

Useful Information.

New Dyeing Recipes.

Reimann's Farber Zeitung contains a recipe for a safflower rose on glazed calico. The dressing consists of 50 lbs. of wheat starch, 20 lbs. of wheat flour, 4 lbs. of white wax, and 6 lbs. of cocoa nut oil, a little sulphuric acid being added to the water in which the starch is mixed.

There are also recipes for light and deep Prussian blues on glazed calico; for a green (extracts of indigo and of quercitron) on jaconnet; a peach wood crimson on glazed calico and jaconnet; a brown on calico with Bismark brown and magenta; a gray drab on wool, and a scarlet on woolen cloth and flannel; also a blue (soluble aniline blue) and a coffee brown on plush; a violet on woolen yarn. The mordant in this case consists of 1 1/2 ozs. of tannic acid, dissolved in hot water in which 1/4 oz. of Marseilles soap is next dissolved; 1/4 oz. rape oil is next added, and stirred up till it forms an emulsion. The liquid is used at 167° Fah. The bleached yarn is worked in this mordant for fifteen minutes, and then withdrawn. The color bath, at the same temperature, is prepared with 5 ozs. of alum and the clear solution of 1 oz. of methyl violet.

There is also a prescription for a light green on cotton yarn, the color being methyl green fixed with tannic acid.

The editor gives a recipe for a brown on shoddy containing a mixture of cotton, called on the continent colour. To 100 lbs. of this material, make up a bath of 30 lbs. of fustic, 3 lbs. of alum, 2 lbs. of prepared tartar, and 1 lb. of blue vitriol, in which the shoddy is boiled for half an hour. To the same bath are then added 1 lb. of chromate of potash and 1/2 lb. of aniline red, ruby, or aniline crimson, known on the continent as rosin. The dyeing is carried on at a gentle boil, and turmeric added to modify the shade. Logwood may be used, if needful, to darken. Aniline is refuse magenta; it is dissolved in hydrochloric acid and boiled in water previous to use.—Chemical News.

VENEERS are readily dyed upon the surface, but in this condition are much more liable to discoloration than when the color is made to permeate the mass. Those colored throughout are therefore the most sought after, and before the late war were chiefly furnished from Paris. During the war, the supply being cut off, some German cabinet-makers took up the subject, and after numerous experiments, perfected a process which secures the desired result. The veneers are first soaked for 24 hours in a solution of caustic soda, and then boiled therein for half an hour. They are then washed with water until all the alkali is removed, when they are ready to receive the dye. This treatment with soda effects a general disintegration of the wood, whereby it becomes, in the moist state elastic and leather-like, and prepared to absorb the color. Veneers thus treated, if left for 24 hours in a hot decoction of logwood, and after superficial dyeing, immersed for 24 hours more in a hot solution of copperas, become of a beautiful and permanent black throughout. A solution of picric acid in water, with the addition of ammonia, gives a yellow color, not in the least affected by subsequent varnishing. Coralline dissolved in hot water, to which a little caustic soda and one-fifth its volume of soluble glass have been added, produces rose color of different shades, dependent on the amount of coralline taken. After dyeing, they are dried between sheets of paper and subjected to pressure to retain their shape.—Manufacturer and Builder.

CASTING NICKEL.—Nickel can be cast; it is now done in Berlin, Prussia, where nickel plates of 16 inches square and 1/4 inch thick are made from the ordinary small cubes under which it comes in the trade. The way to do it is to place the nickel in crucibles in the ordinary furnaces used in brass foundries, but the melting requires a constant and careful watchfulness, while a proper liquid condition is only attained after a heat of at least six hours. As soon as it flows it must at once be cast in sand molds, because if allowed to cool in the least it will at once form a compact lump, which it is impossible to melt again in any ordinary smelting furnace. Such a very large cast of nickel plates were to be seen at the late Vienna exhibition. They are of course very useful for nickel-platers.—Manufacturer & Builder.

A USEFUL DEVICE.—A tin tube made like a siphon, driven into the vent of a barrel of wine or cider, and the other end inserted into a vessel of water, will prevent the air from entering the barrel, while the gas escapes through the water. Make the barrel otherwise tight. When the cider or wine is done working, the water in the bottle will cease bubbling. It requires no filling up, as there is no loss.—Boston Journal of Chemistry.

DETECTION OF ADULTERATION IN COFFEE.—In order to ascertain whether ground coffee has been mixed with either roasted corn or amylose substances generally, it is only necessary to treat the powder, first with dilute caustic potassa, and after filtration and addition of a large quantity of pure water, a solution of iodine is added, whereby the starch is detected.—Dingler.

