English Cheap Plated Works.

The plating is of various qualities, and there are various frauds connected with its manufacture. The Birmingham ware has a thin coating of good gold, the London ware is thicker, but of an inferior quality.

The following is the plan adopted by the Birmingham platers:—A piece or plate of yellow brass (say an inch in thickness, and of any length and breadth the manufacturer may require) is planished (i. e., hammered flat and smooth), then filed until no mark of oxidation or impurity remains upon its surface; it is then carefully rubbed over with borax mixed with water, which treatment preserves the surface of the metal during the heating operation. A piece of gold, varying in thickness according to the quality of plating required (but to make it pretty good, the gold should be at least 1-10th the thickness of the brass,) is then fastened on the surface of the brass by means of clamps (pieces of iron plate so constructed as to bind both metals together to prevent warping); the two metals, thus confined together, are put into a furnace, and heat applied until the gold or alloy of gold, being more easily fused than the brass, or also by the aid of the borax flux intervening between the two plates, becomes fused, or soldered to the other; the clamps are removed, and the two now united plates, viz., gold and brass, are cleaned by means of dilute sulphuric acid, afterwards rubbed with sand to remove any oxide or other objectionable matter that might interfere with its smoothness of surface. The sheet is then passed between rollers (occasionally annealing to soften it after the action of the rollers), until it is of the requisite thickness. The gold is of good quality, otherwise the fusing of its surface to that of the brass would be attended with the probability of a disunion of its particles, in which case it would not be sufficiently ductile to permit of its extension without separating from the brass, so that it is more economical to use a better alloy of gold, about 18 carats, than to run the risk of employing an inferior alloy, where failure in the result would be more probable, especially as the good gold, being more malleable and softer, corresponds better with the comparatively soft nature of the brass; so that the two metals or alloys of metals, when united, roll well together. When rolled down to a certain thinness, it is worked nearly by the same methods as if it were all one metal —always taking care to expose the "best side out." By this system articles are made which at first present the appearance of gold to the ordinary observer, but which are only brass articles, with a pellicle of gold on the surface—in many instances as thin as gold leaf. This soon discovers itself to the purchaser, who has no alternative but to get the otherwise useless ornament gilt. This kind of goods is made in immense quantities in Birmingham,—their cheapness, except where *very* gross imposition is practised, being the inducement held out to purchasers.

In London manufactories, the system is both different in process and in the purposes to which it is applied; it is usually employed for the purpose of giving artificial strength, where the price would not be sufficient to remunerate the manufacturer if he used all gold of a proper thickness for his purpose. In the first place, the gold used is not so good in quality (about 12 carats, or one-third less in value than that used by the Birmingham platers). Secondly; it is not united by fusing the alloy of gold on the surface of the brass; but by soldering the two plates together with silver solder. And thirdly, the gold used does not form less than one-third of the entire substance when rolled, and, instead of being, like the Birmingham plating, perhaps 1-17th gold to 1 of brass, it is only two brass to 1 gold, so that were it not for the purpose of additional strength, it would be scarcely worth while to take the trouble of plating for the slight advantage gained. The London workman's method of plating is as follows:—He takes a piece of gold of the thickness of 1-16th of an inch, and any size, superficially, that he may require for the work about to be manufactured; he cleans one side in the manner above described; then he takes a piece of brass, of the same superficial size, but of ⅛th of an inch in thickness, the surface of which is also cleaned and prepared with borax; then a piece of silver solder of the same size, but rolled until it is not thicker than paper, is carefully cleaned and boraxed, and the three metals are then tied together with strong iron wire to prevent warping, the solder, of course, intervening between the sheets of gold and brass; heat is then applied (usually by the blowpipe), until the solder, in consequence of its easy fusibility, "runs" or melts, thus uniting the gold and brass together. The sheet is then rolled to the thinness required, and it may be used for almost the same purposes as gold itself. The manufacture of plated work is, to the goldsmith, a labor of difficulty, as all the edges of the article, when finished, must be so contrived as to be entirely covered by a gold surface, otherwise, whenever a section occurred, the base metal would be perceptible; this object is attained by filing away the brass at the inner angles of the juncture in a similar manner to that in which veneered work is joined by cabinet makers. The process of making plated jewelry may be considered a kind of veneering with metals; and the art has been brought to great perfection, as many excellent workmen have been deceived by mistaking a well-plated London-made article for a solid gold one. Another system is practised to a great extent, by which a large article of jewelry may be made to appear very heavy, and, seemingly solid, with a very small amount of gold. A thin plate of gold is "struck up" into any form required, in a steel die; this hollow shell is then filled by fusing into its cavity a quantity of silver solder; a corresponding half is then affixed, also filled in the same way, and heat applied until the solder runs: the two halves are thus firmly united, and the whole appears one heavy mass of gold. It was by this plan that the old fashioned watch seals were made, too often leading the wearer to suppose that, by their ponderousness, they were very valuable.

