

## PORCELAIN PICTURES.

Next to ambrotypes, the printing of pictures on porcelain glass is one of the most rapid and easy of photographic processes. For this purpose the collodio-chloride of silver, or sensitivo collodion, first made known by Mr. Simpson, editor of the London *Photographic News*, is now extensively employed by the best artists, with splendid results. We have seen many beautiful specimens, and we use it in our own laboratory with satisfactory success.

Our photographic country readers will be enabled to produce porcelain pictures without the least difficulty by observing the following directions and formula, which we find in a recent number of our elegant cotemporary, the Philadelphia *Photographer*:—

Cleanse the porcelain glass thoroughly; beat to froth the white of one egg in an ounce of water, and let it subside; pour off carefully without filtering; flow the plate carefully with the albumen, and place at an angle to dry on blotting paper. When the plate is thoroughly dry, flow with sensitive collodion prepared as follows:—Plain collodion, 2 oz.; chloride of strontium, 3 grains; nitrate of silver, 20 grains; citric acid, 4 grains.

The last three ingredients should all be dissolved in water, using only enough to accomplish the purpose. The silver should be added, a few drops only at a time, and the whole well shaken after each addition.

The sensitive collodion must be carefully preserved in the dark or in bottles which exclude light. The flowing of the plates must also be done in the dark room. When the plates are thoroughly dry they are ready for use, and the printing is done in frames, the same as paper printing, the time required being also about the same. Print to a reddish brown color.

For toning use—water, 3 oz.; chloride of gold solution, 3 or 4 drops. Neutralize the gold with chloride of calcium, and tone to the color desired. After toning, wash the picture well under the tap, and fix in hyposulphite of soda, 2 oz. to the quart of water. The pictures should not be left in the fixing solution over five minutes. When removed, wash the same as a negative, drain and dry; then varnish.

When the pictures are to be colored, they should be done on porcelain glass the surface of which has been ground, and the albumen should be only half as strong as the formula first given.

The enterprising photographer can, by this process, take the negative, print, and deliver the porcelain picture if the light is good, within thirty minutes, it required.

## ANOTHER TRIAL IN WORKING STEAM.

An attentive correspondent forwards us two long columns of the Chicago *Tribune* devoted to an account of a new steam boiler. It is headed in large letters, "A NEW MOTIVE POWER—DANFORD'S STEAM GENERATOR—A PROBABLE REVOLUTION IN STEAM."

There is first a detailed history of the invention, in which this statement occurs:—

He looked over what authorities he could find on the subject of steam in its various conditions—particularly in regard to superheated steam. He found that while its power was recognized and defined, yet its employment was not considered either safe or economical; and, indeed, that little headway had ever been made toward its introduction as a motor.

Then comes the description of the boiler:—

Mr. Danford's boiler differs from the ordinary boiler in having no water in it—nothing but highly rarified steam, which is generated as fast as consumed by the engine. Instead of a boiler he calls it a "generator." His generator consists of a hollow cast-iron globe or large pot, 2½ inches thick, suspended in an ordinary furnace, as a pot or kettle may be suspended over the fire. There is a casing to inclose the fire and conduct it around the generator and up the chimney, where, by the way, much caloric is usually wasted. An iron tube, made of ½-inch gas pipe, enters the globe or generator at the top, and is conducted down to its center, where it terminates in a rose sprinkler, perforated with forty or fifty fine holes. By means of an injection pump, about a table-spoonful of water is forced into the generator at each stroke of the pump, in the form of spray. This spray does not come in contact with the sides of the generator, for before it can reach that far it is expanded into hot steam. No explosion can take place, because there is no water in the generator to explode. The water from the tube is already exploded on entering the generator; that is, it passes instantaneously from the state of spray into that of superheated steam. No farther expansion is possible. If the superheated steam should separate into its constituent gases—oxygen and hydrogen—they would produce no greater pressure nor expansion.

## REPORT OF THE ILLINOIS EXPERTS.

Recently Danford's machine was tested against a fifteen horse-power engine with locomotive flue boiler, eight-inch cylinder and fifteen-inch stroke. The same engineer attended each, and weighed the coal and measured the water. The trial lasted three days. The work done was grinding corn, and the following was the result:—

	15-horse engine and boiler.	Danforth's Generator and 5-horse engine.
Fire surface.....	310 feet.	22½ feet.
Pressure per inch.....	40 lbs.	110 lbs.
Coal consumed per hour.....	101½ lbs.	85½ lbs.
Water evaporated per hour.....	80 gals.	25 gals.
Corn ground per hour.....	18 bush.	27 bush.

Our correspondent invites our comments on this invention, and, in return for his courtesy, let us say that spray boilers are old affairs. It was long since perceived that the disastrous effects of boiler explosions result mainly from the vast volume of steam that is formed after the boiler gives way, by the conversion—under diminished pressure—of the highly heated water into steam; and spray engines were suggested to obviate the danger.

It has also long been known that superheated steam may have any pressure at any temperature, less than that of saturated steam at the same temperature.

One of the first steam boilers used was a cast-iron pot. In the early part of the century, such a boiler was employed for propelling a small boat on a pond in this city. The manifest objection to cast iron for a boiler is, that the necessary thickness of the walls obstructs the transmission of heat from the flame to the water. A boiler which interposes a wall 2½ inches in thickness between the fire and the water must necessarily waste nearly all the heat.

