

Fig. 1, A represents the side of the stove: B the ends: C gates in the ends: G is an additional section, placed under the resin holder, H, where the resin is melted: I is a stop cock: N, movable head screwed to the retort by bolts: T the cooler, supplied with water, covering the outlet pipe through which the gas passes down to the condenser.

Fig. 2, C represents gates in the ends: D, the grate bars: E, a plate near the top of the stove, to spread the heat to the ends of retort: F, a sliding damper, by which the heat may be thrown directly under the resin holder, or up the chimney: J, is a funnel and descending tube: K, an ascending tube rising from the front end of the retort, and extending an inch or two above the lower end of J: L, a retort of a D form, with the arch springing high from its sides, the bottom perfectly flat: P, P, clamps securing the ground heads of the retort: the rough lines under the retort represent the fuel: the lines in the retort represent the coke charging: the plug at the end of the outlet pipe can be removed, and an iron rod inserted, to remove any obstructions: the stop cock immediately over the outlet pipe is used to blow off gas when it is made too rapidly.

For the Journal of the Franklin Institute.

Remarks on the Indicator Diagrams of the Steamer "Magnolia." By S. H. GILMAN, Esq.

To the Committee of Publications:

GENTLEMEN:—The steam gauges used on the steamer *Magnolia*, (the subject of my communication of Feb. 24th, p. 258,) were of the mercury compressed air variety, made by Borden, of New Orleans, and graded to the pressure of an open column of mercury, by which they were readjusted before leaving port on that trip. One was attached to the steam drum, (26 inches in diameter and 20 feet long,) laying transversely on the top of, and attached to all of the boilers; the other was attached to the steam pipe, three feet above the cylinder; there could not be any variation observed between the two. It is well known that on gauges of this description the index points for high pressures are exceedingly fine, and it is somewhat difficult to determine the exact pressure indicated. The indicator was verified by weights on its piston, and found to be correct, and was repeatedly examined to ascertain if the indicated vacuum was not due to some derangement; but the instrument was believed to be correct and in good order. After noting, with no little astonishment, the apparent identity of boiler and initial cylinder pressures on the first cards taken, they were observed with the utmost care, and if any difference existed between the two gauges, or the gauges and indicator, the instruments were not uniformly graded, which is quite possible. The great diameter of steam pipe and pressure of steam is, however, a great reason, and perhaps a sufficient one, why there should be no perceptible difference indicated by the gauges used; by a more sensitive gauge like the *aneroid*, a marked difference could probably be observed.

The anomaly of a vacuum in an exhaust steam pipe open to the atmosphere, has frequently been observed by the collapsing of such pipes when made of too thin copper, and especially when used for heating cane

juice. A pipe, 5 inches in diameter and 240 feet long, open at the end to the atmosphere, and made of 20 pound copper, with the steam from a 15 inch cylinder, 5 feet stroke, exhausting through it, collapsed 60 feet of its length when cane juice of a temperature of 70° Fahr. was poured on it. Upon attaching an air pump to the same pipe, it required an atmospheric pressure of 20 inches of mercury to collapse a portion of the remaining piece. A safety valve pipe, 3 inches in diameter and 12 feet long, made of 18 pound copper, was observed to collapse upon closing the valve suddenly while steam was blowing off. It was observed when using the indicator on the *Magnolia*, that a medium initial cylinder pressure, with a full supply of cold water to the heaters, always produced a marked vacuum in the cylinders, while a maximum or minimum pressure of steam in the cylinders produced a less marked effect.

Respectfully, &c.

Cincinnati, April 18th, 1853.

Process for taking Photographic Landscapes on Paper. By JNO. STEWART, Esquire.*

Allow me to request your insertion in the *Athenæum* of the annexed communication, on the subject of Photography, in the form of a letter to myself from my brother-in-law, Mr. John Stewart, resident at Pau,—who has been singularly successful in his application of that art to the depiction of natural scenery,—and whose representations of the superb combinations of rock, mountain, forest, and water, which abound in the picturesque region of the Pyrenees, are among the most exquisite in their finish, and artistic in their general effect, of any specimens of that art which I have yet seen. The extreme simplicity of the process employed by him for the preparation of the paper, its uniformity, and the certainty attained in the production of its results, seem to render it well worthy of being generally known to travelers. It need hardly be mentioned that the 'air-pump' employed may be one of so simple a construction as to add very little to either the weight, bulk, or expense of the apparatus required for the practice of this art. The obtaining of a *very perfect* vacuum, for the imbibition of the paper, being a matter of little moment, a single barrel (worked by a cross handle by direct pull and push), furnished with a flexible connecting-pipe, and constructed so as to be capable of being clamped on the edge of a table, would satisfy every condition.

I remain, &c.

J. F. W. HERSCHEL.

32, Harley Street, Dec. 7.

My Dear Herschel,—Thanks to the valuable indications of Prof. Regnault, of the *Institut*, I have been enabled to produce, what appear to me, most satisfactory results in *Photographic Landscapes on Paper*. In this remote corner (so deficient also in resources for experiment) I feel that I am but very partially acquainted with the results obtained and the progress making in the great centres, Paris and London; but I think that, in detailing the simple process and manipulation I now adopt, indications of some value, and suggestive of further improvement to fellow-laborers in the art, may be found; and if you are of the same opinion, you will per-

* From the London Athenæum, December, 1852.