For the Scientific American.

Steamboat Explosions and the Law.

Let me indulge myself a few moments in writing the thoughts which arose in my mind after hearing of the explosion of the Knoxville.

I asked of myself the cause of the inefficiency of the Act of Congress, passed in 1838, "to provide for the better security of the lives of passengers on board of" steamboats? It struck me at once that the main defect of the law was in conferring upon the Federal Judges the authority of appointing the Inspectors. Firstly, the judges generally lack the knowledge and experience necessary to enable them to make a proper selection, though, no doubt, they all desire, sincerely and honestly, to do their duty. Secondly, the appointment once made, the judges necessarily lose sight of the man upon whom their favor has fallen; that is to say, so far as the performance of the duties are concerned, for I suppose that, of course, the amenities of friendly intercourse are continued between the patron and his client. Thirdly, the appointing power is divided, and exercised in different parts of the Union by different men, who have no control over each other, and little or no intercourse. This is the main objection to the law. All concert, all unity of action, all tendency to the attainment of a general good is prevented and lost. A steamboat which cannot pass muster in one port, frequently gets a certificate in another. No standard of quality can be adopted; what requirements should constitute a safe boat, cannot be settled; no progress can be made in the rules of inspection and licensing, so as to keep up with the improvements and discoveries of the age. The agents of authority each act in their separate sphere, according to no common test of excellence or quality, but according to the lights they respectively possess. I am confident that the Act of Congress has done little or nothing for the safety of persons or property.

Now, is seems to me, the appointing power should be *a unit*, controlled, if you please, by a board, and that it should be confided to a man of practical and theoretical knowledge in mechanics; one who has constant opportunities of obtaining information in relation to steam engines, navigation, explosions, manufacture of machinery—one who has time and ability to watch over the manner in which the Inspectors perform their duties. I would have this officer vested with power to issue instructions to the inspectors in relation to tests, as well as in relation to the standard of qualities to be required for the granting of the certificate; that he should make inquiries into the causes and statistics of explosions, and the means of preventing the evils complained of. He should also report to Congress, and suggest such modifications as experience and the progress of science may require. Add to this the power of removing inspectors, and you will have an efficient law—better at least than the present one—a law, the good effects of which will be soon felt from one end of the Union to the other.

As it is, we are, to say the least, in a state of powerless *statu quo*, so far as steamboat explosions are concerned.

In conclusion, I suggest that the Commissioner of patents would be the proper officer; but, be that as it may, I insist upon the main idea above expressed. YANKEE CREOLE.

New Orleans, Dec. 21, 1850.

Baths and Laundries in London.

In London, although there is much destitution, still, we believe, there are more excellent charitable institutions in it than in any other city in the world. The St. Martin's Baths and Laundries is a building behind the National Gallery, and is very handsome, being in the Tudor style.

The edifice may be generally described as consisting of three stories—a sunken basement in the boiler-house, with machinery which supplies cold water to the boilers, and distributes cold water, hot water, and steam, to the whole building. Hot air is supplied from a separate source. A tall tower-chimney at the top completes the arrangement to secure a managable draught, avoilable for purposes of ventilation and drying. At the top of the house is the residence of the manager. The water is the limpid element supplied by the Artesian well on the spot—a flood of brilliant crystal.

The baths are seventy in number; about eighteen are set apart for women; about one-third are parted from the rest and used as "first class" baths; the second class baths have a separate entrance, and are in a separate portion of the building. In the first class, each bath-room contains a bath, looking-glass, chair, shelf, foot-trellis and carpet, and other conveniences; the bather is allowed two towels, hair-gloves, &c.; the charge is sixpence for a warm bath, threepence for a cold one. The arrangements for filling and emptying the baths are excellent, the hot or cold water bubbles up from one end, and the bath is filled in a few seconds; it is emptied as rapidly. The water once admitted to the bath *cannot* be used again; but after one washing it runs into the main sewer, and contributes to a powerful "flushing" of that drain. In the second class the arrangements are almost the same, except that the bather has only one towel, and has no carpet or trellis; the charge is twopence for a warm bath, a penny for a cold one.

