

### USE OF SCREW PLATES—TEMPERING SAWS FOR MACHINISTS' USE.

Screw plates and screw dies are often ruined by being used upon iron and steel rough from the forge, and covered with scales, which from their hard, gritty nature, grind away the threads. In all cases the rough scale should be removed from the iron or steel, either by the turning tool, file, or grinding stone, previous to screwing it with the screw plate or the dies. It is not an uncommon practice with some workmen, after they have finished forging a piece of iron work, and while the iron is at a red heat, to immerse it in water and partly cool it, with a view of giving the work a cleaner appearance; but this is a very bad custom, especially when the forging requires to be screwed. It very often happens that the iron contains veins of steel, which harden by immersion; and, though the metal may not be so hard as to prevent its being cut with a hard turning tool, still, when it comes to be screwed with the stocks and dies, or with the dies belonging to the screwing machine, or with the screw plates (which tools are always less hard than the turning tools), it will spoil the dies or the screw plates; and because this hard place or places do not happen to be detected when turning the work (on account of using a very hard tool), the steel the dies or screw plate is made of will be thought bad, or badly tempered. The fact is, the work should always be annealed rather than hardened. In all cases when an impure iron is made use of for forgings, and which will subsequently require to be screwed, either with the screw dies or the screw plate, or which may require to be cut with circular cutters or with circular saws, the forgings should always be annealed previous to leaving the smithy. The forgings, of course, will be the better for being annealed, supposing they are to be screwed with the screw tools belonging to the turning lathe; though it is not of so much importance as when they are to be screwed with the dies, or the screw plate, or cut with circular cutters, or circular saws, because the screw tools belonging to the turning-lathe can be ground again, provided they chip from being very hard; whereas, the generality of screw dies, screw-plates, and circular cutters, and even circular saws, when very hard, and once spoiled, will not admit of being again sharpened, but will be practically useless, until they have been annealed, and cut up again, and subsequently hardened. Annealing makes the iron more uniform in temper, and will save much subsequent trouble; it will greatly facilitate the work when fitting it up.

When it is required to harden a large quantity of stout circular saws at once (for cutting metals), they may be enclosed in a sheet-iron case, or box; they will require to be surrounded on all sides with either wood or animal charcoal. Sufficient space, of course, must be left every way for the expansion of the saws; otherwise they will become buckled in heating. After the saws are inclosed and the box luted with clay or loam, the whole may be placed in a suitable furnace or hollow fire and the saws heated to a cherry-red heat (the fire of course must not be urged.) As soon as the whole arrive at the proper uniform temperature, the box must be drawn towards the mouth of the fire, the lid taken off and the saws taken out separately. They may either be taken out of the box with the pliers or by a small rod of iron, having a small hook turned upon one end of it. The saws will require to be immersed edgewise in a trough containing water, the surface of which must be covered with a film of oil. The oil will float of itself upon the surface of the water and burn upon the saw as it passes through it. The burnt oil forms a coating of coal upon the saw, which protects it from the direct action of the water, and lessens the risk of fracture.

Though saws are the better for being inclosed in a box and surrounded with charcoal when heating them, still, when a single saw is required to be hardened in a hurry, it will be more expeditious to place it upon a piece of cold sheet-iron, and then to heat the iron and the saw in the midst of the ignited fuel of a hollow fire; and when it arrives at the proper temperature, it must be taken off the plate and immersed in the hardening fluid. By placing the saw upon a piece of cold sheet-iron, it causes the heat to be very slowly applied, and it has a tendency to prevent the saw buckling in heating. Oil alone, or oil in which tallow has been dissolved, is sufficient to give the thinnest kinds of saws a sufficient degree of hardness; but those of a medium thickness are the better for being hardened in solid tallow (the saws may be placed separately between two flat lumps of tallow). Tallow differs from oil in the absorption of heat for its fusion; consequently, a more considerable degree of hardness is given to the steel by the tallow than by the oil; besides, it hardens the steel to a greater depth than oil. Very thin blades of steel may be made sufficiently hard for some purposes by heating the blades to a red heat and then placing them between two heavy surface plates; the surface plates will be better if they be smeared with tallow, previous to putting the blade between them. When the saws are removed from the hardening trough, they are generally brittle and warped; consequently, they will require to be tempered and hammered flat. The tempering may be performed in a variety of ways, depending of course upon the size, shape, and quantity. Circular saws, which are required for sawing hard substances (such as iron or steel), and which have a round spindle hole, about one inch in diameter in them, will require to be tempered to a light straw color. These may be tempered by first brightening their surfaces, and then placing them upon a piece of hot iron. The piece of iron which will be required for tempering these kinds of saws may be made by the following method. Take a piece of round bar iron, one inch in diameter and eight or nine inches in length; heat one end of it and hammer it so as to make it fit into the small square hole in the anvil; at the opposite end of this piece of iron and at about two inches