UTILIZATION OF GAS LIME.—An English engineer claims to have discovered that the waste lime from gas purifiers, hitherto considered as almost useless refuse, may be used to great advantage in the manufacture of mortar, concrete, and cement. He states that it is simply requisite to grind it up in the usual mortar mill or to mix it as ordinary lime with sand, ashes, and similar material. When used in making concrete or mortar, the lime may or may not, as required, be moulded into bricks or flags in the ordinary manner. The addition of Portland cement to the mixture is said to render the product much harder. This use of gas lime has been patented in England by the inventor, Mr. Humphrey Chamberlain Round, Green Barnside, York.

PREFERS the item in which method brings the largest returns is that of keeping machinery in constant use. Not only by this means is its usual profit obtained, and the interest on its first cost saved, but the mechanism, if kept in good repair, will last much longer; for it is well known that when in daily operation, a machine, like an engine-lathe, will deteriorate but one-half as fast as when entirely idle. This should be kept in mind when selecting for manufacture a line of staple articles; that which will keep the machinery running regularly throughout the year, other things being equal, pays a better interest on time, money, and labor than that which for any cause must be allowed to stand idle at intervals.—American Car Builder.

DENTIST'S SOLDIERS.—For gold solder, use 8 grains American silver coin and 4 grains best copper wire (or copper from an old style cent) to each pennyweight of gold plate of the same fineness as that to be soldered. For silver, use 8 grains best brass wire to each pennyweight of silver coin. Melt with borax, coal, and roll into plate.—Scientific American.

A New Type-Setting Machine.

The art of printing by machinery has advanced with very rapid strides during the last twenty years; so quickly, indeed, that the variety of machines at present in use is scarcely known even to printers' engineers. But this only applies to the printing-press department, or that division of the trade which impresses the types on the paper after they have been put together into pages and locked in an iron frame termed a "chase."

Strange to say, notwithstanding all these improvements in the printing-off of the "formes" of type, the art of the compositor—the man who puts the type together—has been left where it was above two centuries ago. But this has not arisen either from oversight or from a belief that the art had arrived at perfection, but from the innumerable difficulties which attend the application of machinery to composing. For fifty years failure has followed the footsteps of inventors, notwithstanding their partial success, mainly of late years, because the advantage gained by machinery over men was too small to pay for repairs and return a decent interest on the original cost of the machine.

The earliest of these machines was that produced by Dr. Church just fifty years ago, the latest before the general public was that shown at work in the Exhibition of 1873, and which it was remarked by strangers to the art of printing was constantly getting out of order. In next year's Exhibition, however, we hope to see a new one which will find more favor with master printers than its predecessors, as it is constructed on an entirely original plan, and cannot easily be deranged, or if deranged by a vice, can be put in order in a few seconds. The machine has not yet been patented, but we have been favored with a sight of it at work, when it gave very satisfactory results.

This machine is the invention of Mr. J. Hooker, a compositor and self-taught mechanic, who has had considerable experience in the working of type setting and distributing machines, and consequently has had a capital opportunity of testing their value and observing their defects. Besides the above, the inventor is now constructing his sister machine—a distributor—without which the art of composing is not considered complete; but at the time of our visit, this machine was so little advanced that we could not test its value or detect its defects.

The composing machine can be worked singly—that is, by one man—but the inventor tells us that it is most economically worked by three men and a boy, who can produce work equal to that of twelve compositors, and with many less errors, which we believe is in the limit of its power, as we tested the speed and worked it ourselves. The inventor has been over ten years working on his idea, and has during that time twice abandoned a partly completed machine for improved ones on new principles. He has studied every English patent, and has done wisely in constructing a perfect machine instead of patenting a model, which can never show whether an invention can be peculiarly successful or not. For his sake, and as a boon to the newspaper and reading public, we wish him every success.—Iron.

Gluing the Ends of Leather Belts.

The first requisite in uniting leather belts with glue is to dress off each piece at a trapezoid, for a distance equal to the width of the belt. The two pieces should be made to fit as nearly as two pieces of planed boards when dressed with a jointer. Now, procure some glue of the very best quality, and prepare it the same as for gluing pieces of wood together. Then, let the leather be warmed, lay on the glue quickly while it is hot, and apply pressure with a vise or hand screw. In lieu of either of these appliances, place the leather between two pieces of plank, put two carriage-bolts through them, screw them up tightly, and let it remain in the clamp until the glue is thoroughly hardened.