The number of boxes for washing clothes is fifty-six, each with its ironing box beside it The washing box contains a boiler, equivalent to the "copper," supplied with warm and cold water from a turncock; the boiler has a moveable wooden cover, and the water is made to boil by the admission of steam. Next to the boiler is the washing tub. Fitted to the wall, above the height of the washer, is a sort of broad, shallow cupboard, of which the bottom opens downwards, and from it is pulled down a clothes horse; the clothes are hung upon this horse, it is raised again by balance-pulleys, and enclosed in the cupboard; hot air, of regulated temperature, is admitted, and let off loaded with moisture, at intervals; and in a few minutes the clothes are effectually dried. The ironing boxes, each contiguous to its washing box, form a separate range, shut off from the moist washing place by doors. A stove heats the irons. The supply of water is unlimited. The charge for each washing box, with its accompanying conveniences, is one penny for the first hour, two-pence for the second, three-pence for the third and each subsequent hour.

The baths were opened in Jan. last, (1850) and the demand has exceeded every estimate. Immense nnmbers are waiting to take their turn. Persons of all conditions use the baths —from common laborers to men who must be be called "gentlemen" in ever respect of feeling, wealth, and social station. The total number admitted last week was 4,083; the total number from the 24th January to Saturday last was 154,000.

The second class baths do not "pay"—that is, the cost of the bath exceeds the price charged; the first class baths return a compensating profit, with a surplus. It is calculated that the first hour, for which one penny is charged to the washer, will not "pay," and three-pence for the third hour will only comcompensate the loss on the first. The object of the scale, which may still be revised, is to check waste of time in dawdling—to admit as many as possible, and to secure *some* use of the laundry for the very poorest. The servants of the establishment of course are paid; but the managers acting for the parish receive no emolument, enjoy no privilege—paying for their baths like the rest of the public. Any surplus revenue must, by the act of Parliament, go in diminution of the poor-rates

[Such an Institution in New York would be of great benefit to thousands of our population.

Composition of Materials Employed in the Manufacture of Porcelain in China.

The following paper was read before the Academy of Sciences, by M. Ebelman, Director of the Government Porcelain Works:—

All the materials employed in the manufacture of porcelain, are stones obtained either from the soil or detached from rocks, excepting the materials Kao-ling, of Tong-kang, and of Ly-kang, which are obtained from the soil like sand, the grosser particles being removed by treatment with water; the soft parts being reserved for use. All the stony materials should be well levigated, then thrown into water, and well stirred, so as to allow the grosser particles to precipitate; the finer particles, which float in the water, are collected, dried, and formed into cakes. All these parts are carried to King-te-ching, and are kept in the houses of the workmen previous to use; they are then mixed with water, passed through a a sieve to remove any small particles, and slightly dried; they are now ready for use.

The Kaolins and the Petuntse, which are employed in the manufacture of pastes for Chinese porcelain, are analogous in chemical composition to that of the materials employed to answer the same purpose in the European manufacture of porcelain. The Kaolins of China evidently proceed from the disintegration and decomposition of granitic rocks. The chemical composition of the Petuntse is very nearly allied to the mean composition of the Limousin pegmatite, but the mineralogical characteristics of the Petuntse identify them with the composition or petrosilicious felspar.

The mechanical preparation of the materials employed in the manufacture of the pastes, appear to be based on the same methods as are employed in Europe.

The Chinese porcelain pastes, are somewhat more fusible than those made in Europe.

The glaze of the Chinese porcelain is much more fusible than that of European porcelain. This increased fusibility is due to the addition of lime in somewhat larger proportion to the Petuntse, or petrosilicious felspar, which is alone used in the manufacture of French porcelain.

The green tint of the Chinese porcelains appears also to be due to this employment of lime. Everything indicates that the Chinese porcelains are baked at a much lower temperature than that found to be necessary at Sevres, and other porcelain works in France. The Chinese porcelain has from time immemorial furnished the type of hard porcelains.

London has been afflicted with dense fogs, lately.