from the extreme end, weld a moderate sized iron collar; the collar should be made of half round iron, so that it will, after it is welded upon the piece of round bar, form a large lump, the shape of a round ball. The object of this large lump is to retain the heat for a considerable time, so that several of the saws may be tempered before the iron will require to be reheated. If two of these lumps were made, one of them could be in the fire becoming heated, whilst the other lump is being used; so that, if it were necessary, a continuance of the process may be kept up. The object of having this lump the shape of a round ball, is that it may not supply the heat too suddenly to the saw. If this lump was made flat, it would supply the heat too suddenly, unless it was used at a very low temperature; it is evident it would not then temper more than one or two of the saws before it would require to be reheated. The object of having this round lump welded upon a piece of round bar, is for the convenience of keeping the lump in position upon the anvil, and to prevent the operator from always being in a stooping position when tempering the saws. The iron being finished, it is now ready to be heated for tempering the saws. The large lump will require to be heated to a red heat, after which the opposite end of the iron must be placed in the hole in the anvil. The saws may now be placed (one at a time) upon the lump; a slow rotary motion must be given to the saw, by the use of a small stick of wood, in order to equalize the heat. The end of the round bar at the top of the lump will help to supply heat and keep the saw in position whilst it is being turned round upon the lump. As soon as a light straw color appears upon the saw, it must be taken off the iron and cooled, either in water or oil; or, if the heat has not been too suddenly applied, the saw may be allowed to cool in the air of its own accord. These kinds of small circular saws are generally, after hardening, convex on one side and concave on the other. This imperfection is owing to the outer part of the saw becoming too small to contain the central part. When the practice of securing the saws upon the spindle by circular plates screwed firmly against each side is adopted, a small degree of regular convexity is not very detrimental, because the plates bring the saw straight; but, when they are convex in a greater degree they will require to be slightly hammered. The outer part of the saw is the part which requires to be hammered, in order to expand the outer part and bring the middle flat.

These kinds of saws may be tempered, and the trouble of brightening their surfaces spared, by smearing them with oil or tallow and holding them one at a time over a slow clear fire until the oil or tallow begins to smoke, after which the saw must be immersed in oil and partly cooled; it must then be held over the fire a second time, until the oil again begins to smoke. If the saw is immersed in the oil and held over the fire a third time, it will ensure a more regular degree of temper. Care must be taken each time the saw is heated not to raise the temperature beyond that which is necessary to cause the oil to smoke; otherwise the saw will become too soft for the purpose it is intended for—namely, cutting hard substances. By this method the saws acquire the same temper as that which they acquire when tempered to a straw color. A large quantity of these kinds of saws may be tempered more expeditiously by threading them upon a piece of iron wire, and then placing them in a proper vessel with as much oil or tallow as will cover them (the wire is for convenience in lifting the saws out of the vessel), and then to place the whole over a small clear fire, or over a gas flame, until the oil or tallow begins to smoke, after which the saws must be taken out. They may then be cooled in water or oil, or they may be allowed to become cool in the air. This indicates the same temper as that called a straw color.—*Edw.*

### Preserving Fresh Flowers.

Flowers may be kept in pretty fair condition, say for a week or ten days, according to the species selected for bouquets and the time of the year, by renewing the water every alternate day, and while doing so rejecting decayed flowers and leaves, and taking care to cut off from the stems immersed in water, with a sharp pair of scissors, about from a quarter to half inch of the length; then should be added to the water about a pinch of salt, and a few grains of saltpetre for every pint of fluid; when flowers are very much faded they may be revived by immersion of the stems for two or three minutes in hot water, or better yet in strong spirits of wine, or Eau de Cologne; in some cases liquid ammonia may be advantageously applied to the stems for a few minutes to revive flowers. These recommendations are applied by several of the largest horticulturists of Ghent and other parts of Belgium, and found to answer in practice very well if properly applied. To keep well, flowers should not, after being cut, be placed in localities where there is tobacco-smoke, or bad ventilation, neither should the rooms be too much heated.

### MANUFACTURING, MINING, AND RAILROAD ITEMS.

There are ten marble quarries now in successful operation in West Rutland, Vt., and three others in process of development. The entire thickness of the stone in these quarries is nearly fifty feet, and it is so stratified that it can be easily worked in separate layers, ranging from two to six feet in thickness. Successive strata frequently present a great variety, both in color and quality, from purest white, the marble so valued by sculptors, to the coarsest of colored rocks, the best often lying in close proximity to the poorest.

