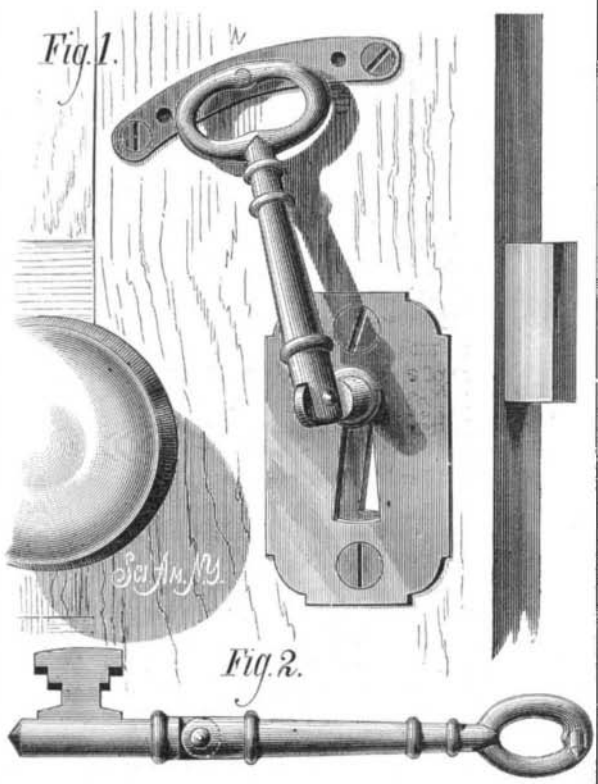
THE HOLLAND HYDROCARBON RETORT.

The accompanying illustrations will give a good idea of what the inventor claims for a method of producing heat and illuminating gas, which has attracted a good deal of attention within a few months past. As shown in an experimental way at No. 18 Vesey street, in this city, at the rooms of the company now developing the patents, the New York Heat, Light, and Power Company, it would seem that there could not be a more simple and effective process by which to obtain heat and light for household use, without any danger from explosion, at a very small cost, and without many of the annoyances at present experienced.

The stove shown in the sketch is an ordinary pattern of a small cook stove, with one corner at the top drawn to give an interior view. The fire pot is about a foot square, and here sets a small retort, of such size that its capacity would probably be about equal to that of a quart measure. Into this retort, which is divided into two chambers, naphtha and water are made to flow by a gentle pressure, the water into the left hand chamber and the oil into the one at the right. A fire being made in a sort of cup under the retort, by burning a spoonful or so of naphtha there for two or three minutes, the naphtha is admitted to one chamber of the retort, and the water to the other, the flow in this instance, and for stoves of this capacity, being stated as only a drop at a time, at about the rate of the beating of the pulse. The naphtha is immediately changed into gas and the water into superheated steam, when the gas passes out through one of the pipes shown at the top, and is carried down under the center of the bottom of the retort; the steam passes out from the other pipe, and is carried to the bottom of the retort, the termination of the pipe being a circle of about two and a half inches diameter, which surrounds the button from which the naphtha gas is discharged. This circle of steam pipe is pierced with small holes on the inner side, so that, combustion being set up, the superheated steam is discharged directly into the flame of the naphtha gas. And now we have, on a consumption of fuel given as almost infinitesimal, a fierce fire, the flame of which nearly fills the fire pot, and the heat being sufficient for all ordinary uses, while the combustion is so perfect that there is no perceptible smoke or smell, and the firebrick lining of the fire pot has not even been discolored. The flow of oil and water may be readily increased or decreased, as more or less heat is desired, so that the temperature of the stove can be nicely and almost instantaneously adjusted for the work in hand, but the supply pipes are so fitted internally with wire gauze that no excessive flow of oil can be set up, which, indeed, it is claimed, would not be possible on account of the pressure that would thereby be caused from the gas inside the retort. There is, of course, no necessity for a draught for this fire, which will burn equally well in all kinds of weather, and the only need of a stove pipe or chimney is in the burning of the small quantity of oil required under the retort to set up the initial heat.

