Science and Art.

Fixing Chalk Drawings.

A new method of fixing chalk drawings has been communicated to the Academy of Sciences in Paris by M. Ortlieb. A chalk drawing cannot be covered with gum by a brush, because the action would remove the sketch. The new method consists in placing a very thin sheet of bibulous paper on the drawing, then passing a brush containing the gum or glutin solution over this. The glutinous matter penetrates through the sheet, and produces the desired effect, when the bibulous paper may be carefully lifted off. Another method superior to this consists in executing the chalk drawings on thick unsized paper like that used for copperplate printing, then applying the solution of gum to the back of the sheet. A sufficient quantity will pass through to protect the chalk after it becomes dry. The silicate of potash answers well for this purpose as a substitute for gum and isinglass.

Auriferous or Gold Quartz.

At a period not very remote, the idea was prevalent among geologists that gold quartz decreased in richness as the veins descended, until at about sixty feet deep they ceased to be fit for profitable working. If this theory were true, it would not be difficult to calculate the duration of quartz-mining in any country—it would soon cease to be profitable. We learn from the Melbourne (Australia) *Mining Journal* that this theory is untenable, and that it has been abandoned by Sir Roderick Murchison and by Mr. Selwin—the government geologist of that colony. It seems that certain commissioners—reputed to be excellent geologists and metallurgists—deputied by the government, had reported that it was injudicious to erect expensive and permanent buildings for quartz-mining, because of the poverty of deep quartz veins; hence quartz-mining was discouraged and discountenanced in Australia until within a very recent period, and not until the practice of quartz-miners had disproved the hypothesis of superficial British authorities. In North Carolina and California quartz veins several hundred feet deep are worked profitably; and there seems to be very little difference, if any, in the richness of the "lode" as they descend. About two hundred quartz mills are now in operation in Australia, and the number is rapidly increasing. The *Mining Journal* states that the crushers heretofore used in that colony have not been made of good materials. Some new California machines have been introduced; these are expected to give more satisfaction.

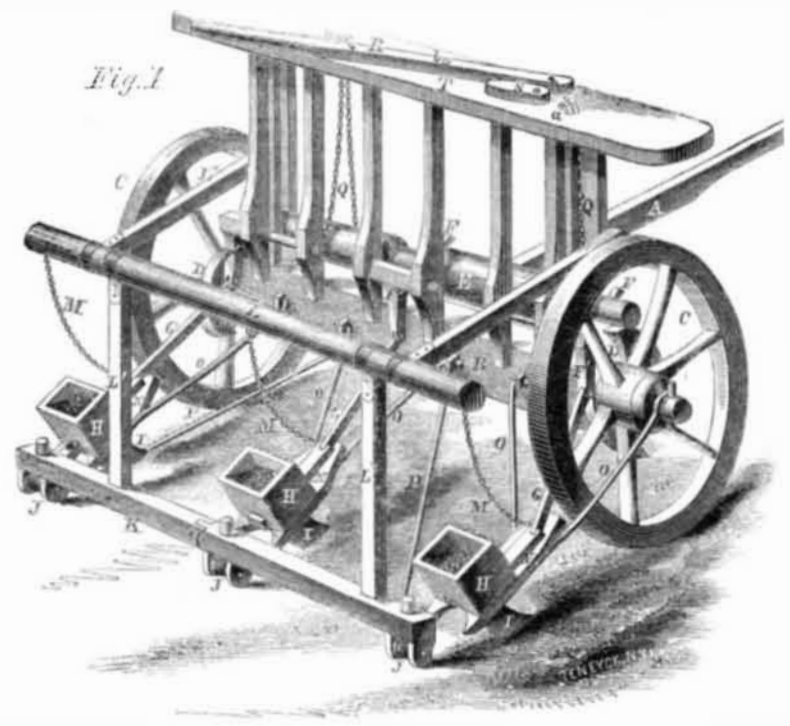
Improved Seed Planter.

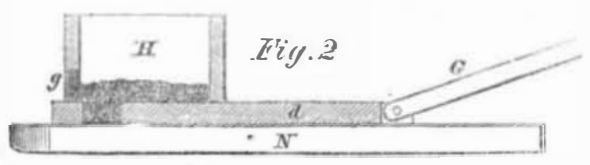
The seed planter which forms the subject of our illustration is very simple and easily constructed, and plants seed with great regularity, the planting device consuming but little power.

Our illustrations show, in Fig. 1 a perspective view of the whole machine, and in Fig. 2 a section of the seed-box and slide.