One of the last and most important events of the year 1867, was the completion of unbroken communication between this city and the Rocky Mountains. A temporary railway bridge thrown across the Missouri railway at Omaha, was the last link of this line constructed.

A gentleman of San Francisco has made arrangements with European capitalists to introduce the cultivation, on a large scale, of the sugar beet, and to establish factories for the production of raw sugar therefrom, in California. The capitalists have agreed to invest \$1,500,000 in the enterprise, and to import six or seven hundred skilled laborers. The California beet, it is said,

will yield two per cent more sugar than those of France, and as the industry is now so profitable in the latter country, the prospect is encouraging for its growth in the Golden State.

Prof. Whitney reports that of the sixty-four elementary substances existing in nature, so far as known to chemists, there are but thirty-six which have yet been proven to occur in California in mineral combination, and twenty-three elements are wanting on the Pacific coast. Of these, a few are extremely rare, such as didymium, erbium, lanthanum, thorium, but the absence of others is surprising. Fluorine, a substance of very general distribution, in its most abundant source, fluor spar, seems entirely wanting in California, although it may yet be discovered in the mica. Taking the whole Pacific coast, from British Columbia to Chili, the following facts appear. The paucity of species, considering the extent of region as compared with other parts of the world; the remarkable absence of prominent silicates, especially of the zeolites; the wide spread of the precious metals; the abundance of copper ores, and comparative absence of tin and lead; the similarity in the mineralized condition of the silver; the absence of vein stone of fluor; no mineral species peculiar to the coast.

In the United States, at the beginning of the year 1868 there are now, 38,821.81 miles of railway built and actually operated. The aggregate cost of construction has been \$1,660,460,809. Pennsylvania has the greatest number of miles in operation, viz., 4,252.10; Ohio ranks next, with 3,397.84 miles; then Illinois, 3,224.49 miles. Oregon has 19.50 miles. The cost of construction for each mile has been greater in New Jersey than in any other of the States, and in California next, being for the former, \$70,857; for the latter, \$70,824.

The Tucker Manufacturing Company, in Boston, is the originator of a process for bronzing castings, which possess the color and the true aspect of cast bronze, without being galvanized, or covered with an alloy, as ordinarily done. The process consists in coating the articles to be colored with a very thin layer of some vegetable oil, and exposing them to a temperate heat. The oil, on being decomposed, combines with the film of oxide formed on the surface of the metal, thus yielding that peculiar color of bronzed iron. The temperature to which the castings are brought is not so high as to carbonize the fatty matter; it only reaches that point at which the metal for itself is getting blue. The brown layer thus obtained is said to be as durable and protective as that resulting by the method hitherto practised; at least, the process met with great appreciation in Paris.

### Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

**POCKET GRAIN TESTER.**—B. Martin, Prairie du Chien, Wis.—The object of this invention is to obtain a neat and light instrument by which the relative weight of grain, as compared with its bulk, may be readily ascertained, and which can be made so small as to be conveniently carried in the pocket.

**HAND ROLL AND TWISTING MACHINE.**—R. Moxley, Muscatine, Iowa.—This invention consists in a new and more simple and compact arrangement of the parts of a hand roll and twisting machine, by which labor is saved, and the machine more easily operated than heretofore.

**PRINTING MACHINE.**—James McDermott, Frederick, Md.—This is a hand printing apparatus. The type is held in a curved bed, or turtle, and the ink-roller has a corresponding shape. The type are made of India rubber, and are retained in their places by the flanges of the adjustable spacing bars, which rest upon the base piece of each letter. At the end of the bed piece is an inking apparatus, consisting of reservoirs of ink of divers colors, if required, with mouths from which it exudes on to the roller.

**CORK EXTRACTOR.**—James Morton, Philadelphia, Pa.—This invention relates to a new device for extracting the cork-screw, with the cork, from the neck of a bottle, and consists of three bars, of which one has a socket or cap fitted to its lower end, to be placed upon and around the upper end of the bottle.

**FOUNTAIN INKSTAND.**—N. Gray Bartlett, Keokuk, Iowa.—This improvement is intended to remedy a defect in ordinary fountain inkstands, and consists in the employment of an overflow chamber, so disposed in the inkstand that its bottom or floor stands slightly above the floor of the duct leading from the reservoir to the pen orifice or fountain tube.

**BOXED HONE.**—Joseph Potter and Olif Abell, Whitehall, N. Y.—This invention consists in encasing the hone, or whetstone, or other grinding material, in a wooden or other box, in such a manner that its grinding surface projects above the box, and so that it cannot fall out or be easily removed from the box, and in providing a cover for the said box, whereby the grinding surface of the hone may be protected from injury.

