

Scientific Museum.

Photographs on Steel Plates.

The following are some statements which were made at a meeting of the Academy of Sciences, in Paris, on the processes of Mr. Talbot, and M. Niepce de St. Victor, respecting the invention of photographic images on steel plates:—"The processes of these chemists are different. Mr. Talbot uses, for the substance impressible to light, a mixture of gelatine and bichromate of potash, which is modified and browned on the immediate contact of light, and only where the light acts, whilst the part covered by the object to be copied remains untouched, and may always be removed by water. M. Niepce has aimed to perfect the process which his uncle, the inventor of heliography, described in the year 1827. The sensitive substance is a solution of bitumen in essence of lavender, applied in a layer; this varnish changes its properties while under the action of light. The parts exposed to the sun become insoluble in a mixture of essence of lavender and oil of petroleum, so that they may be easily separated from the soluble part not impressed, which represents the image to be reproduced. The liquid employed by Mr. Talbot for biting in on steel, after his design, is bichloride of platinum, and that of M. Niepce, a mixture made of one part of nitric acid, eight parts of distilled water, and two of alcohol."

Lithographic Photography.

In a recent sitting of the "Societe d'Encouragement pour l'Industrie Nationale," the process of reproducing photographs by means of lithographs was thus described: An ordinary lithographic stone is taken, and a solution of pitch is placed on it. A negative photographic proof is then put on it and is pressed upon the stone for a period which may vary from ten minutes to four or five hours. The stone is then washed with pure ether. The figure is found properly marked with its lights and shades, and it may be inked and printed from as an ordinary lithograph.—[Exchange.]

[This account is very unsatisfactory; as it does not describe the mode of placing the photographic image on the stone.]

Price of Scents.

Piesse, in his annals of chemistry, says:—"The wealth of England is aptly illustrated by showing what Britannia spends, and the duty she pays to the Exchequer, for the mere pleasure of perfuming her handkerchief. As flowers, for the sake of their perfumes, are on the continent principally cultivated for trade purposes, the odors derived from them, when imported into this country, in the form of essential oils, are taxed with a small duty of 1s. per pound, and is found to yield a revenue of just £12,000 per annum. The duty upon Eau-de-Cologne, imported in the year 1852, was, in round numbers, £10,000, being 1s. per bottle upon 200,000 flacons imported. The duty upon the spirits used in the manufacture of perfumery at home, is at least £20,000, making a total £42,000 per annum to the revenue, independent of the tax upon snuff, which some of the ancient Britons indulge their noses with. If £42,000 represents the small tax upon perfuming substances for one year, ten times that amount is the very lowest estimate which can be put upon the articles as their average retail cost. By these calculations (and they are quite within the mark), we discover that Britannia spends £420,000, (about \$2,000,000 a year in perfumery."

Increase in the Use of Gutta Serena.

In the year 1844, two hundred pounds of a new species of gum were shipped from Singapore, India. It was considered doubtful at the time whether the gum could ever be rendered sufficiently useful to mankind to become an article of-commerce. The experiment, however, succeeded. More than twenty thousand pounds were exported in the succeeding year. The fame of the article spread North, South, East and West; men, women and children were employed in its collection, and the new trade has increased in magnitude and extent with every successive year.

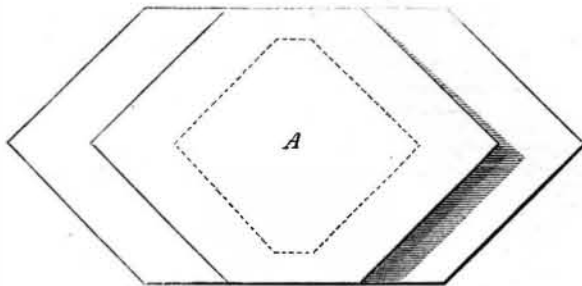
Improvement in Exhausting Steam.

The annexed engravings are views of an excellent improvement on steam ports in valve seats and slide valves for steam engines of every description, for which a patent was granted to Stephen D. Wilson, of Reading, Pa., on the 10th of last January (1854.)

