

Correspondence.

A Ten Year Old Wood Pavement.

To the Editor of the Scientific American:

SIR: In the SCIENTIFIC AMERICAN for Aug. 16, I notice an article of some length, in relation to the Kerr wood pavement. The description therein given with respect to the process by which it is laid is similar to the process for laying the Flannigan pavement, decidedly the best wood pavement ever laid in Washington.

The Flannigan pavement is laid upon a bed consisting of crushed stone, cement and asphalt; the blocks are round and of cedar, the interstices being filled with gravel and hot tar, the whole being covered with a substantial coat of asphalt and rolled, making it one of the most compact pavements in use. One of these Flannigan pavements was laid in this city on Third Street, adjoining the U. S. Botanical Gardens, and one on Eighty-third Street, S. W., extending from First to Third, in 1874, which, when taken up to give place to the Belgian pavement now being laid, were found to be in a perfect state of preservation, the blocks being as dry as when first laid, and those that were laid in the gutters and along the curb were as dry as any of the rest. This pavement is impervious to water, and is I think equally as good, if not superior to the Kerr pavement.

Very respectfully,

Washington, D. C., Aug. 18, 1884.

J. E. BRUCE.

A Sulphur Well at Columbus, Ohio.

To the Editor of the Scientific American:

In recent issues of the SCIENTIFIC AMERICAN I find several articles on artesian wells, which cause me to here give a description of a six inch driven well just completed at the tannery of Schaumaker Bros., of this city, which after going through 60 feet of sand and 36 feet of clay struck bed-rock, into which they penetrated to the depth of 50 feet; there struck a strong stream of sulphur water, which immediately rose to the height of 10 inches above the surface. I have seen two pumps inserted which, combined, throw a 3 inch stream, and with that they succeeded in lowering the water about 14 inches, where it would stop, and after stopping the pumps it would immediately rise to its standing point. This well is by experts pronounced to be finest well of its kind in this State. Scores of people go there daily to drink the water and take it home with them. At present the water is conducted into the tannery; but as some say it possesses great healing power, it is hard to tell what the future will bring.

A. L. SCHEIBLICH.

Columbus, O., Sept. 22, 1884.

The Filtration of Orange, N. J., Water.

Last year the city of Orange, N. J., constructed new waterworks, conveying the water through pipes from a reservoir some miles away, which was supplied by a running stream. As the summer season advanced much complaint was made by the users of the water that it was stale, had a bad odor, and was unfit for drinking or cooking purposes. The local newspapers took up the matter, and a number of articles were published from correspondents, complaining of the unfitness of the water for use and condemning the source from which the supply came as unclean. The engineer of the waterworks maintained that the water was pure at the reservoir, and that the trouble arose from the water becoming stale in the pipes when there was but little water used, and that the trouble would be remedied by flushing the water through the hydrants. This has been done, and considerable improvement is observed; but to render it still more pure, and to allay the prejudices of the consumers; the following method of filtering is to be adopted. The Orange Journal thus describes the process:

"There are three flumes, the outer one communicating direct with the reservoir by means of three inlets, located at intervals of about 12, 20, and 30 feet from the surface. The water passes into this flume precisely as it is in the lake. The second flume will be supplied with 400 bushels of fine charcoal, through which the water must all pass, and enters into the third flume through a copper sieve. Both sides of this third flume have a copper sieve about fourteen feet in height from the bottom, and the conduit for supplying the city connects with this. Into this lower part of the flume 200 pounds of sponge will be packed, and thus all the water to be used will be filtered through this charcoal and sponge before it reaches the consumers."

The hints contained above may prove useful to other places where the water seems foul, dead, and unwholesome.

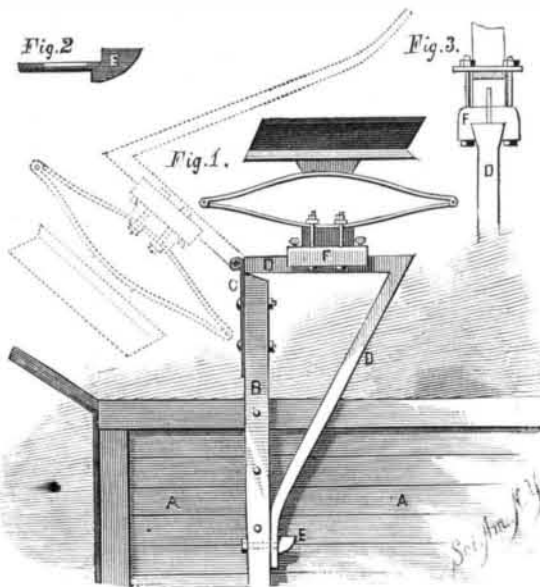
Enamel for Metals.