We have united leather belts with glue of a common quality, which were in use for several years; and the glued joints did not separate until the leather was allowed to get wet.

An exchange contains the following directions for making a cement for uniting leather belts: Mix ten parts of sulphide with one oil of turpentine, and then add enough gutta serena to make a tough, thickly flowing liquid. One essential requisite to a thorough union of the parts consists in freedom of the surface to be joined from grease. This may be accomplished by laying a cloth upon them and applying a hot iron for a time. The cement is then applied to both pieces, the surfaces brought in contact, and pressure applied until the joint is dry.—Ex.

NEW AGRICULTURAL IMPLEMENT.—English patents have been granted for improvements in agricultural apparatus for thinning turnips, or other roots or plants. In these the frame is supported on a pair of wheels fixed on an axle, and there is loose on the axle a bevel wheel which is in gear with a bevel wheel on the front end of a longitudinal shaft having fixed on its back end a wheel center on which the hoes or other thinning parts are fixed. A transverse bar is fixed on the underside of the frame, and carries a pair of paring cutters or small shares for paring or slicing the sides of the drill. The axle is fixed on one side, so that the horse may walk along the furrow on one side of the drill that is being thinned, and the handles are also set to the same side, so that the agriculturist may follow in the same furrow. A light wheel is fixed adjustably to one of the handle bars to regulate the depth at which the thinners work.

IMPROVED DRAWING INK.—The addition of one part of carbolic acid to 80 parts of the fluid India ink, while it does not impair its fluidity, causes it to dry rapidly even in heavy lines, so that they can be varnished over. The proper amount of carbolic acid to be added in any case may be ascertained by adding drop by drop, the ordinary apothecary's solution of it in alcohol until varnishing does not effect the definition of a test line by causing it to run. The addition of too much carbolic acid is indicated by the transparency of the line and the inability to draw fine lines, a condition which may be easily remedied by the addition of more of the fluid ink.

DETERMINATION OF WATER IN ESSENTIAL OILS.—All the volatile oils distilled from vegetable matter may contain water even when perfectly free from turbidity. If to samples of such oils several times their volume be added of petroleum ether (light petroleum spirit), a turbidity arises from drops of water which are separated out, and which appears the denser the larger is the proportion of water present. The following oils were thus found to contain water:—Lavender, clove, spike, cinnamon, rosemary, sassafras, juniper, and bergamot. Traces of water were found in neroli and oil of Gaultheria procumbens. Turpentine, cedar, citron, rue, and amber were free from water.

DARKNESS can be removed by washing the head with buttermilk and thoroughly cleansing with pure soft water afterwards.

A NOVEL BURGLAR DETECTOR.

The Montreal Gazette recently informed us that "the profession of burglary, at all times a hazardous pursuit, is likely to become still more dangerous to its followers in the future—thanks to an ingenious invention which was privately exhibited at the Mechanics' Hall. We allude to Simpson's 'Excelsior Burglar Detector,' which is an apparatus of great simplicity, and one which will no doubt answer all the purposes for which it is designed. It consists of a small cast-iron block, having four chambers drilled in the surface, communication between which is managed by a fuse hole running from the bottom of the fourth to the first hole. These holes are charged with powder, ordinary gun wadding being used, and exploded by means of a strong hammer spring, which, being connected with wires to any part requiring protection, is brought down on the nipple by the slightest touch of the wire. The first chamber is thus exploded, and after an lapse of a few seconds the other chambers explode in succession, owing to the fuse at the bottom, giving an alarm loud enough to awaken Rip Van Winkle or put a regiment of burglars to flight. As many connecting wires can be used as suit the owner's fancy, and if he is inclined to inflict punishment upon the intruders, all that is necessary is to have the chambers loaded with ball, with the muzzles pointed in the direction from whence he anticipates a visit. The apparatus is certainly a very useful and effective one, and must be extensively used by those householders who desire to protect their property from burglars."

HOW MIRRORS ARE SILVERED.—The following description of "silvering" plate glass for mirrors is mainly founded upon the method pursued at St. Gobin and Bayonhead. After polishing, each glass tablet intended to make a looking-glass is silvered, or, more correctly, coated on one side with an amalgam of tin. In the preparation of this amalgam tinfil is used, but it must be beaten from the finest tin, and possess a surface similar to that of polished silver. The art of silvering is simple, and merely requires dexterity. The glass plate having been thoroughly cleaned from all grease and dirt with putty-powder and wood ash, the workman proceeds to lay a sheet of tinfil smoothly upon the table, carefully pressing out with a cloth dabber all wrinkles and places likely to form air bubbles. He spreads over it a quantity of mercury, taking care that all parts are equally covered, and then the glass plate is pushed gently on to the surface, commencing at one edge. The glass is allowed to remain for twenty-four hours; it is then removed to a wooden incline similar to a reading-desk, to allow of the excess of mercury draining off. As the amalgam gradually sets, the incline is increased till finally the plate reaches the perpendicular, when the process is finished, and the mirror removed to the store-room.

