementary of yellow, produces contrary effects; thus, it imparts some greenish yellow to fair complexions; it augments the yellow tint of yellow and orange skins. The little blue there may be in a complexion it makes green. Violet, then, is one of the least favorable to the skin, at least when it is not sufficiently deep to whiten it by contrast of tone.

BLUE DRAPERY—Blue imparts orange, which is susceptible of allying itself favorable to white and the light flesh tints of fair complexions, which have already a more or less determined tint of this color. Blue is, then, suitable to most blondes, and in this case justifies its reputation. It will not suit brunettes, since they have already too much of orange. Orange is too brilliant to be elegant; it makes fair complexions blue, whitens those which have an orange tint, and gives a green hue to those of a yellow tint.

WHITE DRAPERY—Draperies of a lusterless white, such as cambric muslin, assort well with a fresh complexion, of which it relieves the rose color; but it is unsuitable to complexions which have a disagreeable tint, because white always exalts all colors by raising their tone; consequently, it is unsuitable to those skins which, without having this disagreeable tint, very nearly approach it. Very light white draperies, such as muslin, plaited or point lace, has an entirely different aspect.

BLACK DRAPERY—Black draperies, lowering the tone of the colors with which they are in juxtaposition, whiten the skin; but if the vermilion or rosy parts are to a certain point distant from the drapery, it will follow that, although lowered in tone, they appear relatively to the white parts of the skin, contiguous to this same drapery, redder than if the contiguity to the black did not exist.—[Harmony of Colors, by M. E. Chevreul.]

[The above remarks of this distinguished French chemist must be taken with some caution, because the question of complexion is a very puzzling one. The lesson, however, which he desires to impart is a good one, that is, the study of colors in dress in relation to complexion. Some of the strangest and most disagreeable results are produced by the choice of fashionable colored bonnets and their trimmings. Every person should study the effect of color upon complexion, so that the coloring of nature and art may be in harmony, not at loggerheads, as they too often are.]

An Immense Loss.

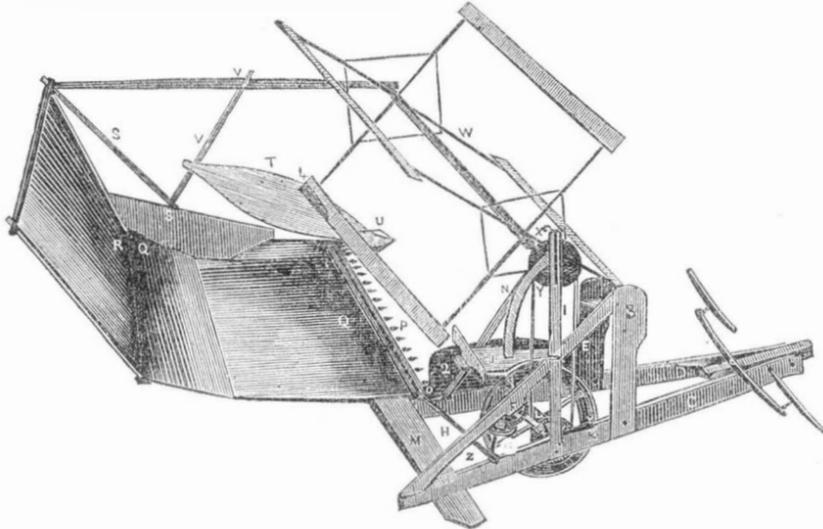
It is estimated that the loss on sour flour and damaged corn in the United States equals the sum of \$5,000,000 annually.—Exchange.

History of Reaping Machines.—No. 14.

From 1836 when Moore & Hascall's patent—illustrated by figure 40—was issued, until 1845, when McCormick's second patent was granted fifteen patents were issued for improvements in reaping machines. As none of these require a particular description, we will give the names of the patentees, and the date of their patents. D. Lewis, Jr., Bern, N. Y., April 14, 1838, claim, *Franklin Journal*, new series, Vol. 23, page 179; Ira Wheeler, Salem, N. H., May 30, 1838, claim, *Franklin Journal*, new series, Vol. 23, page 242; Wm. Brittain and John Silvers, of New Hope, Pa., Nov. 25, 1838, claim, *Franklin Journal*, Vol.