Fig. 1 is a top surface view of the valve; fig. 2 is a transverse section of the valve and valve seat; and figure 3 is a surface view of the valve seat. The same letters refer to like parts. The nature of the invention consists in the enlargement and peculiar construction of the steam

ports on the valve seats of steam engines, and in adapting the valve to these ports, so as to exhaust steam from one end of the cylinder with much greater rapidity than it is admitted at the other, all of which is accomplished by the same motion with a single slide valve; this diminishes the resistance of the exhaust steam, and increases the power and speed of the engine. The steam chest is constructed in any of the known forms, and is represented here by D, in figs. 2 and 3. On it is placed a slide valve, A, fig. 1. No change is made in the size or form of the steam port, G, in common use,

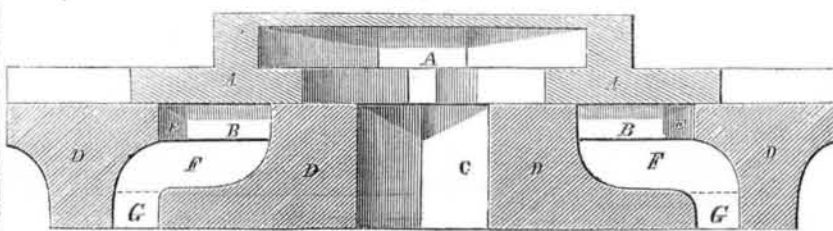
Figure 1.



leading from the cylinder to the seat of the steam chest until it reaches the seat. The port, F, is there enlarged in the seat until it is equal in capacity to twice the steam port, G. It is continued of this size to the surface of the seat of the steam chest, B and E, in figs. 2 and 3. The valve, A, in fig. 1, is made in any of the known forms, and it is moved by the common eccentric motion, except that the shape of the valve is altered, so as to adapt it to the form of the opening in the seat. The valve motion is then arranged, so that it will open only one half the port, F, for induction E, and the other half for eduction, B. The object is to exhaust the steam in the shortest possible time, so as to relieve

the piston of the engine from all resistance to the action of the inlet steam. On the face of the seat, D, fig. 3, that portion of the opening of the steam port, E, used for induction, is shaped as long, in the direction of the stroke of the engine, as the steam chest will admit of, and as narrow as possible to admit sufficient steam to work the engine at its full power. The aperture, E, is made either straight, angular, or semicircular, as may be preferred. The other half, B, on the face of the seat, D, fig. 3, is shaped as long as the steam chest will admit of at right angles with the length of the cylinder, or it may be varied by giving it a semicircular or angular form, such as B in fig. 3, as narrow

Figure 2.



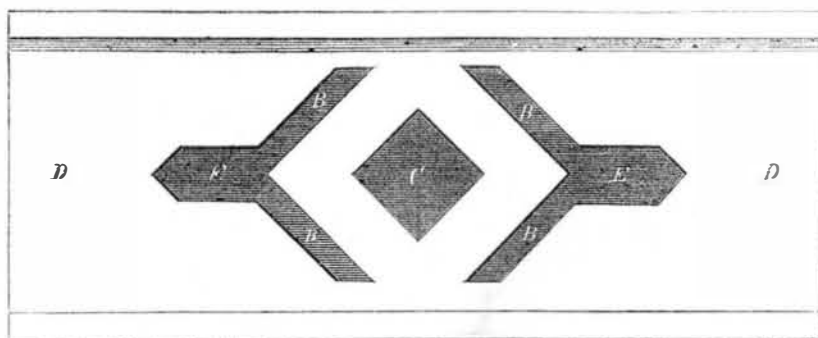
as possible, just widening it enough to make the eduction opening, B, equal in capacity to the induction opening, E.

By this arrangement of steam ports, the inventor is thereby enabled to exhaust the steam from the cylinder, with an increased speed, just in the ratio the opening B, bears to the opening E, in a line parallel with the length

of the cylinder, thereby dispensing with the necessity of giving lead to the exhaust, thus saving the full force of the steam to the finishing of the stroke, securing the greater benefits of expansion, and an increase of speed and power.

The exhaust port, C, figs. 2 and 3, is made in the common form, sufficiently large to con-

Figure 3.



duct off the steam as fast as it escapes through the eduction port, B, and it is of a shape to suit the other portions of the seat and the valve and its action. If deemed expedient, however, in the working of an engine, any amount of lead and lap may also be given to this valve,

without impairing its advantages.