**CHANGE GATE.**—John B. Slawson, New York city.—This invention relates to a gate to be arranged in the doors or walls of railroad cars, stages, and other public vehicles, said gate being so arranged that it can be opened on either side, and that it will at once close itself when released, the gate being connected with a bell, which will be struck whenever the gate is opened.

**CULTIVATOR.**—A. Bennett, Rockford, Ill.—This invention relates to an improvement in corn cultivators, and consists in the combination and arrangement of a sulky frame mounted on two wheels, and double plow beams attached thereto, for the shovels to work on both sides of a row of corn, in such a manner as to be entirely under the control of the driver in his seat.

**MECHANICAL MOVEMENT.**—Ephraim Soper, New York city.—This invention relates to a new manner of arranging the cranks of machinery, and consists in fitting gear wheels to the crank, so as to obtain from a stationary pinion, mounted on the wrist pin, additional revolutions or parts of revolutions for the shaft.

**DEVICE FOR RAISING CASKS, BARRELS, ETC.**—Robert Smith, Brooklyn, N. Y.—This invention relates to a device by which casks, barrels, and other similar articles can be easily transported up or down stairs or steps, and also on level ground, and consists chiefly in the use of a frame, which is provided with a series of wheels on its under side. These wheels are arranged in rows in such a manner that when the frame is drawn up steps one wheel will always be on the edge of a step, and the device can thus be drawn up stairs with ease.

**COFFEE MILL.**—W. J. Lane, Washington, N. Y.—This invention relates to a new and useful improvement in that class of coffee mills which are fitted in the upper part of a box provided with a drawer and arranged like an ordinary hand mill for grinding spice. The invention consists in the application of a flange to the lever part of the mill for the purpose of giving a downward direction to the ground coffee and preventing it from flying about or being scattered in its discharge from the mill, a contingency attended with considerable annoyance as the ground coffee finds its way between the sides of the drawer and box and every time the drawer is withdrawn from the box the latter requires to be cleaned thoroughly in order to avoid waste and to admit of the ready insertion of the drawer.

**STAMP MILL FOR CRUSHING QUARTZ.**—George R. Mitchell, Nevada, Colorado.—The chief difficulty attending the operation of stamp mills for crushing quartz consists in the wearing of the stems and the lower boxes of the same, a result due to the adhesion of pulverized rock or quartz to the stems and the introduction of the pulverized rock or quartz into the boxes by the elevation or upward movement of the stems. This invention fully obviates this difficulty and it consists in introducing into the lower boxes of the stems water from a supply pipe and in such a manner as to keep the stems perfectly clear or free from the pulverized quartz and also keep the stems in a perfectly lubricated state.

**REAPING AND MOWING MACHINE.**—D. S. Fisher, Cedar Spring, Ind.—This invention relates to a new and improved reaping and mowing machine of that class in which the sickle or sickles are driven by a cam and lever in lieu of the ordinary crank and connecting rod. The invention consists in a peculiar construction of the sickle, driving apparatus, grain-discharging device and adjustable wheels on the main frame, whereby a very superior reaper and mower of the class specified is obtained.

**EYE GLASSES AND SPECTACLES.**—J. J. Bausch, Rochester, N. Y.—This invention consists in constructing and arranging eye glasses or spectacles in such a manner that the two parts which contain the lenses may be adjusted

In such relation to each other and to the eyes of the wearer that the lenses when the eye glasses or spectacles are adjusted on the nose, will have a proper relative position with the eyes.

**COMBINED GRAIN DRILL, ROLLER AND PLANTER.**—T. S. Mills, Kendle-ville, Ind.—This invention relates to a new and improved combined grain drill, roller and planter, and consists in a novel construction and arrangement of the parts, whereby several advantages are obtained over other similar combined implements now in use.

**BERRY BOX.**—Truman Mabbett, Jr., Vineland, N. J.—This invention is designed to supersede the small baskets and boxes now used for conveying berries and small fruit to market. The invention consists in a novel construction of the box, whereby the berries are effectually prevented from being bruised or injured in their transit from place to place, a free circulation of air allowed therein when a series of boxes are packed within a case and the boxes rendered capable of being manufactured at a very moderate cost.

**MACHINE FOR POINTING PICKETS.**—W. W. Johnson, Nashville, Tenn.—The object of this invention is to point the ends of pickets or fence palings and cut circular sides or edges on other wood work.

**HORSE COLLAR.**—Thomas Moore, New York city.—This invention relates to an improvement in the construction of horse collars.

**ANIMAL TRAP.**—James P. Wisal, Henderson, Ky.—This invention has for its object to furnish an improved self setting animal trap which shall be simple in construction, convenient, and effective in operation and not liable to get out of order.