A is the shaft-pole attached to a cross-beam or strong axle, B, which is supported by two wheels, C, each of them carrying two cams, D. On these rest the ends of a weighted bar, F, which is raised by the cams and falls by its own gravity. In falling it depresses the rocker levers, F, and throws out the levers, F′, that being connected with the link, G, operate the seed-slide, *d*, throwing its cavity with contained seed under the brush, *g*, of the seed-box, H, when it can discharge the seed through the slot in the back part of the peice, N, by which and the bars, O, the planter is attached to the framing. Each planter has a share, I, and immediately after follows a covering wheel, J, mounted on a jointed peice, K, which can accommodate itself to the level of the ground. This bar, K, is kept in position by bars, P, and standards, L′, that are fastened to the cross-roller, L, so that it is free to move in its supports and in the attachments of the links, L″, that connect L with the main frame. This roller has secured to it three chains, M, the other ends of which are connected with the planters, H, so that by turning L they can be lifted out of the way when the machine is passing from one field to another, or not planting. The weighted bar, E, can also be lifted out of the way so as not to rest upon the cams, when desired, by the chains, Q, that loop around it and passing over pulleys, *a*, in the upper frame, T, are secured to the lever, R; this being pulled out by its handle it moves upon its center, *b*, and

DRAKE'S SEED PLANTER.

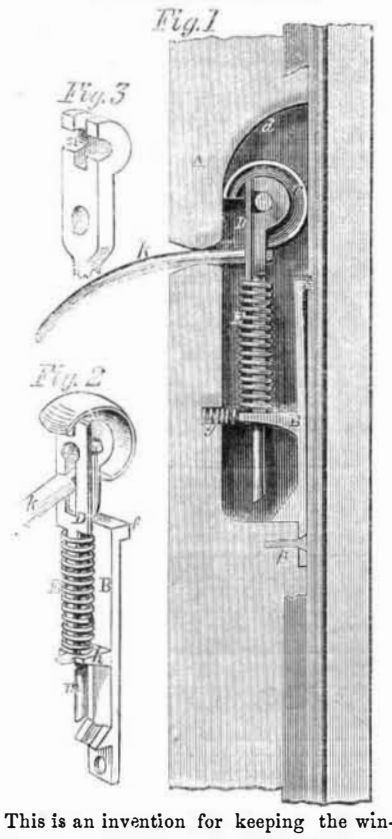




being held in proper position by the dog, or catch, S, the weighted bar is kept out of the way of the cams, D. A seed slide provided with a cut-off as well as well as slide may also be applied if desired, but the form we have engraved is, as we said before, cheap and simple and, at the same time, strong and efficient.

The inventor and patentee is Nathaniel Drake, of Newton, N. J., who will be happy to give any further information. It is the subject of several patents, the last of which is dated Dec. 14th, 1858.

Williams' Sash-Fastener.



This is an invention for keeping the window in any position in the sash, and is very simple and efficient. Fig. 1 is a view of the window-frame with it attached, Fig. 2 shows the fastening detached, and Fig. 3 a view of the center casting.

The window-rail, A, is mortised to receive the fastening. The plate, B, of the fastening has a catch, *f*, at its upper end, which enters a suitable notch or mortise in the window-frame when the sash is down, by which means the window is secured, so that it cannot be opened upon the outside, the catch is forced into its mortise by the spring, *g*. Through an ear, *h*, projecting from the inner side of the plate, B, passes the shank, *m*, into a hole, *i*, in which passes the end of the lever, *k*, by which the fastening is operated. The shank, *m*, has near its upper end notches or bearings, which carry the shaft of the fastening roll, C. This roll is held in its bearings by a plate, D, the lower end, C, of which enters the top end of a spiral spring, E, which encircles the shank, *m*. At its upper end the plate, D, being forced up by the spring, E, presses against the roll, C, and forces it into the position with respect to the shank.

The spring, E, also performs the office of forcing the roll, C, up against the inclined surface, *d*, of the mortise in the sash rail. The plate, B, is confined loosely to the sash rail by a screw, *p*, so that it shall be allowed to move sufficiently to and from the window-frame, to allow the catch, *f*, to be withdrawn from its mortise when the sash is to be raised, which is done by raising the handle or lever, *k*, and thereby depressing the roller, C, away from the incline, *d*, the pressure of the spring, E, upon the ear, *h*, throws back the plate, B, and withdraws the catch, *f*; the sash may then be raised, and when the lever, *k*, is set free, the roll is forced up into the position seen in Fig. 1; and if now the weight of the sash be left free, the roll, C, will roll slightly, and bind between the window-frame and the incline, *d*, by which means the further descent of the sash is prevented.

The inventor is Turner Williams, of 138 Broadway, Providence, R. I., and he patented it October 26, 1858. He will furnish any information upon being addressed as above. A specimen can be seen at the agents, New England Butt Co., No. 30 Platt st., New York.

A Word to our Baltimore Subscribers.

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