

SIMPLE PROCESS OF ENGRAVING GLASS AND METALS.

BY GEO. M. HOPKINS.

There are very many applications for an inexpensive and effectual method of etching or engraving glass in various forms, plain and plated metals, enameled surfaces, pottery, etc. Of all existing processes for accomplishing this work, the sand blast is undoubtedly capable of the most universal application. In point of effectiveness and in general usefulness it may never be surpassed, or even equaled; yet a substitute for it, even though incapable of as extended application, will find uses in the arts, and will doubtless be appreciated by amateurs.

Such a process is illustrated by the annexed engravings. The requisites for carrying out the process in its simplest form are: A pound of coarse emery, a pound of lead shot, a wooden box 10 or 12 inches long (a cigar box will answer for the experiment), some pieces of glass or metal, and some paper patterns or stencils. The box is provided with a clip at the back and a sliding clamp at the front for holding the plate to be engraved, and it may with advantage be furnished with a clamping device of the same sort at the upper end. The lid of the box must be provided with a packing strip of thick cloth or felt, to prevent the loss of emery.

The glass or metal to be engraved is cleaned thoroughly, and to secure the best effects it should be polished. A paper stencil of the desired form is fastened to the glass or metal plate by means of mucilage of good quality. The pattern should be made of thick writing paper, and care should be taken to see that every part of the paper is thoroughly attached to the plate. Any gum around the edges of the paper should be removed by means of a moist sponge. The exposed parts of the plate must be perfectly clean and free from streaks, otherwise there will be undesirable markings on the finished work.

When metal plates are to be engraved, they should be well polished before applying the stencil, to secure good contrasts. For coarse stencils and rough work, the shot should be large and the emery coarse, but for fine work moderately fine shot and finer emery are required.

After the plates to be engraved are placed in the box, the shot and the emery are poured in, the box is closed and the lid fastened, when the box is shaken violently endwise, causing the shot and emery to strike the plates at opposite ends of the box in alternation. The shot, in the operation of driving the particles of emery against the plates, become charged with particles of emery, as shown in Fig. 2. The emery becomes so embedded in the shot as to be permanent, and a number of shot thus armed, together with loose emery, soon abrade the surface of the metal or glass wherever it is unprotected by the paper, and produce a fine matted surface, which contrasts strongly with the polished parts of the surface protected by the paper. After roughening the unprotected parts of the plate, the paper stencil is soaked off and the plate is dried, and in case it is metal it is lacquered.

Symmetrical stencils, which answer a very good purpose, may be made by cutting paper folded in various ways. Lace may be employed as a stencil, and where only slight etching or engraving is required, the pattern may be produced in varnish.

To adapt this method to engraving articles having curved or irregular surfaces, the box is left open at the lower end and provided with a flexible sleeve of soft rubber. The articles to be engraved are held against the sleeve by leather straps. Designs of various kinds may in this way be permanently delineated upon the glass and metal ware, and upon small panes of glass for ornamental windows, for lamp shades, etc. Mirrors may be provided

around their edges with leaves and flowers, and metal panels may be prepared for various kinds of ornamental metal work.

Cure of Whooping Cough.

The author has found that fumigation with sulphurous acid will frequently succeed in immediately arresting whooping cough. His methods consist in having the child dressed in entirely clean clothes in the morning and removed from the apartment; then, in the

