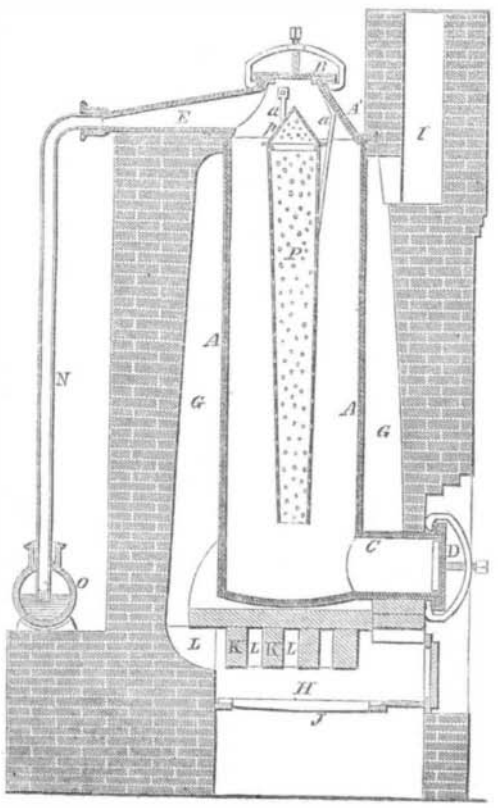
COAL OIL RETORTS.

The light which is derived from oil distilled from coal is more economical and brilliant than that obtained from any other burning fluid known to us, which combines safety with its use. To obtain the greatest quantity of oil from a certain weight of coal, and in the shortest period of time, is an object that has engaged much attention from those connected with the business, and the basis for success in these important particulars is the retort in which the coal is distilled. The above engraving is a vertical section of an improved retort designed to secure these results, and for which a patent was granted to Mr. Joseph E. Holmes, of Newark, Ohio, on May 31st, 1859. It will be noticed that this is a vertical retort; the old iron ones being horizontal. The improvement embraced



in it consists in the employment, within an upright retort and at or near the center of it, of a perforated tube, through which the vapors, or a great portion of them, can escape to the exit-pipe as fast as they are eliminated, without being forced into contact with the heated sides of the retort. In the ordinary retort, owing to the packing of the coal in the center, a considerable portion of the vapors are brought into contact with the highly heated surface of the sides, and thus tends to lessen the amount of oil by promoting destructive distillation. The packing of the coal in the center of the old retort also prevents the rapid outflow of the vapors, both of which evils are obviated by this improvement.

A is the upright cylindrical retort having a detachable mouthpiece A' at the top fitted with a cover B, which is removed for charging it. It has a spout, C, at the bottom, fitted with a door, D, which is opened to draw out the coke or other residuum of distillation. E is the exit spout attached to the mouthpiece A'. The retort is built in a furnace, F, within which it is surrounded by a flue, G G, up which the flame and gaseous products of combustion pass from the fire-place, H, (which is situated under the bottom of the retort) to the chimney, I, near the top thereof. A large tile is placed under the bottom of the retort to prevent its being burned, and it is interposed between the bottom and the piers, K K, which support it. The communication between the fire place, H, and the upright flue, G G, is by means of a number of small flues, L L. The exit spout communicates in the usual manner by an escape pipe, N, with the hydraulic main, O, from which there is the usual means of communication with the condensing apparatus.

P is the vapor tube, which constitutes the invention. It is made either of cast or strong sheet iron, and its diameter is from one-fourth to one-third that of the retort. It tapers slightly towards the bottom, and extends downward as near to a level with the top of the spout, C, as it can be permitted to do, without interfering with the operation of drawing out the coke. It extends upwards nearly to the top of the retort, and its bottom being open, any small particles of coal that may pass through the perforations drop out. Its top is covered with a conical cap, *p*, for the purpose of causing the equal distribution of the charge round the sides of the retort. The tube, P, is suspended from the mouthpiece by iron straps, *a a*, which are applied to brace one another, and at the same time not to interfere with the introduction and distribution of the charge. The perforations in the tube and its cap are about three-eighths of an inch in diameter, and they are placed as close together as is consistent with its strength.

This perforated tube, P, besides providing for a free escape of the oil vapors as they are generated at a comparatively low temperature, by directing them away from the highly heated sides of the retort (by which they are liable to be converted into permanent gas), also reduces the lateral thickness of the body of coal in the retort, and enables the heat to penetrate the charge more uniformly and perfectly, whereby not only a larger quantity of oil is obtained from the same weight of coal, but a charge is worked off in a shorter space of time than in a common stationary retort.