**ATTACHMENT FOR HARNESSES.**—W. W. Beebe, Dubaque, Iowa.—This invention relates to an attachment for either single or double harnesses, the object of which is to overcome and cure in a horse all inclination to be balky when driven, whether such horses are in single or double harness.

**IRON FOR HARNESS PADS.**—Heber R. Ridgley, Mansfield, Ohio.—This invention relates to an improved method of forming the frame iron of harness pads, and the attaching of the pad thereto.

**GATE.**—Ralf Adams, Ottawa, Ill.—This invention is a gate which can be opened from a vehicle or the saddle. It has a rack operated by levers, the rack engaging with a pinion on the bottom of the post of the gate, with other devices perfecting the whole mechanism.

**MOVABLE BARREL STAND.**—P. J. Skinner, Oswego, N. Y.—This invention, as its name imports, is a movable barrel stand for use in groceries or liquor stores where many barrels are employed and set in rows.

**WORM FENCES AND PENS.**—John Will, Bryan, Ohio.—This invention relates to an improvement in worm fences, and consists in a fence divided into panels or sections, composed of rails or boards bolted together by upright cleats and having notches at either end, the notches at one end being on the under part of each board and fitting into notches between two cleats on the upper part of the boards of the adjoining panel.

**CHURN.**—A. J. Heavner, Time, Ill.—This invention relates to an improvement in churns, and consists in a dasher constructed in two parts, one part working within the other, the two dashers being operated by two cranks working simultaneously.

**SAFETY PLUG FOR BOILERS.**—T. G. Elswald, Providence, R. I.—This invention consists of small fusible plugs placed at the low water level of boilers, and provided against being prematurely blown out by being located in conical seats. When the water level passes below the plugs they are melted out, and thus announce the state of the water.

**CARPET STRETCHER.**—Alexander L. Dunbar, Sheldon, Ill.—This invention relates to a novel and useful implement or device for stretching carpets when to be laid or put down by tacking or otherwise, upon floors, which implement is so constructed that it can be applied to the carpet, and suitably operated to stretch it and there hold it.

**COMBINED CATHETER AND SYRINGE.**—Dr. N. B. Sornborger, Northampton, Mass.—The combined catheter and syringe embraced in this invention is provided with a collar on its body or cylinder, susceptible of adjustment at will, and thus through a stem or rod connecting it with a collar arranged to slide upon the discharge tube or passage of the syringe.

**BAGGAGE CHECK.**—Edward Flather, Bridgeport, Conn.—This invention relates to an improved baggage check, and consists of a slotted arm or bar revolving on a screw set in a circular disk on which the names of various places or numbers are marked. The name of the place desired to be indicated is seen through the slot in the arm which is secured in place by a pin attached to the arm and fitting into a hole in the disk. Or the required number may be indicated by the pin being set into the hole opposite thereto.

**IMPROVEMENT IN GATES.**—Lewis Essig, Clinton, Ohio.—This invention relates to a new and improved method of hanging and operating the gates of farms, plantations, &c., whereby the same are easily opened by a rider, without alighting for that purpose.

**IMPROVED AIR CONDENSER.**—H. J. Bailey, Pittsburgh, Pa.—This invention relates to a new and improved apparatus for condensing air for various purposes, but more particularly for forcing liquids; and the invention consists in an arrangement of vessels, which communicate with each other by pipes or tubes—such communication being controlled by valves or cocks, which are operated by floats and governed by hydraulic pressure, whereby the apparatus is made automatic or self acting.

**IMPROVED ANNEALING FURNACE.**—W. R. Thomas, Catsauqua, Pa.—This invention consists in the construction of a furnace for annealing car wheels whereby the hubs of the said wheels may be raised to a high temperature without injury to the hardened or chilled rim or tread of the wheel; and also in placing rings of metal between the wheels, as they are placed in the furnace for the protection of the rims.

**IMPROVEMENT IN WATER WHEELS.**—William Snodgrass, Cold Spring, Wis.—This invention is to so construct a water wheel that the full or nearly the full per centage of power may be obtained, which is due from water under a given head; and the invention consists in providing for a free escape of air from the buckets or floats, and in bringing the full pressure of the water to act upon a given point of the wheel, in a manner similar to the action of water on the piston of a water engine.

**IMPROVED ARGAND GAS BURNER.**—George Mooney, Providence, R. I.—This improvement relates to the manner in which the burner is formed, and to the method of regulating the flow of the gas; and the invention consists firstly, in forming the burner of one piece of metal; secondly, in forming the gas jet apertures without drilling, and thirdly, checking and regulating the flow of gas by a screw.

**IMPROVEMENT IN CRUTCHES.**—James C. Rhodes, Stillwater, Minn.—This invention relates to a new and improved device for preventing the end of a crutch from slipping on ice or other slipping places; and it consists in arranging an adjustable spur or point in the end of the crutch.