It has long been understood that the proper place for the fire is within the boiler, where it can be surrounded by water spaces. In the arrangement described the greatest possible loss would occur from radiation.

Finally, the value of statements depends entirely on the person who makes them. The results of the trial reported above are so improbable that they would hardly be accepted on the authority of Fairbairn, and when given on anonymous authority they are not worth examining. It is easy to conduct experiments so that they will apparently prove anything that may be desired; the rare and difficult thing is to conduct them with such calm and dispassionate desire to get at the facts, and with such intelligence, patience, and care, that they will prove the truth.

## PATENT-OFFICE DECISIONS.

Before the Board of Examiners-in-chief, on appeal. ELISHA POORE, Examiner-in-chief; S. H. HODGES and S. C. FESSENDEN.

*Sheet-metal Pails.*—The applicant devised an improvement in the mode of attaching the bottom to sheet-iron pails. His device was found to have been anticipated, and patents granted for it. He then amended his specifications and claimed the whole pail, under some supposed virtue in the phrase, "new article of manufacture," and his counsel now explains that the improvement over the cases referred to consists in galvanizing the outside.

The patent laws require that an applicant shall particularly specify and point out the part which he claims as his invention, so as to distinguish the new from the old. If the galvanizing be the novelty relied on, it should be so stated and claimed, that the Examiner may investigate and pass upon that particular point.

The decision of the Examiner is affirmed.

*Tubing Oil Wells.*—We apprehend that the Examiner has not investigated this case with reference to the principles that we think properly apply to it. As we understand it, the application is for an improved process rather than for machinery. The applicant professes to have discovered a new mode whereby the flow of oil from wells may be continued after it otherwise would cease. This he effects by shutting off all escape of gas or fluid from the well until a pressure has accumulated sufficient to force out a column of oil. Then the oil is drawn until the pressure is exhausted, when the tube is reclosed and the pressure renewed, and so on. To carry out the idea, tubes of suitable shape and size, and provided with stop-cocks, are inserted into the well and packed air tight.

The essential feature, or, as it is sometimes termed, the principle of the invention, is not the particular means adopted for the practice, but the process itself; and if that be really new, and produce valuable results, the applicant is entitled to a patent. Although the tubes, stop-cocks, and other means used, be old, their want of novelty, or, indeed, their change or variation, will not affect a patent for the real discovery.

The decision of the Examiner is reversed, with a view to a further examination of the case.

*Table Cutlery.*—The applicant has combined with a fork or other article of cutlery a sharpener, to sharpen the knife. The improvement dispenses with a separate article for that purpose, and has great convenience in use. The claim is for the combination of the sharpening device with a knife, fork, or other cutlery, substantially as described.

The Examiner rejected the claim on the ground that there was no patentable combination between a fork and sharpener—that a combination, to be patentable, must produce an effect not common to the parts separately.

We think the Examiner has been led into an error in his application to this case of a well-known principle. There are many machines that consist of combinations merely of well-known parts, and in such cases, it is true, there must be a new and useful effect produced to sustain a patent. But there is another class of devices in which the same tool or instrument is made to perform several offices, or in which several tools are combined in one, such as a cane and a gun, a saw and a square, a bureau and a bedstead, a theodolite and a compass, and such like cases, for which a great many patents have been granted; and when such combinations are the result of invention, and are new and useful, we are not aware of any objection to their patentability. If, therefore, the combination be new, we think that the applicant is entitled to the claim he has presented.

The decision of the Examiner is overruled.

*Design Patent.*—The applicant uses dark-colored furs for his groundwork and on them attaches white tufts, arranged in rows, and claims a patent for the ornamental design.

Dark grounds, with light-colored spots, arranged in almost every variety of form, is a common mode of ornamentation. It is formed on paper hangings, curtains, carpets, calicoes, cloths, silks, and almost every other article to which colors have been applied. Furs have also been ornamented by putting black spots or ermine, and arranging different colored furs in a variety of ways.

Applying a very common and well-known design to furs cannot properly be called a "new and original design," or come within the intent of the statute, which contemplates "industry, genius, efforts, and expense" as the subject of the reward. Besides, the Examiner states that "dark-colored furs ornamented with light tufts are very common, and may be seen on sale in any fur establishment." This does not appear to have been denied or a more specific reference called for.

The Examiner's decision is affirmed.

## NEW BOOKS AND PUBLICATIONS.

*THE HOLIDAYS.*—We have received from Messrs. L. Prang & Co., art publishers, No. 192 Washington street, Boston, some of their beautiful publications, designed for the holidays. Album pictures, in oil colors, 50 cents per set, of twelve cards. Christmas stocking library—six different stories, put up in a nice ornamented paper box. Pocket card albums—a patented article—a very neat and agreeable present. Album of Cuba, part 1, containing four views in oil, copies from original oil paintings. These albums are very beautiful, and exhibit much skill. We advise our readers who wish to purchase holiday gifts to send for Messrs. L. Prang & Co.'s circular.

*AURORA FLOYD.*—By Miss Braddon—published by the American News Co., No. 119 Nassau street. This is a volume of 372 pages, very neatly printed, and handsomely bound; price, \$1 75. Like other novels of Miss Braddon's it is well written, and very entertaining.

The American News Company publish several excellent works, and can supply at the lowest price all the chief publications in the market.