

Science and Art.

To Polish Stones and Shells.

The art of cutting and polishing stones is very ancient. It was common in Hindostan and China long before the Christian era. Engraving is a modification of stone cutting. All the hardest gems, such as rubies, sapphires, topazes, &c., are cut with powdered diamond, and afterwards polished with a wheel dressed with tripoli. Many of the common pebbles on the sea beach and the river courses, when polished, are exceedingly beautiful.

There are many very pretty stones picked up by mere chance, and which are treasured by some persons for the recollections they bring to mind of places and friends, as much as the brightest jewel that adorns a diadem. These "lucky stones," "milk stones," "plum pudding stones," &c., become really ornamental for the mantel-shelf when brought to a surface and polished. If the stones are large enough to be held in the hand, the first operation is to grind them on a piece of flat brass or iron, which is coated over with coarse emery, and kept constantly wet; this requires both time and patience, depending upon the relative hardness of the same. When a flat surface is obtained, the process of polishing may begin. For this purpose fine emery is used, to remove the marks of the coarse; this is followed by tripoli, and, finally, putty of tin. The last material does not require water, but is merely dusted over the brass or iron plate, and the stone rubbed upon it till at length a beautiful polish is obtained.

The process of grinding the Brazil pebble for spectacle lenses is precisely the above, only that in place of a flat plate the worker uses a convex or concave tool. If the stones are too small to be conveniently held in the hand they must be fixed into a body of cement, and a handle made of it. Common sealing-wax will do for cement, but if a little pitch is added it is all the better. The stones have merely to be warmed to make them adhere to the cement.

For polishing shells a piece of woolen cloth dredged with emery, wetted, and rubbed upon their surface, brings them to a smooth face; they are then polished with a cloth and putty of tin, like a stone.

Shells of a very uneven surface may be varnished; they then assume a brightness as if polished. This trick is often practiced by those who sell shells. This kind of polish does not remain like that done by hand.

When a stone or shell is polished it exhibits its colors and grain by the reflection of the light. Half the stones worn in rings and seals are of no earthly value beyond the labor bestowed in cutting and polishing.

SEPTIMUS PISSÉ.

Improved Porte-Monnaies.

The peculiarity of the porte-monnaie patented by Mr. John L. Mason, of Germantown, Philadelphia, Pa., October 16, 1856, and which forms the subject of the present notice, lies in the construction of the compartments. The muslin is so folded that the sides and ends of the compartments, whether they be more or less in number, are all formed from one piece of material instead of, as usual, making the sides of one piece and each of the ends of another piece, secured by stitching or pasting.

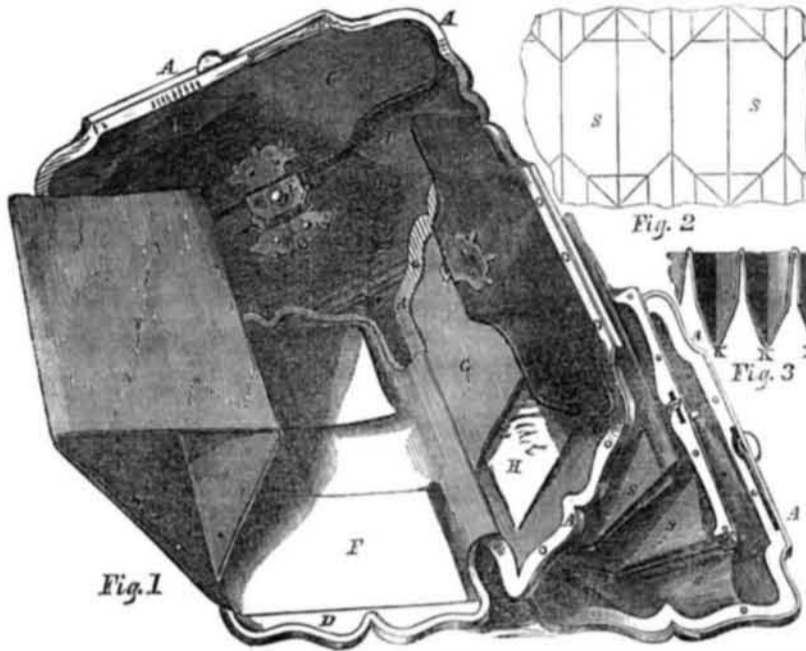
The article is very tastefully and conveniently got up in other respects, as shown by the engraving, in which fig. 1 is a general perspective view of the device in two situations. The front one is open, and displays its interior, while immediately behind it is another in a shut condition. Fig. 2 is a piece of suitable material—muslin or silk usually—spread out to show on a smaller scale, the locations of the lines along which the folds are made. Fig. 3 is an edge view of the compartments or pockets, fully completed from one piece, and ready to be secured in the frame of the porte-monnaie.

