Science and Art.

Lime and its Use in Cities.

"The streets need lime now as much as in June, if not more, for having had no rain lately, the gutters give out a noisome effluvia."

Then why would you use lime? To make them give out more effluvia! for that is the effect of lime upon any putrifying substance. It hastens its decay, and unless there is something to absorb the effluvia, it will be given off into the atmosphere, to be breathed by human beings.

What is needed is something to absorb and solidify these noxious gases that arise from the sewers and gutters and other places where filth decays and poisons the air with its effluvia. For this purpose one bushel of chloride of lime is worth more than a whole cartload of carbonate of lime. Its use would not only be more beneficial, but more economical. Plaster of Paris or sulphate of lime is another form in which lime should be used as a d sinfectant, because it absorbs ammoniacal gases, such as arise from water-closets, smelling like spirits of hartshorn. Pulverized charcoal is another powerful absorbent of all noisome effluvia, and worth far more to scatter in gutters than carbonate of lime; so is copperas, and so are a dozen other substances, yet the authorities use lime, and everybody cries out, "Why don't they use more lime?"—[New York Tribune, 17th Sept.

[Our criticism is, that the lime used for gutters in streets is not the *carbonate*, as stated by the *Tribune*, but the *hydrate* of lime, (Ca. O. + H. O.) an oxyd of lime and water. It is a good absorbent of carbonic acid and sulphuretted hydrogen, very offensive gases, which are continually arising from decaying organic matter in sinks, gutters, and sewers.

The carbonate of lime is limestone, marble, and shells. These, when submitted to heat in a kiln, are deprived of carbonic acid, and become the oxyd of lime, capable of combining with water, and becoming the hydrate of lime. It should always be employed in as fresh a state as possible—that is, soon after it is slacked. The great fault which we find with those who put the lime in our gutters, is, that they use old slacked lime which has already absorbed considerable carbonic acid from the atmosphere. The chloride of lime, (hypochlorite is meant), is, however, a better disinfectant than lime; and in this the *Tribune* is right, but the reasons it gives for the action are not good. It is simply lime and chlorine gas, and it is the latter which gives it superiority, by its quality for destroying miasmatic gases containing hydrogen. Plaster of Paris, charcoal, and copperas are all good disinfectants, as stated by the *Tribune;* but its attack upon common lime, mistaking it for carbonate of lime, is out of place.

Making a Sea of the Arabian Desert.

