A FRENCH APPARATUS FOR LIGHTING CITIES WITH HOT WIRE.

It is known that the city of Narbonne in France, has been lighted for the last three years by means of platinum wire, made intensely hot in the flame of burning hydrogen. The metal, platinum, like all other substances, when at a high temperature, emits a brilliant light, but unlike most other substances when highly heated it does not combine with oxygen, and it may, therefore, be kept hot for a long time without being consumed. This property has been taken advantage of to produce a light, and for several years the platinum light has been one of the scientific toys of the laboratory. Hydrogen has been adopted as the best fuel for heating the metal, as it generates, in burning, more heat than any other substance, and burns with a perfectly clear flame, the only product of its combustion being pure water. A little basket is made of platinum gauze and placed over the jet of gas, which as it burns, heats the wire gauze to a white heat causing it to shine with a brilliant light.

We believe that the first attempt to use this light on a large scale is the one spoken of at the city of Narbonne. The carrying out of this enterprise has called for the production of hydrogen gas in larger quantities than have ever before been required, and the experience obtained in its manufacture on so large a scale has led to some notable improvements in the process. We find in *Le Génie Industriel* an illustrated description of extensive gas works on an improved plan for the manufacture of hydrogen gas, which have recently been erected at Narbonne, and as there is an almost universal interest in new methods of producing light, we have had these illustrations engraved for our columns. If pure hydrogen gas answers as well as carburetted hydrogen for lighting purposes, it will be extensively introduced, as it is so manifestly superior for cooking and all other heating operations, from the great heat and perfect clearness of its flame. As it is much lighter too than illuminating gas, it is superior to that for filling balloons, requiring a smaller balloon for the same buoyant power, and if it can be made for some 30 or 40 cents per thousand cubic feet, it may be economical for our aeronauts to construct a hydrogen gas apparatus, rather than pay the gas companies seve al hundred dollars for each inflation of their monster balloons.

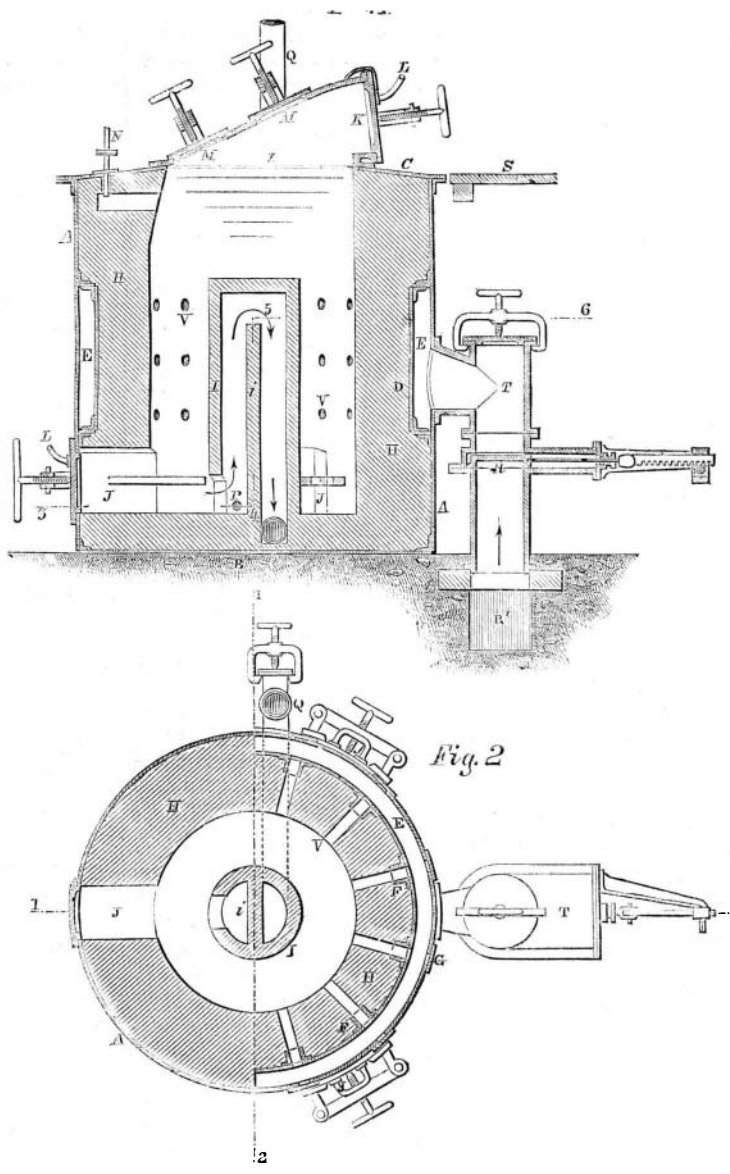

Fig. 2

APPARATUS FOR LIGHTING CITIES WITH HOT WIRE.