For further information, address J. E. Holmes, or J. Palmer, who is associate assignee, No. 190 Duane-street, this city (New York).

In our next number we expect to be able to give some new and interesting information regarding the manufacture of coal oils.

HOWLAND'S DOOR-LATCH.

This door-latch, the object of which is to only require an auger-hole to be bored in the door, when it can be applied, is shown in our engravings—Fig, 1 being a longitudinal vertical section of a latch applied to a door, and Fig. 2 a horizontal section of the same taken in the line *y y*, of Fig. 1.

A represents what may be termed the case of the latch, said case being formed of two parallel parts, *a*, *a*, connected at their front ends only by a cross-piece, *b*, which serves as a guide for a rod, B, at the end of which the latch, C, is attached.

The attachment of the latch to the shank or rod, B, is effected by the means of a female screw-socket, *s*, formed in the latch, and a male screw-thread, *t*, formed on the shank or rod, B.

Fig. 1

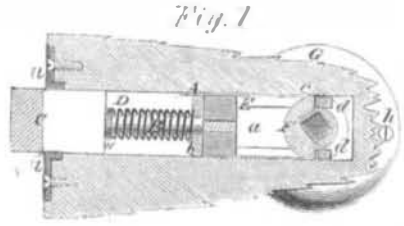
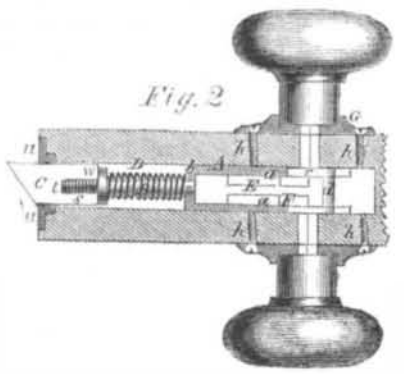


Fig. 2



The latch, C, is of the usual orm, leveled at one side, as shown clearly in Fig. 2, and is arranged to slide back and forth through a guide-plate, *u*, which has a square opening, *v*, cut through it corresponding to the latch. The shank or rod, B, has a shoulder, *w*, formed on it, as shown; between the shoulder, *w*, and guide or cross-piece, *b*, of the case, A, and on the rod, B, a spiral spring, D, is placed, said spring having a tendency to keep the latch forced to its fullest extent from the end of the case, A.

The inner end of the rod, B, screws into the end of a plate, E, which is slotted longitudinally, and is allowed to slide freely in the case, A. The inner end of the plate, E, fits over a tumbler, F, through which the spindle of the knob passes, said tumbler having two shoulders, *c*, *c*, on it, which should catch against cross-heads, *d*, on the sliding-plate, E.

The tumbler, F, is fitted in the inner part of the case, A, and is allowed to turn freely therein, and the shoulders, *c*, on the tumbler, when said tumbler is turned, actuate or force back the plate, E, and consequently the rod, B, and latch, C. The case, A, is fitted in the door by simply boring an auger-hole therein, and the case, A, does not require to be any wider than the latch. No mortising or trimming up with the chisel is required. A hole is made transversely through the door to allow the spindle of the knob to pass through the tumbler, F.

The shrinkage or swellage of the door is allowed for by screwing the latch farther on or off the shank or rod, B. This is effected by withdrawing the knob that passes through the tumbler, F, and pulling out the latch until its rear end extends forward of the front of the guide-plate, *u*, and then turning the latch free of its shank or rod, B, so as to cause it to extend a shorter or greater distance from the guide-plate, *u*, or in proper position with the edge of the door and the nosing of the jamb to readily enter and remain in the nosing of the jamb, however much the door may be shrunk orswelled. It should be particularly observed that the foregoing adjustments are effected without affecting the tension of the spring, for the reason that the spring is arranged between the shoulders, *w*, and the cross-piece, *b*, of the stationary case, A. It is very important not to affect the spring in accomplishing the adjustment, for when the spring is affected, as in other cases, it either becomes too elastic or remains nearly unelastic, according as the adjustment is made.

The plate, E, working in the case, A, forms a perfect guide for the rod, B, and as but a small auger-hole is required to receive the case, A, the screws, *h*, of the knob-plates, G, may be screwed into solid wood and be firmly secured.

The inventor is Mark Howland, of Waterbury, Conn., and he will be happy to furnish any further information. The patent is dated May 31, 1859.

A new submarine cable has been laid between England and France, which weighs no less than ten tuns per mile. It is the largest and strongest telegraph cable ever made, and contains six conducting wires, each of which is said to be as large as the whole number in the Atlantic cable.