

New Inventions.

Friction Matches.

The truth of that trite old maxim "all that glitters is not gold," is exemplified in reference to new inventions in mechanism and science, as well as the other phases of life to which it was originally designed to be applied. The Boston Herald, in turning over the pages of of the "Encyclopædia of Commerce," just published, remarks that many of the most important things in commerce are likely to be overlooked in the broad, comprehensive, and magnificent examination usually given to such works. In the same manner, inventions of the greatest importance for domestic purposes are frequently overlooked and unnoticed in their homely attire, when placed on exhibition and surrounded by works of polished art, costly machinery, and gorgeous furniture, although of less actual worth and benefit. An humble inventor once placed in such an exhibition a few bunches of friction matches, which were unnoticed by those who passed. Visitors went there looking for some great thing, not realizing that the despised package of splints tipped with chemical fire was the greatest thing in that proud collection, destined to work a revolution in the means of procuring artificial light, and to become a universal necessity, to be deprived of which would be one of the greatest inconveniences that could happen. It is not more than twenty years since the tinder-box was in universal use; but it is abolished now, and its place taken by this simple, cheap, and certain method of obtaining light. The introduction of friction matches spread slowly; but who now would like to do without them? Rafts of timber are annually cut up for this purpose.

New Gas Apparatus.

Small towns, factories, villages, hotels and dwellings are much in want of the cheap and cleanly light that gas affords, and any arrangement of parts which shall place within the reach of such places a simple and convenient apparatus for making gas from any substance is a public boon.

Our engravings illustrate one of these, by which gas can be made from any material—coal, resin, tar, oil, wood, old grease, or, in fact, any of those organic substances that contain sufficient proportions of hydrogen and carbon to form, under the influence of heat, an illuminating gas.

Fig. 1 is a perspective view of the whole arrangement, which we will first describe. A is the furnace, in which is the retort, B, the door of which, C, is secured by means of the iron loop, D, that moves upon pivots, a, the door fitting by slots on the projections, b. E is a hood which conveys off the fumes or gas when the door is open by one passage of its chimney, E', and forms the chimney of the fire by its other passage, E'', through which the smoke and other products of combustion pass from the fire. F is the door of the grate, and F' is the ashpit containing water. G is another retort door or covering plate, from which the gas passes up the pipe, G', into the hydraulic main, H, from thence through the pipe, H', into the condensers, I, that are placed in the cooler, J, and from thence the gas passes through the lime purifier, K, which is in the same box, J. The gas, after having been thoroughly dried and purified, now passes into the square gasholder, L, that is in the tank, M, balanced by the chain and weight, N, and from that through the service main, O, to the burners where it is consumed all tar and fatty matter that is condensed in the hydraulic main, passing back through P into the retort to be again decomposed into gas. The compactness of this arrangement will be seen at once, and its consequent adaptation to such places where only a comparatively small quantity of gas is wanted will be at once appreciated.

Fig. 2 is a section of the various parts, also showing a different arrangement of the several portions of the apparatus. The same parts