MINT CRAZE.—The American people are seemingly getting crazy in regard to the mints—not mint-jules, nor "mint-drops," but the establishments that turn out the "drops." Every mining locality, almost, wants a mint. We have one at Carson to accommodate the miners of Nevada and Utah. Montana has for some time past been asking for a mint establishment, and now comes Salt Lake City with a demand for a like institution. As soon as Alpine leaves off her swaddling clothes we had better ask for a mint for Silver Mountain. And, we had forgotten, Chicago wants one, and if her wants are supplied her rival, St. Louis, will want one. Our people are continually growing about high taxes and foolish expenditures of the public moneys, and at the same time they ask Congress to spend some five or six millions of dollars to establish mints when the mints we now have fully meet the wants of the country.—Alpine Chronicle.

PASSED THROUGH.—We met Mr. Kimball, a gentleman from San Francisco, to assume charge of the fine 20-stamp mill at Egan Cañon. He precedes J. R. Murphy but a few days and will at once get matters in shape to commence work with vigor. We are informed by the gentleman mentioned that Mr. Murphy, accompanied by Mr. Taylor, of the London firm of Taylor & Sons, large operators in mines and mining, and connected with the property at Mineral Hill, will arrive this morning from below. It is in view to look at the prospects of Cherry Creek and report upon them. We trust the parties mentioned may be satisfied of the advisability of investing in the new camp, as men of their stamp do much toward bringing out a country. The present inclement season of the year, we fear, may operate to the disadvantage of the district, but we hope for better weather soon, which will place a different aspect on matters generally.—White Pine News.

AMERICAN FLAG MILL.—The American Flag mill has just finished making thorough repairs, and is prepared to do the best of work. A new dry kiln, twenty-one feet square, has been built, provided with two furnaces, which dries the ore quickly and thoroughly. The capacity of the mill is thus much increased. The mill has always done satisfactory work; and, with increased facilities, must still retain the confidence of the public. The mill is now working ore from the Washington & Creole mine, and extracting eighty per cent. of the silver contained therein. A. G. Moore, the foreman of the mill, has had much experience in the treatment of ores in this camp, and understands the processes best adapted to obtain good results from the different classes and grades of ore the camp produces.—Pioche Record.

ALUMINUM.—J. S. Howard, of Springfield, Massachusetts, has, it is said, after three years of patient experiment, succeeded in extracting from clay, at a price which will compete with the foreign production, the aluminum for plating which has been used extensively in Europe, but which has never been manufactured to any extent in this country, owing to the cost of extracting it under the old method. Mr. Howard affirms that by this method the aluminum can be furnished nearly a third cheaper than the retail price for the foreign production.

IMPROVED BUTTER PRINT PRESS.—A patent has been granted for an invention, the object of which is to furnish to farmers and dairymen an improved butter print or press, by which the butter may be quickly and evenly formed into cakes of required weight, with suitable print marks thereon, without previous weighing. It consists in a sliding box, into which the butter is introduced and pressed on a printing block, by a follower block and lever, into suitable shape and weight.

ABOUT the year 1300 coal was first discovered on the banks of the Tyne, and was introduced as fuel into London about the year 1350, in the reign of Edward I. Its use, however, was in 1378 forbidden by proclamation, in consequence of the gas being considered to be deleterious to health through corrupting the atmosphere, and for many years after it remained unused. At the close of the century, however, the value of coal became recognized, and its application and consumption extended.

THE number of industrial establishments in France at present is 150,000, employing two million of hands and steam power equal to 650,000 horses. The business done amounts to twelve thousand millions of francs.

THE HORSE.

About Ponies.

