

**Improved Photoscope or Panorama Album.**

Photographs are now so common, cheap, and durable that it is desirable to have something more convenient than the common photograph album for their classification, preservation, and display.

The invention we herewith describe and illustrate is designed to do this permanently, and to that end is constructed of metal and glass only.

It is a sheet metal box with a glass top and bottom. Fig. 1 shows it in perspective as mounted on a suitable stand. The box is composed of two similar rectangular inclosures, one of which slides into the other. Across the middle of the interior of the box there is a partition composed of two pieces of sheet metal, one of which is soldered to one portion of the metallic case, and the other to its counterpart, as shown in the sectional view, Fig. 2. These pieces lap each other as shown in Fig. 2, and are so made as to leave the thickness of two cards between the glass and the edge of the partition.

To the under side, and at one end of the glass top and bottom, are cemented narrow strips of glass, extending from the end of the case to within a short distance of the partition, as shown in Fig. 1; the ends next the partition being beveled off.

At each end of the box there is a thumb-screw for adjusting the size of the box to any number of cards. These thumb-screws are turned down when the instrument is not in use.

A number of cards—always an odd number—being cut to fit the chambers formed by the middle partition; if we suppose—say twenty-five, to be put into the chamber having the glass strips above described on the bottom side, and twenty-four in the other chamber, the pile of cards in the former will be higher than that in the latter chamber, so that there will be one card above the partition. If now the box be lifted and slightly inclined so that the end having twenty-five

bolt and yoke, completely corroded away, and the surrounding parts greatly weakened. These cases show the necessity of stopping all leaks about boilers at once; the work of corrosion is so insidious and one never knows the danger they may be exposed to. Two safety-valves corroded first in their seats, and need no comment to show that there was careless management.

Those who have the care of boilers cannot be too attentive

There is a small device in the top of the spindle for taking up the backlash and preventing a break when the tool comes through the bottom of the piece drilled.

These drills are back geared, have steel spindles, self-oiled bearings, and power feed.

The castings weigh from 1,500 to 4,500 pounds, and are sufficiently heavy and strong to prevent spring.

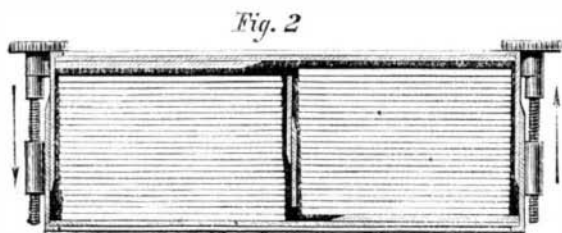
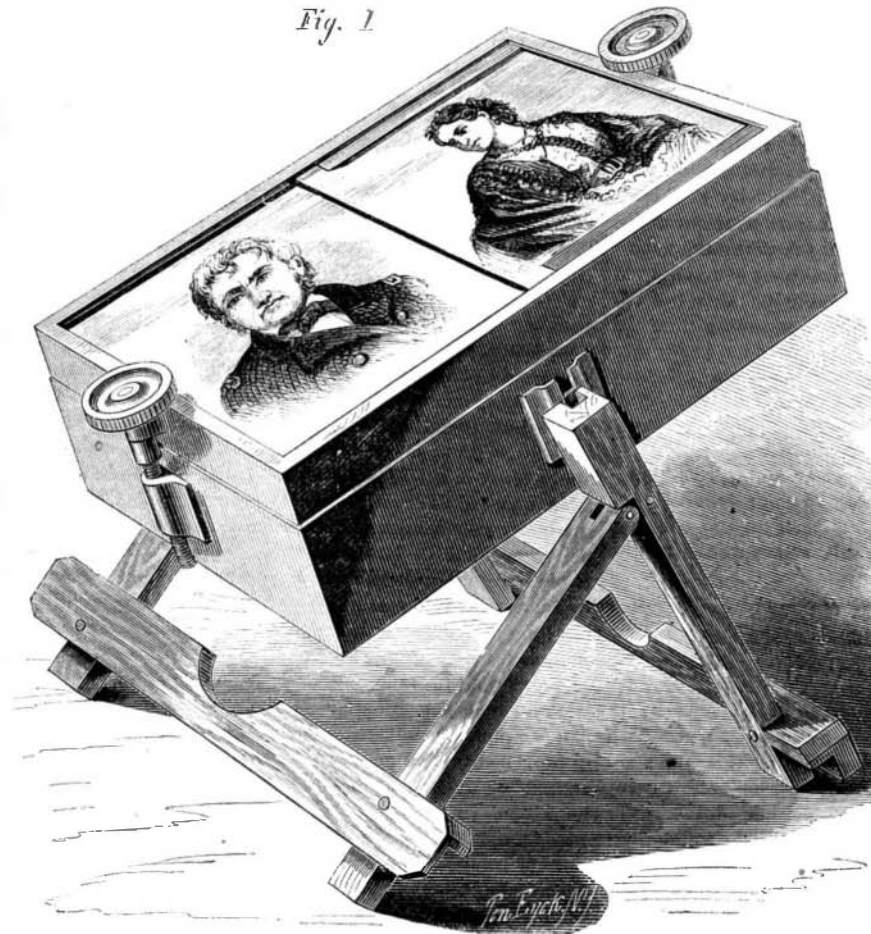
Specimens can be seen at S. A. Wood's machinery depot,