The following is said to form a good enamel for cast iron, wrought iron, or steel, and we are informed that it will not crack on being subjected to moderate changes of temperature. When an opaque enamel is required, let us suppose as a basis for vitrified photographs, about 8 parts of oxide of tin should be added. Take about 125 parts (by weight) of ordinary flint glass fragments, 20 parts of carbonate of soda, and 12 parts of boracic acid, and melt. Pour the fused mass out on some cold surface, as of stone or metal, and pulverize when cooled off. Make a mixture of this powder with silicate of soda of 50° B. With this coat the metal to be glazed, and heat in a muffle or other furnace until it is fused.

WAGON SEAT.

Bolted firmly to the side of the wagon body is a post, B, to the upper end of which is hinged the horizontal bar of the bracket, D, supporting the seat. The rear inclined brace is rigidly secured at its upper end, and is slotted at the lower end to enable it to pass over a key, E, held to the post by a nut. The brace locks behind a shoulder formed at the upper edge of the head of the key, which may be more surely prevented from turning by having its lower shoulder mortised in the face of the post. The seat is mounted upon a suitable spring fastened by bolts to a sliding block, F, between which and the spring is a wooden block. Each sliding block—a similar device is placed at the other side of the body—is fitted to slide back and forth upon the upper bar of the bracket (as shown in the cross section, Fig. 3), and is held in any position by one or more set screws.

To throw the seat forward, as indicated by the dotted lines, it is lifted at the back until the upper ends of the slots can pass over the shoulders of the keys, when it may be swung over as indicated by the dotted lines. In swinging the seat back into position for use the slots will pass over the heads of the keys, and a little greater down swing of the seat will cause the ends of the slots to fall, and lock behind



MILLER'S WAGON SEAT.

the shoulders. By removing the hinge pins the seat and brackets may be lifted from the wagon.

This invention has been patented by Mr. Alonzo Miller, of North Adams, Mass.

Photographic Notes.

FORMULAS FOR REDUCING OVER-INTENSE NEGATIVES.

At a recent meeting of the New York Society of Amateur Photographers, Mr. Newton called attention to the danger of the injurious action of hyposulphite soda, contained in the dividing paper frames, upon gelatine plates as they are at present put up and sold.

He exhibited several specimens in which the deleterious action of the chemical was distinctly visible. The general effect was to fog the edge, and frequently the whole of the plate, and thus seriously injure it for future use. As a remedy, he suggested that the plates be packed in tin or metal boxes, or that the division frames be varnished or shellacked, which would in a measure counteract any injurious effect of the chemicals contained in the paper.

Mr. F. C. Beach presented the following formula for reducing negatives, which had been given him:

No. 1.

Water..... 15 drachmas.
Chloride of gold..... 15 grains.

No. 2.

A Weak Solution of Cyanide of Potassium.

Water..... 8 ounces.
Cyanide of potassium..... 10 grains.

The plate to be reduced is soaked in water for a minute, and is then flowed over with No. 1 for half a minute; it is then washed, and flowed with the cyanide solution. The reduction takes place gradually, and if the first application is insufficient, the operation should be repeated.

A formula given by Mr. Newton was as follows:

Water..... 10 ounces.
Sulphate of copper..... 100 grains.

After the copper is dissolved:

Bromide of potassium..... 100 grains

are added, which converts the solution into bromide of copper.

One ounce of the above is added to two ounces of water; the plate is then soaked in this for a minute or two, washed, and put into a weak solution of hyposulphite soda for two or three minutes, and again washed. The manipulation may be repeated should the reduction be insufficient. The copper solution may be used over and over.

Another solution was:

Water..... 1 ounce.
Perchloride of iron solution, as obtained at the druggists'..... ½ drachm.

The plate is laid in this for two or three minutes, washed, put into a weak solution of hypo for the same length of time, washed, and dried.