The retort shown in the fire pot of the stove is separately illustrated, and there is also to the left, at the bottom of the picture, a sketch of another retort, in which are the same features as before described, with the addition of another chamber for making gas. The naphtha is supplied and its flow regulated in the same way, but instead of passing out to be consumed under the retort, it is made to go through pipes which lie against its side, whereby it is heated to make it less volatile and more of a fixed gas. From here it is conveyed through a box with iron filings, in order to separate from it any fluid naphtha, and thence to a small receiver, on the same principle as those ordinarily used. In this way the gas necessary for lighting a house may be made at the same time and by the same fire as is used in the cooking or for warming. The gas with which the company light their offices, as one of the proofs of the practical success of their process, where any one can see all the operations, is certainly very pure and bright, and its combustion seems to be absolutely perfect.

For the purposes of an open fire in a fireplace, the same form of combustion is adopted as in the stove for making the heat, but in addition thereto the gas made by this process is conveyed into hollow cylinders, piled up to represent a tier of logs, and from regular openings in these the gas issues, so that, when the fire is started, a regular apron of flame passes backward and upward over their surfaces. It takes but a few minutes in this way to "light a fire," which, in starting, burns up somewhat like cannel coal, and so much gas is used that we should suppose an ordinary room with such a fire would need no other light. It certainly would "not pay" to have such a fire if one had to count it in his gas bills, but the company claim that they make the gas so cheap that the expense of even such liberal use of it amounts to almost nothing, and the gas itself is so pure that no smoke, soot, or smell is made.