91 Liberty street, New York, and at Rhode Island Locomotive Works, Providence, R. I.

These drilling machines are manufactured by the Assonet Machine Company, at Free-town, Mass. Address Thomas G. Nichols, Treasurer.

**Missouri Tin.**

About two years ago considerable interest was manifested in regard to the discovery of very extensive deposits of tin ore in this State, and land owners and speculators were accused of having the "Tin Fever." Weeks and months were spent by prospecting parties, and all the tin lands that could be purchased at reasonable rates changed hands. One company was organized, and invested about \$80,000 in tunneling the hill and in work preparatory to the erection of a furnace. But their work has been stopped for several months—whether from want of capital, or energy and enterprise, we are not informed. Meanwhile, they have discovered tin ore in California, which is said to be inferior to the Missouri ore, and we now see by a California paper, that "The first article of tinware manufactured from tin mined in the United States has just been completed in San Fran-



**BROWNLEE'S IMPROVED PHOTOSCOPE.**

cards shall be uppermost, a card will slide across the partition on that side which is inclined under, and by turning the case so that the other end shall be uppermost, a card may be slid from the second chamber back again to the first, so that each card in the case may be successively brought to view.

The cards are each made up of two photographs with their backs pasted together, in such a way that a uniform thickness may be secured.

In order to do this the cards are sorted and arranged in small lots, until the proper thicknesses are secured. They are then numbered as a guide for pasting and also for cataloguing.

The instrument could be employed as a children's toy, using, instead of the photographs, letters or figures, or toy pictures. The cards might be made of sheet metal, and the same principle might also be extended to clock dials.

The stand which supports the instrument can be folded together so as to occupy very little space.

This instrument was patented, through the Scientific American Patent Agency, November 23, 1869, by George Brownlee, of Princeton, Ind., who will negotiate for the sale of the patent, and who may be addressed for further information.

**The Hartford Steam Boiler Inspection and Insurance Company.**

The Hartford Steam Boiler Inspection and Insurance Company makes the following report of its inspections for the month of December, 1869:

During the month, 341 visits of inspection have been made; 575 boilers examined, 492 externally and 192 internally; while 57 have been tested by hydraulic pressure. Number of defects in all discovered, 341, of which 30 were regarded as dangerous. These defects in detail are as follows:

Furnaces out of shape, 16; fractures, 34—1 dangerous; these too often result from urging the fires too fiercely, especially when "getting up steam" from cool boilers. Instances are known where furnaces or fire-boxes have been badly distorted by carelessness of this kind, and in internally fired boilers the tubes or flues heat more rapidly than the surrounding shell, and expand at a much greater rate. When boilers have been allowed to cool, the next time they are worked the firing should be slow and moderate at first, so that the heat may be diffused gradually, and the evil arising from undue expansion and contraction prevented as far as possible.

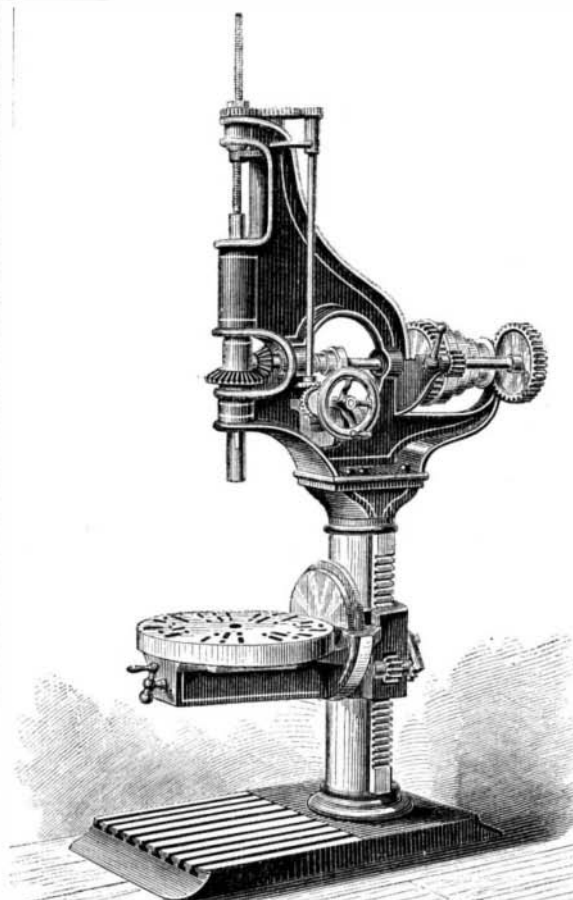
Burned plates, 33—4 dangerous; blistered plates, 36—5 dangerous; incrustation and scale, 73—7 dangerous; external corrosion, 19—3 dangerous; internal grooving, 5; water gages out of order, 8; blow-out apparatus out of order, 3—1 dangerous; safety valves out of order and overloaded, 22—4 dangerous; steam gages out of order, 40—2 dangerous, varying from 5 to + 25; boilers without gages, 2—2 dangerous; cases of deficiency of water 1—1 dangerous; insufficient staying, 2 cases.