**IMPROVEMENT IN CULTIVATORS.**—James B. Sexton, Pella, Iowa.—This invention has for its object to furnish a simple, cheap, convenient and durable cultivator.

**INSTRUMENT FOR DRAWING AN ECLIPSE.**—Franklin Bowly, Winchester, Va.—This invention relates to an improved instrument for describing eclipses of various diameters, and consists in a marking rod, on which is a graduated scale for fixing the major and minor diameters of the ellipse to be described, which marking rod is connected with two sliding rods that govern its elliptical motion around a common center pin.

**BLOCKS OR SUPPORTS FOR THE KEEL AND BILGE TO VESSELS IN DOCKS.**—Joseph T. Parlour, Brooklyn, N. Y.—This invention more particularly relates to a block for supporting a vessel by its keel or bilge when laid up in a dock for repairs, which block is made in parts or sections for adjustment, either in a higher or lower plane, as may be desired.

**MANUFACTURE OF PENS.**—Edwin Wiley, Brooklyn, N. Y.—The present invention relates to that class of pens commonly known as the "Union Pens," and which are made with their nib of gold, and their heel or body of silver or other inferior metal.

**CORN HUSKING MACHINE.**—H. W. Knowlton, Saratoga Springs, N. Y.—This invention relates to a new and improved machine for stripping Indian corn from the stalks, and taking the husks from the ears. The invention consists of a pair of stripping rollers, one of which is armed with stripping

blades, in connection with a series of husking aprons arranged to work over rollers, whereby the ears of corn may be broken or detached from the stalks, and the husks removed from the detached ears with the greatest facility.

**STREAM OR RIVER FENCE.**—H. A. Kephart, Fletcher, O.—This invention relates to a new fence to be placed across rivers and streams. The invention consists in a novel construction and arrangement of parts whereby due provision is made against the passage of cattle or animals around the ends of the fence when the stream or river is low, and provision also made for the passage of drift wood over the fence without the liability of the same being injured thereby. The invention also consists in a novel construction and application of the fence at the central or deep part of the river or stream whereby said portion of the fence may be readily put up or adjusted, and not be liable to be injured by drift wood or floods.

Answers to Correspondents.

*CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.*

*SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1 00 a line, under the head of "Business and Personal."*

*All references to back numbers should be by volume and page.*

**J. G., of Canada.**—The oil used by woolen manufacturers is either that known as gallipoli, an inferior sort of olive oil, or palm oil, neither of which are very expensive.

**J. A. G., of Pa.**—We do not know of any chemical which could be mixed with light varnish to make paper water proof. The ordinary varnish to coat maps, however, which you probably require is prepared by pulverizing 1 oz. sandarac, ¼ oz. mastic, ¼ oz. elemi, dissolving them in ½ oz. of Venet. turpentine, and adding to it a solution of 1 oz. shellac and 3 oz. oil of lavender in 12 oz. alcohol.

**J. B., of Ky.**—In reply to your inquiry as to the manufacture of crucibles, you will find in one of the first numbers of this journal of 1867, in an article, "Plumbago and its use," some remarks on the manufacture of plumbago melting pots which perhaps may be useful to you.

**G. A. H., of N. Y.**—The difficulty you encounter in forming an alloy of platinum and copper may have its reason in different causes, of which we are not aware, not having witnessed your operations. Platinum we suppose you know, can only be melted before the oxy-hydrogen fire. You will find much information about the melting of platinum in referring to the articles of M. Deville, in the back numbers of the "Annales de chimie et physique."

**J. W., of Mass.**—Phenyl alcohol (carbolic acid) in the proportion of about one per cent after having been previously dissolved in water will undoubtedly be an excellent means of preventing mold in flour paste.

**C. H. G., of Tenn.**—"What cheap material can be mixed with plaster of Paris that will leave it as hard or harder no matter what color it will produce?" Most anything will depreciate the quality of plaster of Paris, which should consist of nothing but sulphate of lime. We remember that at the late fair of the American Institute in New York a premium was refused to an exhibitor of that product because the Judge of the group happened to find some carbonates in it.

**E. W., of Mass.**—Oil when put on boots will scarcely have any protective influence against cold. . . . In painting the outer coating of a Leyden jar you will insulate it. Electricity in the Leyden jar resides on the glass as is shown by the experiment with the three separable pieces (vide Silliman's "Principles of Physics," chapter, Accumulated Electricity), but we close the mouth of the jar, as the air itself is a conductor of electricity, particularly when moist. For the stuffing of the rattle snake you speak of we recommend to you crude naphthalin; it is preferable to arsenic soap.