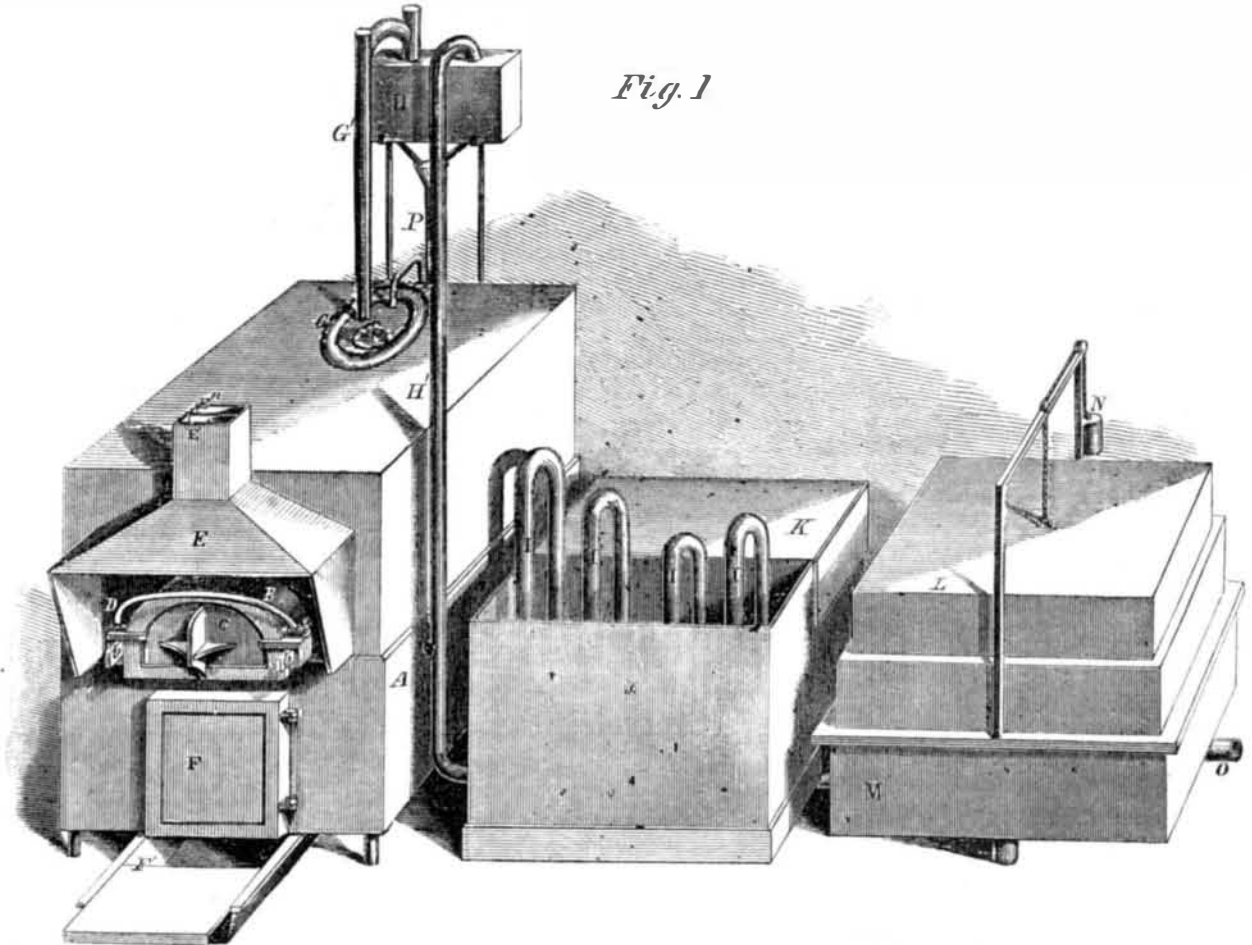
are indicated by similar letters in each engraving.

The retort, as it will be seen, is double, having a false or temporary bottom of perforated plate, which, when coal gas is to be made can be removed, but for any other gas it can remain. Coke or pumice must be piled on this, and if the substance from which the gas is to be made be one which first becomes

liquid, the process is as follows:—If it be thrown in through the door, C, in the solid form, it is first liquified and drops through the coke or pumice on to the base of the retort, there it is converted into vapor, and the vapor ascending through the heated pumice or coke becomes converted into permanent gas. If it be converted into liquid by the waste heat of the furnace before it enters the retort, then it

can be fed through a pipe inserted in the back door of the retort. G. Coal or wood will, of course, have to be fed in the ordinary way, but the beauty of this retort is that when any liquid is used, there is no occasion to open the retort from the commencement to the end of the process. The gas being made passes through a series of lime trays, K, in the supplemental part of the retort, B', which de-