The metallic frame, A A, is first fitted as usual with the sides, which may be of leather, mother of pearl, papier mache, or any other material. In the specimens represented, the face or side nearest the eye is provided with an extra attachment, C D, in two parts, join-

ed by the clasp, E, and enclosing suitable means, F, for enclosing bank notes. An additional provision is also made by the pocket G for the retention of cards, H.

S represents the material which forms the regular pockets. The lines along which the folds are made are shown very distinctly in fig. 2, and the form of the slanted corners produced at the lower part of the edges is shown in fig. 1. The side view in fig. 3 shows that

MASON'S IMPROVED PORTE-MONNAIES.



the parts, or even to a considerable extent of pasting. The pockets are made to come up into the top of the clasp instead of joining them to the clasp in the bottom and sides, as is done in the old porte-monnaies; and by this method they are independent of the outside at the bottom, so that if the outside should be worn through at the hinge, no change could get out there, and from their closeness to the top, the smallest coin cannot

get over. From the nature of the folding, the spaces between the pockets are elastic, and give to the parts joined to the outside when the clasp is pressed back, and when closed, the pockets being almost independent of the clasp on the inside, follow the outside as they are pressed out.

Further information concerning it may be obtained by addressing the inventor, J. L. Mason, Germantown, Philadelphia, Pa.

New Method of Printing.

The following method of printing is described in the last number of Newton's *London Journal*, and secured by patent in England as the invention of J. B. D. Chevalier and N. R. O'Sullivan, of Paris. It has for its object to obtain printing surfaces as a substitute for lithography, over which it claims to have advantages, not only in cheapness, but in printing a number of colors at once, whereas in lithography each color has to be worked off separately. It is described as follows:—

"In carrying out the invention, the patentees take any suitable permeable substance or fabric, such as linen, calico, cloth, canvas, or other woven or suitable material, or, it may be, a reticulated metal surface, or metallic plate or sheet, perforated with minute holes, to impart the required degree of permeability, and on this surface they draw or write the characters in an ink composed of lampblack, Indian ink, gum, sugar, and salt.

A coating of this ink being applied to the permeable surface in the form of the design or character or characters required, they next coat the permeable substance, on the side drawn upon, with a thin coating or film of gutta percha, or of gelatinous material, covering the drawing as well as the other part of the permeable material. When the coating of gutta percha or other gelatinous material is dry, the fabric, or other surface so coated, is washed. The gutta percha, or gelatinous material, at that part where it comes in direct contact with the permeable material, adheres firmly thereto; but at those parts covered by the ink it has no such adhesion, and simply holds to the ink design. The ink, being readily soluble in water, is removed in the washing, and carries away the gutta percha covering it; thus the design drawn upon the permeable material is now the only pervious part remaining on the surface.

The back part of the pervious substance or fabric is now to be coated with the ink or color or colors required to be printed, and the ink or color having been applied, the impression is taken from the face of the fabric or substance by pressure in a suitable press, the

paper or surface to be printed being placed in contact with the face of the fabric or printing surface, the ink or color passes through the pervious part, and is thus applied and printed on the paper.