**A. P., of Ky.**—For the detection of sulphur or better, sulphur compounds in water, heat it in a test tube while holding a strip of paper impregnated with sugar of lead over the orifice. If sulphur is present the paper will be covered with a brownish film. Lime will show itself by adding oxalate of ammonia to the liquid. The iron in the water you speak of must be present as a protoxide and then a blue color will be produced by adding red prussiate of potassa. The sulphur may either be present as H S or Ca S.

**B. C., of N. H.**, asks if the subjection to smoke, as in the baconing process, would have a preservative effect on stakes to be driven into the ground and what substances in burning produce a smoke of the strongest creosoting effect? Mere exposure to smoke will never do for the preservation of stakes, especially if employed for agricultural purposes. For such and other purposes we recommend as the cheapest and best material the so-called pitch or dead oil. Heat the oil in an iron pot and fill a tight barrel to the height of about two feet and leave the stakes in it for two and a half or three hours. The pitch or dead oil is obtained in the distillation of benzole and other light hydrocarbons and can now-a-days be purchased in every large city.

**G. F. W., of Mass.**—Provence oil is the *oleum olivarum otim* of the Pharmacopoeia and is obtained from the pericarp or fleshy part of the olive before perfect maturity.

**J. L. D., of Mass.**, asks how to put quicksilver on the back of a looking glass. The coating of a mirror is made by spreading tin foil smoothly on a stone table, rubbing a little mercury (containing tin) over it to amalgamate the surface, pouring a large quantity of mercury on it, pushing the clean glass plate on this, beginning along one edge, pressing it with weights and giving the table top gradually an inclined position to drain off the excess of mercury.

**V. D. W., of N. Y.**, asks for the information given on page 391, Vol. XVII., to "C. S., of Minn.," who asks how to tin a worn copper kettle, the following: A thick coating may be obtained by preparing a tinning solution of zinc dissolved in hydro-chloric or muriatic acid, making the solution as thick or heavily charged with zinc as possible, adding a little salamonic. Clean the inside of the kettle, place it in a charcoal fire until a piece of block tin placed inside melts, then rub the melted tin, with some of the tinning solution quickly on the copper surface by means of a ball of oakum and a little powdered resin; the tin will readily adhere. Wrought iron and steel may be tinned in the same manner. We know of no effectual method of tinning cast iron.

**E. A. L., of Mo.**, asks if there are any clocks made which are specially designed for use on locomotive engines and calculated to keep time notwithstanding the jars of the machine. We think such clocks are quite common. They are what are called "spring clocks." We lately saw a steam fire engine with one attached, and a fire steamer is subject to as many and as severe jolts as a locomotive.

**S. A., of Iowa**, says he has cleaned his steam boilers with soda and asks if its use is detrimental to the iron. We reply, it is not.

**R. S. B., of N. Y.**, referring to the communication of "C. B.," page 35, current volume, on harmonizing church bells, asks why the plan cannot be introduced in sleigh bells, and recommends the manufacture and arrangement of the "merrysleigh bells" so as to produce concord rather than discord. We have seen several sleigh teams so ornamented, but the owners themselves were compelled to make a selection from many "strings." They were not arranged to hand.

**W. W. T., of Mass.**, asks what sort of a filter he shall use for purifying the water flowing from a spring into his trout hatching boxes. We recommend passing the water through a filter of charcoal and gravel. A little manual entitled "The House," published by G. E. & F. W. Woodward, 87 Park Row, New York city, has an engraving and description of such a filter as W. W. T. needs.

**H. H. C., of N. Y.**, inquires for a method of determining the required amount of flap on a slide valve to cut off at any given point, the stroke of the valve not being known! We cannot furnish the information desired.

**W. P. G., of N. H.**—Potassium and sodium melt below 212 degrees, the temperature of boiling water. Silver requires 1,873 degrees Fah., for fusion while cast iron requires 2,786 degrees.

**T. L. S., of Me.**—The enamel of iron hollow ware is made of powdered flint, ground with calcined borax, fine clay, and a little feldspar. This mixture is made into a paste with water and brushed over the pots after they have been scoured with diluted sulphuric acid and rinsed clean with water. While still moist they are dusted over with a glaze composed of feldspar, carbonate of sodium, borax, and a little oxide of tin. Thus prepared, the pots are gradually dried and then the glazes fired or fused under a muffle at a bright red heat. Oxide of lead, although increasing the fusibility of the glaze, impairs its efficiency as it will not resist the action of acids in cooking.

**P. J., of Pa.**—It is a mistake to suppose that water will not affect the composition of glass. At a high temperature water acts upon glass very rapidly. Turners suspended plate and window glass in the steam of a high-pressure boiler, and in four months the specimens, one-fourth of an inch thick, were completely decomposed. Faraday found that flint glass under similar circumstances was still more rapidly acted upon.