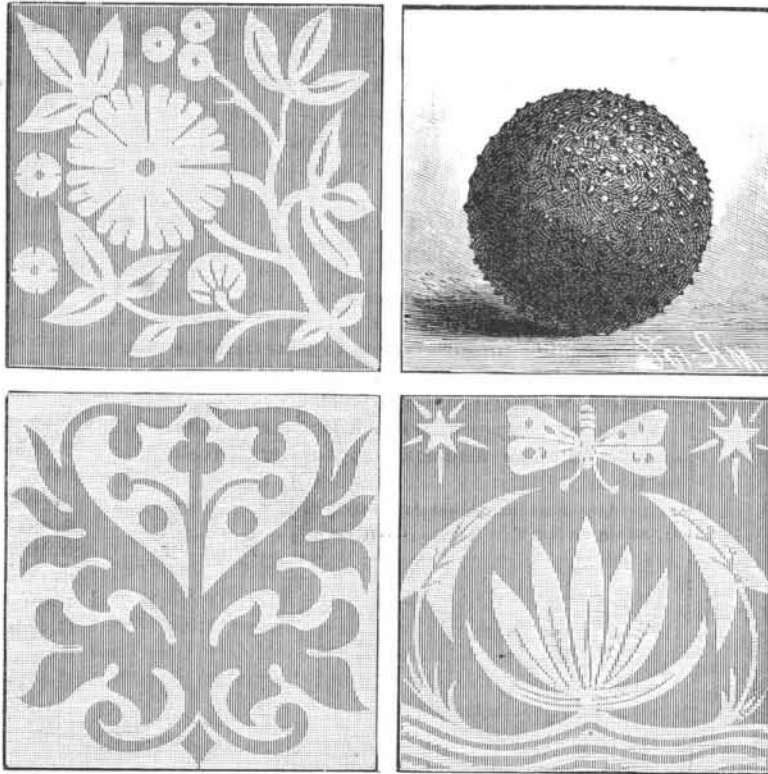


Fig. 2.—SHOT MAGNIFIED, SHOWING EMERY EMBEDDED—EXAMPLES OF ENGRAVING.

sleeping room, as well as the other rooms occupied by the patient, his bed clothing, clothes, toys, and everything which is washable should be hung up; then sulphur should be burned in the rooms at the rate of twenty-five grammes for each cubic meter of space, and the rooms should remain closed and subjected to the fumes of the sulphur for five hours. Then everything should be aired, and at night the child should be put to bed in his room, which is thus completely disinfected. Nothing else is requisite, and even in rebellious cases the effect of this disinfected atmosphere will be found to be effective.—A. F. C., *Archives of Pediatrics; Mass. Med. Jour.*



Fig. 1.—SIMPLE METHOD OF ENGRAVING GLASS AND METALS.

The Sidon Discoveries.

The *London Times* gives this summary of the Sidon discoveries, as to which American missionaries have already sent home some details: 1. The chamber of the eastern side of the square excavation (which is truly orientated) contained two sarcophagi in white marble. One of these is perfectly plain, and the other is ornamented with sculptures of the richest and most beautiful kind, already roughly described. This is the chamber which is surrounded by an arcade adorned with eighteen mourning figures in relief, dressed in Greek costume, each in a different pose. It is not stated whether the arcade itself or any portion of it has been removed. 2. The south chamber had two sarcophagi, one in black marble, plain, and the other in white, with splendid sculptures. 3. The western chamber had one sarcophagus in white, mummy shaped. But this chamber proved to be the vestibule to another containing four sarcophagi, one of which was the richest and finest of all those found. The walls of this chamber also are richly decorated. 4. The chamber on the north has two plain, mummy shaped sarcophagi. On removing the debris which covered the ground two other chambers were found, one on either side, on a lower level. One of these contained a small tomb; the other, four white marble sarcophagi. Under the eastern chamber also was found another containing a sarcophagus of black stone, in which were the teeth, bones, and hair of a woman. All these tombs had been violated by breaking a corner of the coffin lid. But in carrying out the works for the removal of the sarcophagi, a chamber was found in which at first nothing was remarked but two fine bronze candelabra, each about five feet in height. The flooring of this chamber, however, on examination, proved to consist of a bed of great stones laid with the utmost care. Beneath these were a second bed of

stones, and then a third, and, under all, thus carefully covered up and hidden away, a great monolith covering an opening in the rock. In this deep chamber was found a splendid sarcophagus in black stone, resembling that of the King Eshmunazar in the Louvre. It was also, which is more important, provided with an inscription in Phœnician, eight lines in length. The inscription has not yet reached us. In the *Badie* (published once a week at Beyrout, in French and Arabic) a translation is proposed, which is copied for what it is worth; probably considerable modifications will be made in it when the inscription is in the hands of scholars: "I, Talnite, Priest of Astarte and King of Sidon, son of Eshmunazar, Priest of Astarte and King of Sidon, lying in this tomb, say: Come not to open my tomb. There is here neither gold nor silver nor treasure. He who will open this tomb will have no prosperity under the sun, and shall not find repose in the grave."

There seems to have been little else of importance found in these chambers; some gold buttons, a coin or two, collars, rings and bracelets, two bronze candelabra, and some terra-cotta lamps exhaust the list so far as can at present be learned. Something, however, will doubtless have to be added; and it is, meanwhile, interesting to note that his Excellency Hamdi Bey proposes to recommence operations in the early spring of next year.

To Bleach Sponges.

First wash well in cold water; then immerse in a bath composed of 2 drachms of permanganate of potash and 1 ounce of strong sulphuric acid to the gallon of water. The duration of the immersion varies according to the size of the sponge, etc.

To obtain the color so much admired, wash well in soda water, then immerse the sponge in a solution of carbonate of potash (4 ounces to the gallon) until you have hit the color, then wash and dry.