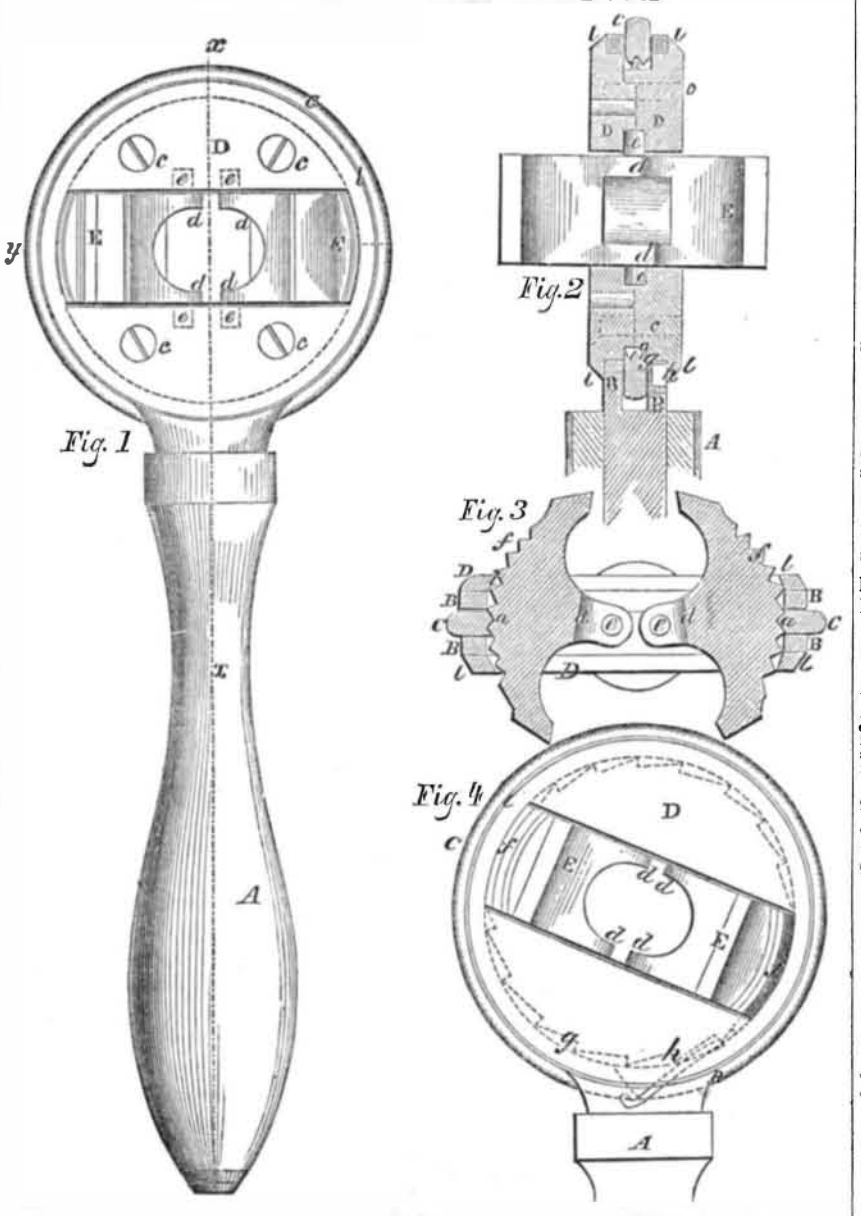
Captain William Allan, of the British navy, has published a book advocating the conversion of the Arabian desert into an ocean. The author believes that the great valley extending from the southern depression of the Lebanon range to the head of the Gulf of Akaba, the eastern branch of the head of the Red Sea, has been once an ocean. It is in many places 1,300 feet below the level of the Mediterranean, and in it are situated the Dead Sea and the Sea of Tiberias. He believes that this ocean, being cut off from the Red Sea by the rise of the land at the southern extremity, and being only fed by small streams, gradually became dried by solar evaporation. He proposes to cut a canal of adequate size from the head of the Gulf of Akaba to the Dead Sea, and another from the Mediterranean, near Mount Carmel, across the plain Esdraelon, to the fissure in the mountain range of Lebanon. By this means, the Mediterranean would rush in, with a fall of 1,300 feet, fill up the valley, and substitute an ocean of 2,000 square miles in extent for a barren, useless desert; thus making the navigation to India as short as the overland route, spreading fertility over a now arid country, and opening up the fertile regions of Palestine to settlement and cultivation.

The conception is a magnificent one, but no sufficient survey has been made to determine its practicability or its cost.

A Novel Experiment in Locomotives.

At the Boston Locomotive Establishment, Harrison avenue, a twenty-two tun passenger locomotive is building as an experiment. In the generation of steam in the engine, coils of pipes are placed one upon the top of the other, which contain the water, and upon which pipes the fire is directly brought. It is intended to burn coal, and it is thought steam can be made in ten or twelve minutes from the time of kindling the fire. Another novelty is that the engineer is placed ahead of the smoke pipe. The fireman is to be placed behind the boiler. It is also stated that whether the idea of burning coal in this engine succeeds or not, wood can be used at one-half the running expense of other locomotives—but this requires experiments to prove.

GRAHAM'S PATENT WRENCH.