**B. A. B., of N. J.**—The kaolin or porcelain clay used in the manufacture of fine "China" ware is furnished by the decomposition of a granitic rock, the constituents of which are quartz, feldspar, and mica.

Business and Personal.

*The charge for insertion under this head is one dollar a line.*

**For Gas-Pipe Screwing and Cutting-off Machines for Hand or Power, or any tool used by Steam and Gas Fitters, address Camden Tool and Tube Works Co., Camden, N. J.**

**A Large Marble Factory to rent on the Hudson River. Address Davis' Machinery Yard, 124 Hudson st., Jersey City.**

**Parties in want of Fine Tools or Machinists' Supplies send for price list to Goodnow & Wightman, 23 Cornhill, Boston, Mass.**

**Patent Office Reports.**—Persons desiring Patent Office Reports can be supplied at low prices. Address Samuel C. Jones, Box 773, New York City P. O.

**Wanted—Parties to build the Geiser thresher and separator at Racine, Wis., ground for shops will be donated. Address W. W. Dingee, Racine, Wis.**

**Parties having shoe lace tagging machinery for sale, new or second-hand, address postpaid, box 106, Toronto, Ontario.**

**Parties having patterns for cast brass ferrules for chisel handles will receive orders by sending address to S. F. Gold, Cornwall, Conn.**

**Manufacturers of shingle machines please send circulars and pricelist to A. J. Shotwell, Montgomery Station, Daviess Co., Ind.**

**Wanted—A small plainer (bed 5 or 6 feet), new or second-hand, in good order. Address J. & B. S. Ayars, Greenwich, N. J., with price and description.**

**Allen's Catalogue of Agricultural and Household Implements and Machinery, Seeds and Fertilizers.**—Messrs. R. H. Allen & Co., 189 and 191 Water street, New York, who conduct the largest business in Agricultural and Horticultural Implements, of all American houses engaged in general dealings of the kind, have just issued a new edition of their very complete and handsome Catalogue for the current and coming season. It fills 225 pages, illustrated with nearly 400 engravings, and is sent to applicants for \$1—less than the actual cost of production, and this amount is deducted on the receipt of orders from those who have paid it.

EXTENSION NOTICES.

Morris Mattson, of New York city, having petitioned for the extension of a patent granted to him the 4th day of April, 1854, for an improvement in enema syringes, for seven years from the expiration of said patent, which takes place on the 4th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of March next.

Carmi Hart, of Bridgeport, Conn., having petitioned for the extension of a patent granted to him the 4th day of April, 1854, for an improvement in machine for cutting veneers, for seven years from the expiration of said patent, which takes place on the 4th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of March next.

James McCarty, of Reading, Pa., having petitioned for the extension of a patent granted to him the 4th day of April, 1854, for an improvement in heating skelps for the manufacture of wrought iron tubes, for seven years from the expiration of said patent, which takes place on the 4th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of March next.

L. Otto P. Meyer, of Newtown, Conn., having petitioned for the extension of a patent granted to him the 4th day of April, 1854, for an improvement in treating caoutchouc and other vulcanizable gums, for seven years from the expiration of said patent, which takes place on the 4th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 16th day of March next.

Samuel J. Parker, of Ithaca, N. Y., having petitioned for the extension of a patent granted to him the 11th day of April, 1854, for an improvement in sewing machines, for seven years from the expiration of said patent, which takes place on the 11th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 23d day of March next.

James L. Cathcart, of Georgetown, D. C., having petitioned for the extension of a patent granted to him the 18th day of April, 1854, for an improvement in attaching propellers to the driving shaft, for seven years from the expiration of said patent, which takes place on the 18th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 30th day of March next.

James Buell, executor of the estate of James McGregor, Jr., deceased, of New York city, having petitioned for the extension of a patent granted to the said James McGregor, Jr., the 11th day of April, 1854, for an improvement in the construction of tea and coffee pots, for seven years from the expiration of said patent, which takes place on the 11th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 23d day of March next.

Julia M. Colburn, administratrix, *de bonis non*, of James H. Stimpson, deceased, who was executor of James Stimpson, deceased, of Baltimore, Md., having petitioned for the extension of a patent granted to the said James H. Stimpson as an executor aforesaid, the 17th day of October, 1854, and antedated the 17th day of April, same year, for an improvement in vessels for holding liquids, for seven years from the expiration of said patent, which takes place on the 17th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 30th day of March next.

Stephen Bazin and James A. Bazin, of Canton, Mass., having petitioned for the extension of a patent granted to them the 25th day of April, 1854, for an improvement in machinery for laying rope, for seven years from the expiration of said patent, which takes place on the 25th day of April, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 6th day of April next.