24, new series, page 322; Asa P. Trask, and Davis Aldrich, Ellington, N. Y., Oct. 16, 1839, claim, *Franklin Journal*, Vol. 26, new series, page 389; Seth Lamb, New York, June 20th, 1840, claim, *Franklin Journal*, Vol. 2, third series, page 129; Jacob Hinds, of Hindsburgh, N. Y., Sept. 5, 1840, claim, *Franklin Journal*, Vol. 2, third series, page 335; Alfred Churchill, of Geneva, Ill., March 16, 1841, claim, *Franklin Journal*, third series, Vol. 3, page 340; Damon A. Church, of Friendship, N. Y., May 4, 1841, claim, *Franklin Journal*, Vol. 4, third series, page 35; Richard M. Cooch, of Lambertsville, N. J., July 16, 1841, claim, *Franklin Journal*,

FIGURE 41.



Vol. 4, third series, page 192; Jonathan Reed, of New York, March 12, 1842, claim, *Franklin Journal*, Vol. 12, third series, page 117; C. Brown and F. S. Crans, of Barton, N. Y., April 6, 1842, claim, *Franklin Journal*, Vol. 12, third series, page 390; Jesse Reeder, of Alton, Ill., January 20, 1843, claim, *Patent Office Report*, same year; Jacob Peck, of Oakland, Pa., August 28, 1844, claim, *Patent Office Report*, 1846; George Easterly, of Heart Prairie, Wis., Oct. 22, 1844, claim, *Franklin Journal*, Vol. 9, third series, page 385; Wm. F. Ketchum, Buffalo, N. Y., Nov. 18, 1844, claim, *Franklin Journal*, Vol. 10, third series, page 18.

Mr. Ketchum has since become distinguished as an inventor and improver of reaping machines, and we will have more to say about him after this. On the 31st of January, 1845, a second patent was granted to Cyrus McCormick, then living in Virginia, now in Chicago, Ill., which is illustrated by figures 41 and 42.

FIG. 42.

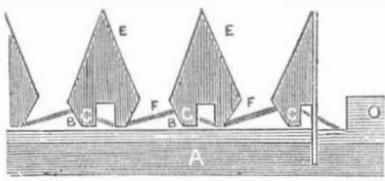


Figure 41 is a perspective view of the reaper. The driver has a seat between the uprights, 3. C is the outside bearer; D the inside one. The whiffletrees are attached to the forward ends of the bearers. Y is the band; I is the reel post; K is the shipper for putting the machine in or out of gear; L is the master cog wheel and pinion; F is the wheel brace, bevel wheel, and crank pinion; G is the crank and fly-wheel; H is the driver or connecting rod; Z is the connection between the hand and finger beam; M is the finger beam; J is the raker's seat; N is the brace to the frame; 2 is the wheel board for turning the grain into the machine; O is the connection between the driver and sickle; P is the fingers and sickle—being the cutting apparatus; Q is the platform for receiving and holding the wheat; R is the canvas; S S are the side board and brace; V V are the reel bearer and brace; T is the separator board; U is the dividing iron; W is the reel; 4 is the blocks on the reel board; X Y the reel pulley.

The accompanying engraving, figure 42, represents, on an enlarged scale, an improvement relating to the cutting parts; it consists of a combination of the shoulder, C, or

back angle of the "fingers," E (as patented and used in the machine) with a slightly indented and zig-zag edged sickle; by which arrangement, as seen by the figure at E F, the angle in the sickle edge is rendered so obtuse that it will, along with the finger for holding the grain to the sickle, cut the grain, &c., in the best manner, at the sloping angle of least resistance.

This patent embraces five claims, and has been the subject of severe litigation, and in the trial for its infringement in the U. S. Circuit Court, at Albany, N. Y., Oct. 25, 1854, Seymour and Morgan, defendants, a verdict of \$7,750 was awarded the plaintiffs.

Apparatus for Preserving Telegraphic Apparatus.