The accompanying engravings represent the Improved Wrench of Alden Graham, of Roxbury, Mass., for which a patent was granted on the 7th of last month, (August, 1855.) Fig. 1 is a side view of the improved Wrench, fig. 2 is a view of it taken at *x*, fig. 1, showing the plane of section; fig. 3 is also a section transverse to fig. 2; and fig. 4 is an external side view of fig. 3. Similar letters refer to like parts. The nature of the invention consists in operating two jaws, which work or turn on pivots in circular plates by means of a ring or band, which has a screw thread cut on its inner periphery or edge, the ring or band encompassing said plates, and the screw thread working between threads cut on the outer sides of the jaws. A represents the handle of the implement, constructed of either wood or metal, and B B are two annular clamps, which are secured to the end of the handle, a space being allowed between them to receive a ring, C, which has a screw thread, *a*, cut in its inner edge or periphery, as shown in figs. 2 and 3. D D are two circular plates, which are fitted within the clamps, B B. These plates are each provided with a flanch or projection, *l*, which fits on or over the outer sides of the clamps, the two plates being secured together within the clamps by screws, *c*. The inner surfaces of the plates, D D, are in contact, and a slot or opening is made through the centers of the two plates, in which two jaws, E E, are fitted transversely with the plates. The jaws have each projections, *d*, on their inner surfaces to which pins, *e*, are attached, and these pins fit in recesses or holes in the plates, D D, as shown in figs. 2 and 3, and by dotted lines in fig. 1. The jaws, E E, work or turn on the pins, *e*, and the ends of the jaws project outward at equal distances at each side of the plates. The outer sides of the jaws, E E, have screw threads, *f*, cut in them. The "pitch" of the threads, *f*, of course corresponding to the screw thread, *a*, on the inner edge or periphery of the ring, C. The screw thread, *a*, of the ring, C, works between the thread *f*, of the jaws, E E. One of the plates, D, has ratchet teeth, *g*, cut in its edge, and a pawl or spring, *h*, is attached to the inner edge of one of the clamps, said pawl or spring catching into the teeth, *g*, as shown in dotted lines in fig. 4.

OPERATION.—By turning the ring, C, the jaws are operated, either end of the jaws being made to grasp the nut or other article to be turned, and the handle A, may be moved in one direction without turning the plates, D, and jaws, E, as the pawl or spring, *h*, will slip over the teeth, *g*, on the plate, D, but when the handle is moved in the opposite direction, the pawl or spring, *h*, will catch against the teeth, *g*, and cause the plates, D, and jaws, E, to turn with the handle. Thus a nut may be screwed up without taking the wrench from it at every stroke or movement of the handle.

The jaws E E, by being operated as shown may be firmly held to the article to be turned. The tool is convenient to operate, and is well adapted for large work, or where considerable power is required, as it can be made very strong and durable, much more so than the ordinary screw or other wrenches.

More information may be obtained by letter addressed to Mr. Graham, the patentee, at Roxbury, Mass.

Lieut. Maury is organizing a system of Meteorology on land, for the benefit of farmers on the same general plan as that employed for navigators.

To Prepare Nitrate Ammonia.

Dilute aqua fortis with three or four parts water. Put this into a porcelain or earthern dish (enamelled iron kettles answer well), and set it in a sand bath or hot ashes. Then throw in pieces of carbonate ammonia until it ceases to effervesce. Continue the evaporation until about two gallons of the solution is exhausted, or until a drop readily shoots into crystals on being placed on a piece of glass. Then set the dish aside until the crystals are formed. If the solution is evaporated slowly and with a gentle heat, and the vessel in which it crystalized has a broad, flat bottom, the crystals are very beautiful, long, shining, triated prisms. If the solution is exhausted nearly to the point of crystalization while it remains hot, and if this is done with a higher heat, it either shoots into small fibrous crystals or concretes into a shapeless mass. H.

A company has been formed in England for the manufacture of paper from the stem of the plantain. A good paper for printing upon, and a very superior kind as a wrapping paper, it is said, may be made from this weed.

A young American 18 years of age, named G. W. Heard, of Boston, in company with a young Englishman, J. A. Chapman, 17 years of age, have made the ascent of Mount Blanc.

A RARE DRAWING.—An original draft of improvements in the machinery of the old steamer *Claremont*, by Robert Fulton, has been preserved among the papers of the West Point Foundry since 1808.

Literary Notices.

MAGAZINES RECEIVED—The NATIONAL MAGAZINE—by Carlton & Phillips, 200 Mulberry street, New York. A capital number is issued for October, enriched with editorial notes from Europe, also various other articles of interest. ARTHUR'S HOME MAGAZINE, for October, has some illustrations and articles of interest. It is a very nice work, and is popular in the homes of our people.

COACHMAKER'S MAGAZINE—This Magazine for Sept., contains two plates illustrating carriages, phætons, &c., besides some good wood-cuts of inventions connected with carriage making. The articles are good and ably written. Editor and proprietor, C. W. Saladee, Columbus, Ohio.