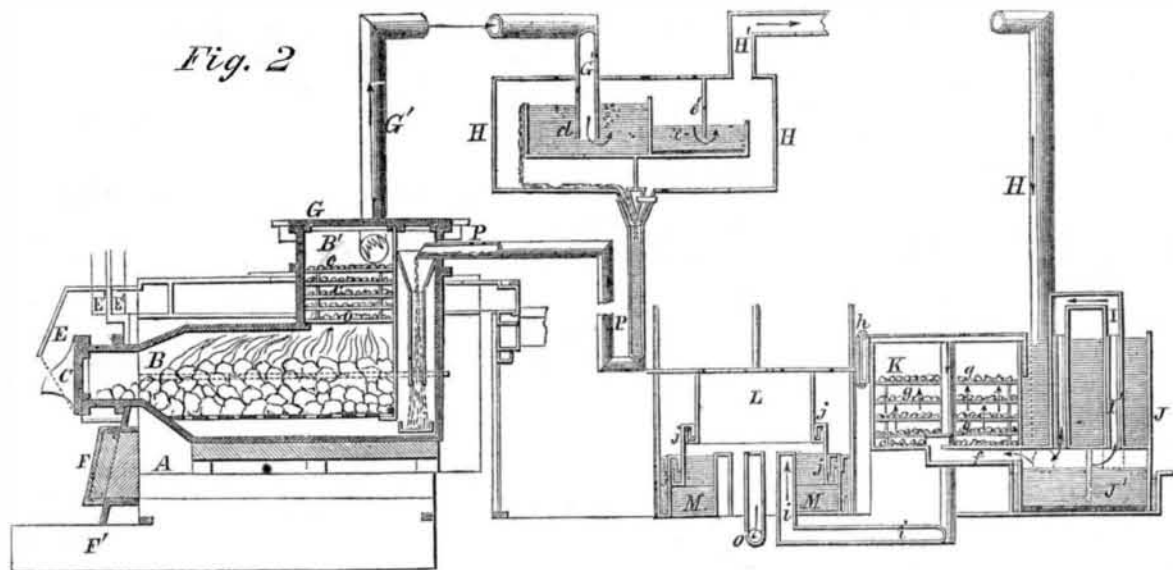
HOCK'S IMPROVED GAS APPARATUS.



prive it of much sulphur, and other impurities. Then passing up the pipe, G', it arrives at the box which represents the hydraulic main. In our illustration this has been turned one quarter round, so as to show the internal arrangement of its parts. The gas passes through the small box, d, becoming cooled and leaving behind, in its tar until there is enough to fill it, then it bubbles through

each globule, leaving some tarry matter which flows over the box, and down through P into the retort at the back, as represented in Fig. 2, or through the lid, G, as represented in Fig. 1. The gas then passes through the water, e, leaving more tar, and under the partition, e', and will drop into the chamber, J', from which it can be pumped away. The pipe, f, now conducts the cool and mechanically clean gas into the dry lime purifier, K, when

up and down, so that they can be elongated or shortened to suit the quantity and quality of the gas passing through them; all the tar and tarry water that may remain in the gas will now be separated because of its coolness, and will drop into the chamber, J', from which it can be pumped away. The pipe, f, now conducts the cool and mechanically clean gas into the dry lime purifier, K, when



it passes up through trays of pure lime and leaves behind it ammonia and sulphureted hydrogen. To this a pressure gage, h, can be attached. By the pipe, i, the gas is now conducted into the holder, L. This holder has a very shallow tank, M, no well being required, and it is in three parts, each connected by perfect water joint, j, through which no gas can escape, and a very equable pressure can be kept on the gas to send it through the service main, O. This simple apparatus is

now in operation in several towns, and as a convenient form of small gas works it is among the best.

The inventor is John G. Hock, of Newark, N. J., and he has two patents on the apparatus, one on the retort dated May 20, 1856, and the other on the arrangement dated March 30, 1858. For State or county rights or further information concerning the invention, address the inventor as above. Mr. Hock would also like to dispose of his English and

French patents, which were secured through the Scientific American Patent Agency in 1856.

Adjustable Car Seats.

We have seen a model of J. B. Creighton's method of adjusting car seats, so that they may be used as beds when desired. The device is quite simple and apparently good. Patented May 18, 1858. We may illustrate it in a future number.