Instead of applying the ink or color to the back of the pervious material the design in that material may be placed on a pad containing a reservoir of ink or color, by which the ink or color is supplied, by pressing it upon such pad, from which it passes through the pervious parts of the material constituting the design to the paper or substance placed on the face of the printing surface to receive the impression."

The Hot Springs of Arkansas.

A writer to the *New Orleans Picayune* gives a graphic account of these springs. They are situated in a steep, rocky glen, between almost perpendicular, thinly wooded mountains, having for accessories a pretty brawling stream, a considerable village strewn on one side of the brook, and one little mill busily at work. The main hot springs gush out of the face of the mountain about eighty or one hundred feet above the base. The water is pure and limpid, and its entire body would fill a pipe of sixteen or eighteen inches diameter, if all issued at one spot. The temperature varies from 105° to 153° of Fahrenheit. The water, although apparently pure to the eye and palate, deposits a mixture of siliceous and carbonate of lime, forming a lava-like stone. Baths are arranged where hot vapor issues from the foot of the mountain, to which the water is carried from the springs above, so that the bather may have either a vapor or a hot water bath.

Sowing Flower Seeds.

Small seeds are apt to be buried too deep, or they are left on the surface, and a burning sun scorches them, or the soil is stiff, and, when wet, wraps them round so tightly that no air can get at them. The soil should be made very fine before sowing. If the soil is the least adhesive, a little fine, sandy soil should be used for covering, and then success will be more certain.

A Locomotive Log Splitter.

In number 23, this volume, *SCIENTIFIC AMERICAN*, a California correspondent, J. C. Gore, inquired if there were any machines in use for splitting logs. We answered "there were not," but that the thing could be done, only it would require a very powerful engine to effect the object. Mr. Gideon Davis, of Lloydsville, Ohio, has sent us the description of a method to do the job in locomotive style. It consists in having a huge horizontal railroad ram on a truck, which is to dash up and bunt a huge wedge into the log, (firmly fastened on a bed) and thus split it open in a twinkling. The plan is perfectly feasible.

Literary Notices.

CONSTRUCTING, HEATING, VENTILATING AND MANAGING GREENHOUSE GRAPES.—This is the title of a handsome volume, illustrated with numerous woodcuts, edited by Robert B. Leuchars, of Boston, Mass., and published by C. M. Saxton & Co., No. 140 Fulton street, this city. The author is a garden architect, and appears to understand his business. The object of the treatise is to spread abroad practical information on the points indicated in the above caption. It is a work which supplies a want long felt in scientific gardening, and will no doubt be hailed with delight not only by gardeners, but all those who possess greenhouses. Price \$1.25.

ZELAH: THE CHILD MEDIUM. A Tale of Spiritualism. By the Author of "My Confession." "The Story of a Woman's Life," &c. The writer of this book professes to be an unbeliever in modern spiritualism, and yet she thinks, after all, that the phenomena in connection with it are destined to affect very materially at some future day this good, free land. A somewhat interesting story is manufactured out of the crude materials which this system has developed. Messrs. Dix, Edwards & Co., publishers, 321 Broadway, N. Y.

WESTMINSTER REVIEW.—The number just issued of this able quarterly contains eight powerful essays. "The Effect of Gunpowder on Civilization," and "Glaciers and Glacier Theories," two of the essays, have interested us deeply—the first is of general interest, and full of instructive information. Published by Leonard Scott & Co., No. 54 Gold street, this city.

THE EDINBURGH REVIEW.—The present number of this, the oldest of the Quarterlies, is one of the best ever issued. Its leading essay is a review of Grote's History of Greece, especially the life of Alexander the Great—it is an able criticism. The Physical Geography of the Sea is an article reviewing Prof. Maury's work on this subject, and is very interesting. It also contains eight other excellent essays besides these two. Published by Leonard Scott & Co.



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