This improvement deserves general attention. It comes to us, also, recommended by some of the best practical engineers in our country.

For further particulars respecting it, address Joel B. Warner, Esq., Reading, Pa.

Softening of the Brain.

The cases of softening of the brain, which have of late years become so frequent, render that disease one of important and interesting medical study. Dr. Albers, a European physician, of celebrity, states that he has dissected the brains of several persons who had for many years undergone great mental labor, and that in all these he found the cerebral substance unusually firm, the gray substance as well as the convolution being remarkably developed. In several of these instances a settled melancholy had taken possession of the mind during the

later period of life. He believes, therefore, that to produce a softened condition, some additional influence beyond mere over-exertion is required.

Effects of Soda in Steam Boilers.

Some time ago you published Dr. R. Fresenius' discovery of the use of carbonate of soda to prevent the incrustations in steam boilers, in which water is used that contains sulphate of lime. Dr. Zimmer, of Frankfort, in whose chemical works the soda for this purpose was first used, found that his boilers were destroyed

by corrosion after the soda had been used for some time. From his investigations all soda contains more or less cyanide of sodium; he is of the opinion that the cyanid is the cause of this corrosion.

"Dr. R. Bottger cautions against the use of soda for the above purpose, saying that according to repeated tests, all soda, even from the most celebrated manufactories, contains cyanid of sodium."—[From Dr. R. Bottger's Polytech. Notizblatt.]

The "Baltimore Patriot" says the amount of guano which will be imported into that city the present year, will probably reach 60,000 tons, costing three millions of dollars.

LITERARY NOTICES.

THE BRITISH QUARTERLY AND BLACKWOOD'S MAGAZINE.—Leonard Scott & Co., 54 Gold street, this city, republish the London, Edinburgh, North British, and Westminster Reviews, and Blackwood's Edinburgh Magazine. The fame of Blackwood's world-wide, and the Reviews are all distinguished for ability and originality. Carlyle and Macaulay speak through the Edinburgh, and the ablest divines in the Scotch Church, through the North British. Alison often speaks through Blackwood, and Bulwer is a regular contributor. Science, art, politics, history, everything of interest, in fact, is discussed in their columns with ability. These works will be universally interesting during the present year, owing to the excited state of European politics. Early sheets from the British publishers are furnished, so that the Reprints are placed in the hands of subscribers as soon as they can be provided with foreign copies. They are furnished at very low prices:—For one of the four Reviews, per annum, \$3; for any two of the four Reviews, \$5; for any three of the four Reviews, \$7; for all four of the Reviews, \$8; for Blackwood's Magazine, \$3; for Blackwood and three Reviews, \$6; for Blackwood and the four Reviews, \$10. These Reviews speak the sentiments of the Conservative, Whig, and Liberal parties, of Britain. Blackwood is Tory but always rich and racy. Prof. Ayton, author of the "Lays of the Cavaliers," is its Editor. The North British & Free Church: its Editor is Prof. Fraser. The old Edinburgh Review has done more towards reforming the laws of Britain than all the speeches made in Parliament. Those who would be intelligent in foreign literature and politics must read these periodicals.

THE CHEMISTRY OF COMMON LIFE.—D. Appleton & Co., of this city, are now publishing a series of pamphlets with this title, the author of which is Prof. Johnston, who is also author of a number of excellent works on Agricultural Chemistry. The first of the series which is now before us contains two of the English tracts, "treatise of The Air we Breathe," "The Water we Drink," "The Soil we Cultivate," and "The Plants we Eat." The price of each is only 25 cents. We are glad Messrs. Appleton & Co. are publishing these useful tracts; they will do a great amount of good, and deserve, and will no doubt receive a very extensive circulation.

AMERICAN AGRICULTURIST.—Published by Allen & Co., No. 129 Water street, New York, is a valuable and practical weekly, designed to improve the Farmer, the Planter, and the Gardener. It is one of the very best journals of the kind now published. The Editor shows his good breeding by giving credit to the "Scientific American" for notices of new inventions, and also for such of the claims of patents as are introduced into the columns of his paper. We would remind our cotemporaries who copy the claims from our columns without credit, that we pay a large sum of money every year for an official report of them.

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