Of the annexed cuts, Fig. 1 is a vertical section in the middle of Fig. 2, and Fig. 2 follows the line, 1 2 3 4 5 and 6 of Fig. 1. A cylinder of thin boiler plate, A, is lined with fire brick, H, and has a small cylinder, I, of fire brick in its middle, divided by the partition, i. The main cylinder is filled to the level of L, with coke which is set on fire and allowed to become red hot, when steam under a pressure of two atmospheres is introduced among the burning mass through the pipe, N. This steam is decomposed by the coke, its hydrogen set free, and its oxygen uniting with the carbon of the coke, forms carbonic oxyd, (CO), and carbonic acid (CO2). All of these gasses then flow into the bottom of the cylinder, I, and rising over the top of the partition, i, pass out hrough the pipe, Q, to the purifiers, and thence to the gasometer.

In the passage through the cylinder, I, the carbonic oxyd is met by a fresh supply of steam coming through the pipe, P, which it decomposes, taking on another equivalent of oxygen from the steam and becoming carbonic acid, while the hydrogen from the steam is set free, and thus increases the quantity of hydrogen produced by the apparatus. As this decomposition of the steam cools the coke rapidly, after the process has continued about 20 minutes, it is necessary to suspend it and heat the coke anew. This is effected by forcing a blast of air through the pipes, R′, R and T, into the annular space, E, surrounding the main cylinder, whence it passes through the lining, H, by the pipes, F F, terminating in the 36 mouths, V V, by which the air is distributed among the coke. The blast is continued about 2 minutes, but the opening and closing of the passage-way extends the whole time occupied by each reheating to 4 or 5 minutes. The blast of air is produced by a two horse power engine, driven by steam from the same boiler that furnishes the steam to be decomposed.

Three doors, I, are made in the bottom of the apparatus, and two, M M, in the top for cleaning it. The coke is supplied through the door, K, and a charge is placed on the plank, S, before opening the door, in order that the filling may be quickly done.

HOBBS, THE LOCKSMITH, RETURNING.

In 1851, during the Exhibition of Industry of all Nations in London, our conntryman, Hobbs, astonished the cockneys by picking Bramah's and all the most famous English locks which had been represented as burglar proof; while, at the same time, not one of their locksmiths were able to pick Newall's American lock. These incidents were the means of making Mr. Hobbs and the locks which he took to London quite popular, so that a very promising field was presented for their manufacture in England, and he, in company with an English capitalist, entered upon its occupancy. A large factory was soon erected in the vicinity of London, and Mr. Hobbs had several ingenious machines constructed to fabricate several parts of locks which had previously been executed solely by hand-labor in England. His lock factory became the first in that country; he beat all opponents, and success attended his efforts. After a residence of nine years in England, we learn from the London *Mechanics' Magazine* that he has retired from business, and is about to return permanently to America with his family. During his residence in London he has won respect, and his workpeople seem to have been greatly attached to him. They have presented him with a handsome parting testimonial, and an address couched in very affectionate language.

AMERICAN INVENTIONS.

Charles Reade, in his last book, writes as follows about American inventors:—"American genius is at this moment ahead of all nations for mechanical invention. I learn from Coryton, the last English writer on patents, that she took out her first patent in 1790; in 1800, took out 39 patents; in 1810, 222; in 1830, 551; in 1840, 452; in 1849, 1,075. At this last date, she headed Great Britain, and has maintained the lead ever since. Europe teems with the products of her mechanical genius. Her inventors draw large percentages from England, and no Englishman grudges them, for they leave us still their debtor. The preeminence this nation has attained in mechanical invention rests on the rock of statistics, and my little paltry experience can neither contradict nor confirm statistics; still, I cannot help remarking that I am sitting in London at this moment in a shirt which I happen to know was sewed by Mr. Singer's patent, and that there are three English newspapers on the table, two of which—the *Times* and *Lloyds*—were printed by Mr. Hoe's patent; the other was worked off either by the Adam's press (invented, I think, at Boston, Mass.) or else by the Columbian press, which is still in vogue here, though long ago exploded in the leading nation. The constructive genius of this people, stimulated by sound legislation, teaches us lessons at every turn. Look at their hotels, the wonder of the world; ours are only the terror. Look at their cities, reticulated with telegraphic wires, so that at the first alarm of fire an engine is rung for; here it is run for, and that is why it often finds the house on the ground floor, and drenches the smoking ruins, which hiss it for not managing better. I go through the Liverpool docks, and point out the biggest and smartest ships, and ask a sailor from what ports they came. It is always, 'Yankee, sir; Yankee!' We had been sailing yachts many years more than they had when they sent over the *America* and beat our fleet; and, observe, the victory was achieved by mechanical onstruction, and not by an extra cloud of canvas." The wonderful progress of American inventions would appear more striking still by comparing the number of patents issued here in 1859, with those of Great Britain in the same year.

THE "GREAT EASTERN."—By the latest news from England, we learn that the captain and chief engineer of the *Great Eastern* have been discharged, and it is said that she is to be laid up all winter. Her bottom was examined at Milford Haven, and found to be tolerably clean, but a little rusty. It had been stated that her bottom had become so foul as to detract about two miles per hour from her speed in the voyage across the Atlantic. This turns out to have been fiction. It was expected that she would make a voyage with a cargo to New York this winter. This would be a true test of her qualities as a merchant steamer.

LONGEVITY OF A HORSE.—Mr. Dampler, a farmer residing near Tanlon, England, is said to have a horse in his possession, aged 56 years, which he rides daily about his farm, and occasionally goes out hunting with. The animal is still fresh on his legs, and free from blemish.