Next to or before the brougham-horse, in general utility, comes the pony, which is a sort of equine servant-of-all work, the Souffre-douleur—the whipping-block on which the boys and girls learn to ride, and the ready resources in any emergency, when the boy-page or groom has to hurry off with a letter or telegram, or to fetch some forgotten article for the cook. The late Sir Robt. Peel did not ask a more difficult question when he invited the House of Commons to tell him "what is a pound?" than the man who, in a company of horse men collected from the four points of the compass, inquires, "What is a pony?" In Yorkshire, Leicestershire, Northamptonshire, anything under 15 hands 2 inches is called a pony. The famous Steeplechaser, the Lamb, which twice won the Liverpool Steeplechase, and stood 15 hands 2 inches high, was called "The Pony" by the professional reporters of his struggles and his triumphs. In Suffolk, which for some unexplained reason is great as a horse-breeding county, the height of a pony is settled at 13 hands 3 inches. In Nottinghamshire, the height is considered to be anything under 14 hands 2 inches; whilst in Devonshire and Somersetshire "the oldest inhabitants" consider any pony more than 12 hands high as the degenerate result of some foreign cross of the ancient Exmoor breed. Strictly speaking, a pony is one of a tribe reared for generations untold on mountains and moorlands, without shelter and without other food than the natural herbage. The true pony is bred because nothing of a greater size can be reared under the circumstances of soil and climate. The smallest size for any useful purpose is about 9 hands (i. e., 36 inches); well-shaped ponies under that height are only fit for pets or for the establishment of a showman.—Cassell's Book of the Horse.

GENTLE WORDS TO HORSES.—The ridiculously loud tone of voice in which orders are generally given to horses when the driver desires them to start or stop, has often been a subject of surprise to me. If horses were next thing to deaf, there would be an excuse for the shoutings and yellings so generally indulged in, but they are not, and therefore need not be spoken to so loudly and harshly. The ear of a horse is very sensitive, and, save in exceptional cases, it is as possible to control his motions by a command given in a moderate tone of voice, just as readily, and indeed, I think, more readily than where this rough, rude manner is used. A horse is a teachable animal, and is always affected by kind treatment. The fact of the matter is, that if kind words and gentle treatment throughout were given these noble animals, instead of oaths, curses and blows, we should find their docility greatly increased. Just imagine if you will, a gee- or whoa! uttered in a tone sufficiently loud to be heard at a half mile's distance, and this command given to an animal within five or ten feet of the party giving it. Wherein consists the necessity for it? Why not speak in a moderate tone? This is all that is required. The horse, if not deaf, can hear it, and will as readily obey as if given in thundering tones. One of the best managed teams I have ever seen, was controlled by the driver without indulgence of any of this unmusical yelling. The driver rarely ever spoke above his ordinary tone of voice, and yet his horses laid into their work with as much willingness, and apparently greater earnestness than if they had been driven to it by fearful shoutings and blows. Let me appeal to the common sense of our readers in this particular direction. The horse is an intelligent animal. None of the brute creation more readily appreciate kind words and kind treatment. Such facts should be considered always by those who have the care of these animals.—Cor. Farm Journal.

LIGHT HARNESS.—Farm work, during the hot summer months, requires only the lightest harness. In the cities the harness worn by street railroad horses is as scant as is consistent with the work they have to perform. No breaching is used; the hipstraps are dispensed with. Teams may often be seen in the hot days of July and August, plowing in the same harness they wore during the winter. This is unnecessary; nay, sometimes it amounts to positive cruelty. Remove every superfluous strap, take away the back-strap and crupper band, and let the air circulate freely around the body. At night when the work is over, wash the sweat and dust from the legs and thighs of the horse; a dash of water on his flanks would be grateful to him. Let his stable be airy and clean, with a bed of clean straw. Kindness to these servicable animals is the truest economy. Besides we feel far better when our horses are made comfortable. The sensation is akin to that derived from doing a benevolent action. A sensitive man cannot see a horse sweating under and galled by a heavy harness during the intense heat of a summer's day, without sympathy and pity, nor can he retire to rest with an easy conscience, knowing that his faithful servants in the stable are not properly cared for.—Ex.

AMMONIAC SULPHATE.—L. L. Hote proposes to utilize refuse wool, horn, feathers, and other nitrogenous bodies by digesting them with a dilute solution of caustic soda, 1 part soda to 10 of water, until they have assumed a pasty consistency. The mass is then mixed with quicklime and distilled, at first at a low heat and afterwards at a full red. The vapors are condensed in chamber acid. The residuum in the retort is carbonate of soda and quicklime. By boiling this with water the soda is recovered as caustic soda, and is ready for the next operation.

APPLICATION OF THE SAND-BLAST.—The most recent application of the sand-blast is for cleaning the fronts of buildings by removing the soot, dust, and other substances therefrom. The impact of the sand on the surface removes the soot or dust from all the crevices and indentations, without perceptibly interfering with the sharpness of the architectural ornamentation.—Jour. Soc. Arts.

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