M. Becquerel has presented to the Academy an apparatus invented by M. Barthelemy Bianchi, intended to preserve telegraphic apparatus from the disturbing influence of atmospheric electricity.

It consists of a metallic sphere, traversed by the circuit wire, and kept in the center of another glass sphere, formed of two hemispheres united by a broad copper ring, armed at its inside with equi-distant points directed towards the center of the metallic sphere, and approaching within a short distance of its surface. The two hemispheres end in sockets, into which the connecting wire passes and is cemented. The lower part of the copper ring is provided with a metallic stop-cock, which permits a vacuum to be made in the apparatus, and kept in it if it be thought necessary. This stop-cock has a screw-thread which is to receive a metallic rod designed to put the metallic armature into direct connection with the earth, while the circuit wire, and the sphere which forms part of it, are completely insulated.

All the atmospheric electricity which comes upon the conducting wire of the telegraph is transmitted to the ground through the points with which the ring is armed.

Such an apparatus is to be erected at each station; experiment has proved to the author that when the discharge of a battery of eight jars is passed into a telegraphic conductor provided with this apparatus, the dynamic current is not affected, and all the statical electricity passes into the earth, under the influence of the points.—[Comptes Rendus l'Academie des Sciences.]

Important Electrical Discovery.

M. Foucault, the distinguished scientific investigator, has long held the opinion that liquids have a conducting power of their own, and independent of all chemical decomposi-

tion; and, starting from this fact, he makes a pile or battery without metal plates, using only such chemical liquids as do not precipitate one another. Should this discovery bear the test of further investigation, a new field will be opened to students in electrical science.—[Exchange.]

[We have seen the above in quite a number of our exchanges, but for the life of us we cannot make out what it means. That liquids have a conducting power of their own is well known, and not new; but the rest of the paragraph is either above or below our comprehension.]

LITERARY NOTICES.

BLACKWOOD'S MAGAZINE—The December number of this veteran magazine, contains a story of the Campaign in the Crimea, written in the tent, and is a most thrilling narrative. It also contains some personal recollections of old Christopher North, by the author of "Ten Thousand a Year," and seven other articles written with the usual ability which characterizes this magazine. Published by Leonard Scott, & Co., 54 Gold street, this City. The next number will be the first of a new volume; this is a most excellent time to subscribe—only \$3 per annum.

COACH MAKERS ILLUSTRATED MAGAZINE—We have received the first number of a new monthly magazine of the above title, edited by C. W. Saladee, author of the "Coach Makers Guide." It is devoted exclusively to the arts and sciences of coach making, and all its various branches, together with the latest and most approved fashions of coaches, carriages, &c., of the day. The present number is illustrated with two plates containing four figures, embracing a buggy, a sliding seat Calash, and two kinds of Rockaways. This magazine takes the place of the "Coach Makers Guide" which has heretofore been published yearly, and while it will do more good by issuing it monthly, it cannot but be more acceptable to all engaged in the business to which it is devoted. Its contents are practical and pointed. It is edited with ability, and will no doubt receive a firm support from the craft. Its price is \$3 per annum. All communications must be addressed (postpaid) to Mr. Saladee, at Columbus, Ohio.

MUSIC—We are indebted to James G. Clark, one of the Osian Bards, for some very fine pieces of music of his own composition. He is a young American poet and musical composer of great promise, the poetry as well as the music being his own. The "Old Mountain Tree," "The Rover's Grave," and especially "The Lament of the Sailor Boy's Mother," are full of pathos and natural beauty.

FROST'S MARINE LOCOMOTIVE—Henry A. Frost, of Worcester, Mass., author of the marine locomotive, first published on page 180, Vol. 8, *Scientific American*, has issued a description of his invention in pamphlet form, in which he sets forth his means of crossing the Atlantic in four days.

LESLIE'S LADIES' GAZETTE—The January number of this beautiful and useful magazine is just issued by Frank Leslie, No. 6 John street, this City. It contains beautiful engravings of the latest Paris, London, and New York fashions.



Inventors, and Manufacturers

The Tenth Volume of the *SCIENTIFIC AMERICAN* commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanical and Chemical Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

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