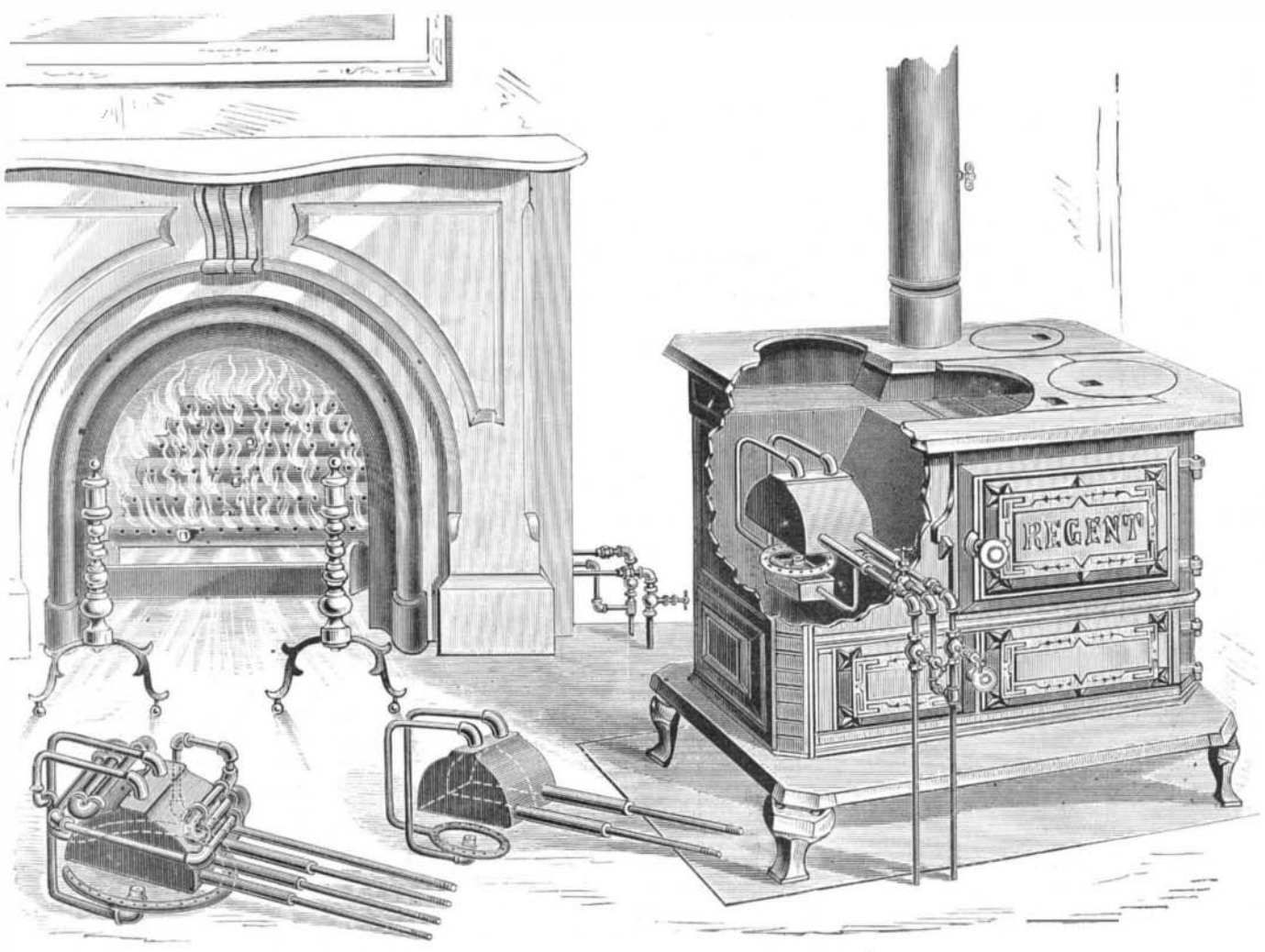


JOHNSON'S KEY FASTENER.

To show the merits of these processes the company have fitted up their offices in Vesey street so that two small tanks, of a capacity of perhaps one barrel each, one for water and the other for naphtha, are fixed close up to the ceiling, whereby they obtain a head of some twelve or fifteen feet on the naphtha and water in the pipes where they enter the retorts. They also have two small gas receivers of a total capacity of something like 500 feet, the whole apparatus being designed to show the practical application of these patents to household uses in heating and illuminating.

In addition to the above, however, and that which the company believe to be the most important field for their patents, they are endeavoring to perfect and develop the application of this method of obtaining heat to locomotive uses. With this end in view they have already made some experiments in the construction of motors for street cars, and have actually adapted a locomotive and run a train therewith on the Long Island Railroad. They propose to use steam in the same way as other engines, but the different manner of obtaining the heat requires a radically different construction, the details of which they have not yet practically succeeded in working out. Should they do all they promise and expect to accomplish in this direction, the future locomotive will be one that can be run at one-tenth the cost of those of the present style in the way of fuel, and will give out neither smoke, cinders, nor offensive gases.

The first of the patents relative to these processes was taken out by Dr. C. Holland, of Chicago, in 1877, and the last one during the present year, there being ten patents altogether. The New York Heat, Light, and Power Company own the patents for New York, New England, and the South. The inventor's claim is, in the main, that the attainment of these marvelous results is due principally to the dissociation of water in its form of superheated steam, and the total consumption of both its gases by the free access of outside air, under the conditions in which the burning naphtha gas is brought into contact with the steam under the retort.



THE HOLLAND HYDROCARBON RETORT.

SIMPLE KEY FASTENER.

The engraving shows a very simple device for preventing locks from being burglarized. The lock may be of any construction; the invention relates to the key, the shank of which is jointed near the face of the door, and provided at or near its outer end with a stud, which enters a curved perforated plate attached to the door. The plate has a series of holes into any one of which the stud on the key may be inserted. This device effectually prevents turning the key from the outside by forceps or other instrument, and affords a sense of safety which is not felt when the key is left loose in the lock.

This useful invention was recently patented by Mr. Lenson Johnson, of Vincennes, Ind., who will furnish further information if desired.

HATCHING SPANISH MACKEREL.—A remarkable achievement in hatching deep sea fish is reported by Mr. E. G. Blackford, on the authority of a member of the United States Fish Commission. After many failures the eggs of the Spanish mackerel have at last been successfully hatched by one of the experts in the employ of the Commission.

Benjamin Nadault de Buffon, French Engineer.

Professor Benjamin Nadault de Buffon, a grand nephew of the celebrated naturalist, died in France in June, aged 76 years. He was born at Montbard, (Cote d'Or), February 2, 1804; graduated from the Ecole Polytechnique in 1826; entered the government service as engineer of highways and bridges, rose to be chief engineer and professor of agricultural hydraulics at the imperial school of his department of engineering. He was a great authority on irrigation, and was widely known as the projector of the scheme for reclaiming the Crau d'Arles plain by irrigation from the Rhone. He was long in charge of the Division of Hydraulics at the Ministry of Public Works, was intrusted with important commissions for the prevention of inundations, wrote several volumes on engineering subjects, and was promoted to the high grade of Officer of the Legion of Honor in 1864.

Not a Sea Serpent.

The dead monster seen by Capt. Ingalls off the coast of Maine, and noticed in the SCIENTIFIC AMERICAN a short time since, drifted ashore at Seguin, Maine, and proved to be a basking shark (*S. maximus*, or *S. elephas*). This is not the first time that the creature has been mistaken for a sea serpent, owing to its slender body and great length. It sometimes attains a