Of the cases of external corrosion, one was found where the sheet was corroded for 2½ feet, so that a light tap of the hammer would penetrate it. This boiler was bricked in, and the evil arose from a leak in the joints. We not unfrequently find cases similar to this, though not in the same degree. Another case, two boilers were found with hand hole plates,

to their duties. All the parts and appliances of the boiler should receive frequent and careful attention, and it should be the pride of every engineer and fireman to have everything in his care neat and in order.

**IMPROVED PATENT VERTICAL DRILL.**

This machine differs from the original drill, patented by N. P. Eddy, April 24, 1866, patent No. 54,248, in this important particular, that the drilling table turns (from a horizontal to a vertical or intermediate position) on a center in the plane of its face.



There are five different independent motions of the table; namely:

- 1st. Turning, as above described, for angular drilling.
- 2d. Turning on its own center while in any position.
- 3d. Sliding to or from the post.
- 4th. Raising or lowering on the post.
- 5th. Turning around the post to bring the work in place, or to be out of the way while using the platform table.

By means of these motions a piece of metal once fastened to the table can receive the drill in any direction without being removed from the table.

cisco."

Numerous assays have been made of this ore by chemists and assayers of national reputation, who have repeatedly stated here that the ore will yield from 3 to 5 per cent of pure tin; yet, when they reach the Atlantic cities, where the tin importers hold sway, they fail to find tin in paying quantities.

Chemical analyses and assays are not wanted now; but, instead, we need a furnace to smelt the prepared ore and produce the pigs and bars of tin. A test furnace need not be very expensive, and this question, if decided affirmatively, will be of the greatest importance to this city, State, and the whole nation, as the importation of foreign tin into the United States now amounts to from five to six million dollars annually, and is constantly increasing. Who can say that the practical investigation of this subject will not prove as satisfactory as the experiments in smelting iron with our native coals?—*The Iron Age.*

**Recutting Files with Acids.**

By request, we republish the recipe for recutting files with acids, as patented by Albert I. Ferguson, of Sharon, Pa.:

"The files must be thoroughly cleansed in warm water containing a small quantity of potash, which readily removes any grease or dirt from them. After the files are thus cleansed, they must be washed with warm water and dried by artificial heat. Next, place one pint of warm water into a wooden vessel, and put into it as many files as the water will cover. Then add two ounces of blue vitriol, finely pulverized, and two ounces of borax, well mixed, taking care to turn the files over, so that each may come in contact with the mixture. To the above mixture now add seven ounces of sulphuric acid and one fourth of an ounce of cider vinegar, which will cause the files to assume a red appearance at first, but they will, in a short time, resume their natural color. Then they must be removed, washed in cold water, and then dried by artificial heat. When dry, they must be sponged with olive oil, wrapped in porous paper, and laid aside for use."

WHO MADE THE CARDIFF GIANT.—T. Mohrmann, of 146 North Water street, Chicago, writes to the *Chicago Tribune* that he and an assistant cut the Cardiff giant from a block of gypsum provided for the purpose. He further states that George Hull, formerly one of the owners of the giant, agreed to pay \$150 for the work, which he has neglected to do, and hence Mohrmann does not feel bound to keep the secret. He adds that both himself and the assistant spoken of, will make affidavits as to the truth of his statement.

A BALTIMORE gentleman has converted the roof of his stable and carriage-house into a garden for the purpose of growing ornamental plants. Water is conducted to the top of the building by means of pipes, for convenience of watering the flowers in dry seasons, and to supply a fountain which he contemplates erecting in the center of the garden. Many of the inhabitants of large cities would find a similar utilization of the flat roofs of buildings a source of pleasurable, healthful, and instructive recreation.