A formula given by Dr. Janeway consisted in dissolving 9 grains of ferrid-cyanide of potassium (red prussiate of potash), by stirring with a glass rod, in 3 ounces of a 5 per cent solution of hyposulphite of soda, which is sufficient to cover a 5 x 8 plate, and should be mixed on the day it is used.

The action of the reducer is quick, and careful watching is necessary. With a camel's hair brush, which has been dipped in the solution, dense portions of a dry negative may be touched over and reduced. Care should be taken to wash off the plate after each application.

How to Photograph Paper Photographs.

In copying paper photographs the granular texture of the paper invariably injures the copy, making it appear to be covered with whitish dots.

A method practiced by Mr. Denier, a Russian photographer, says the *British Journal of Photography*, enables one to obtain a perfect copy in which all granularity is avoided.

On copying the original it was illuminated with a strong side light, so as to minimize the grain as much as possible to begin with. The negative was made tolerably vigorous, and then slightly retouched. In printing (using a registering printing frame), when the impression had attained somewhat about half its proper depth, it was removed from the negative, and a couple of thin films of gelatine—such as those used in packaging confectionery—were placed upon it, one of those films being tinted a pale blue, and the other colorless. The half printed sheet was next replaced over the gelatine sheets in exactly the same position as it previously occupied, and the printing continued until it was dark enough. By this method the details are printed first, while the second printing blurs and softens the picture, and prints out the granularity. An ordinary printing frame may be converted into a registering frame by placing a piece of sheet glass in the front, and laying upon the negative, which must have one corner and two sides abut against the interior sides of the frame. The other edges of the plate should be wedged between the sides of the frame. The negative being rigidly secured, the paper must be cut so that its top and one side, at least, shall form exactly a right angle. In replacing the paper in the frame, if care is taken that the two edges accurately fit the corner of the frame, it may be removed, the films inserted, and the paper again replaced, provided that the same edges strike the sides of the frame, without interfering with the result or overblurring the picture. Very soft and peculiar effects may be produced by this process.

Another method is to place the photograph in a strong side light, and in making half the time of exposure with the image exactly in focus on the ground glass, then capping the lens and moving the back of the camera slightly within the focal point, so that the image will be a little out of focus; then to expose one quarter of the time, recap the lens, and expose the last quarter with the rear of the camera slightly beyond the focal point. A negative will be produced in which all appearance of granularity is destroyed, and from which prints may be made direct without the necessity of double printing.

Remedy for Frilling in Gelatine Plates.

The tendency of the film on gelatine plates to frill and rise up off the glass during development is very common when the solutions are warm.

The *Br. Jour. of Photo.*, of a recent date, contains a remedy described by Mr. Watmough Webster, which, in his experience, has proved to be valuable and useful.

After the frilled negative has been fixed it is washed a few minutes, and then immersed in an alum solution for one hour; it is again washed and soaked for twelve hours—over night, for instance—in a dish containing alcohol; the dish should be covered with a sheet of glass to prevent the evaporation of the alcohol. At the end of twelve hours the frilling or blistering will have entirely disappeared.

The Wagner Institute.

The venerable Professor William Wagner is an unobtrusive but most efficient benefactor of Philadelphia, of whom many citizens know little or nothing. The Wagner Free Institute of Science is an establishment entirely of his own creation, which for many years has been doing inestimable good in the northwestern part of the city. There he has collected in commodious buildings a library, collections of natural history, philosophical apparatus, and many of the most costly and useful features of a great institution of learning, which are open free to the public; while lectures—also free—are delivered by scientific men every fall, winter, and spring, which are attended by thousands of young people whose means do not permit them to procure education elsewhere. Professor Wagner has founded and endowed his Institute liberally, and according to the *Philadelphia Evening Bulletin*, he has just added to the endowment a gift of thirteen fine new dwellings, costing \$165,000, which have been conveyed to the trustees, who will have the rental to use for the establishment. The whole value of Professor Wagner's gifts to the Institute is over \$600,000. It is safe to say that no other Philadelphian has, during his lifetime, been so wisely generous to the public as Professor Wagner. His Institute was founded about thirty years ago, and he has reached the great age of ninety-two years. But he still takes an active interest and pride in his work, and it is hoped that he will live long to enjoy it and to render it still more efficient.