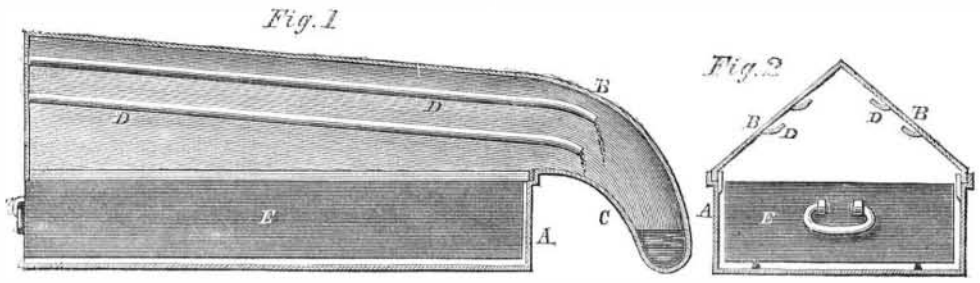
IMPROVED COAL OIL RETORT.

There are a few new arts that are destined to grow very rapidly to gigantic proportions, and one of the most prominent among them is the manufacture of oil from coal. The process and the implements will no doubt be the subjects of very numerous improvements which, as our illustration shows, have already begun to be produced. This improvement is in the retort, the first essential in the apparatus. Coal oil is made in a mode very similar to that employed in the manufacture of illuminating gas, that is, by heating bituminous coal in a retort, and partially decomposing it, the oily portion being evaporated and re-condensed, in other words, distilled.

Fig. 1 represents a longitudinal vertical section of the retort with its neck, and Fig. 2 the end or head.



HAZLETT & HOBBS' COAL OIL RETORT.

A A is the base or rectangular portion, and B B the upper portion or sides, inclining from the base towards eaeh other, and meeting at the top, which is made inclining downward to the neck, C. D D are open gutters in the interior of the retort, descending from the head along each side, and terminating in the neck. E is a drawer resting on two rails, which raise it so as to leave an air-space between it and the bottom of the retort. The inventors say: "The object aimed at in our improvement is to facilitate and expedite the carrying-over of the charge with the least deleterious effect upon the substance to be distilled, and upon the wear of the retort. The base portion alone is exposed to the fire. The introduction of the pan on rails prevents the charge from charring or burning, by supplying an air space between the pan and the bottom of the retort, and the rails on antifriction principle greatly facilitate the introduction and removal of the drawer. Two pans being used to each retort, one is removed and the other introduced, occupying but a moment's time. The top portion, by its comparatively low temperature, becomes a condenser of the oleaginous vapor. This (the top) is inclined towards the neck, to hasten the escape of the condensed matter thither, within the top. Set inclined toward and emptying in the neck are open gutters which receive the condensed vapor, and carry it off to the neck, preventing effectually the return of the oil to the fire-surface to be re-distilled, a process which constantly occurs in the coal retorts commonly used, and which deteriorates the oil, destroying its volatile constituents and illuminating properties. Our retort is admirably adapted for the purification of the crude oil, by distillation—occupying but little time, is easily cleansed, and is entirely safe from fire. We procure from this improvement a rapid carrying over of the charge, admitting of at least four charges per diem, and we produce a better oil than can be had from any retort now in use."

The patent for this improvement was issued May 31, 1859, to Hazlett & Hobbs, of Wheeling, Va., to whom inquiries for further information in regard to it may be addressed.

A "RIP VAN WINKLE" ON INVENTIONS.

"*Self-weighing Beehives.*—Here is a chance for Yankee ingenuity. It is to make a weighing-balance on a cheap plan, so that every bee-keeper can afford to attach one to each hive, upon which it hangs suspended, to indicate each day the weight of the swarm and its stores. Such a thing would prove highly satisfactory, and should at once be invented."

We copy the above extract from the New York *Tribune*. If the writer had been familiar with the progress of invention, or had even read what he calls "a self-styled scientific journal," he would not have had an occasion thus to heat up the inventive genius of the readers of the *Tribune* to invent what is already well known. Self-weighing beehives have already been invented, and as an example, we refer the above writer to the illustration of a very simple self-weighing hive on page 156, Vol. XIII., SCIENTIFIC AMERICAN.

The New York *Tribune* also published the following:—

"*Planing Sawed Shingles.*—A letter before us describes a machine that planes one side of sawed shingles perfectly smooth as fast as they come from the saw; and the writer says it does not take much power, or add much to the cost. If this can be done, we may consent to use sawed shingles, and try to believe them as good as split and shaved ones when those are not to be had."

There are a number of shingle machines patented in which planing-attachments are combined with circular saws, and so arranged that the shingles are planed as they are sawed from the bolt. This, in fact, may now be considered an old invention. It is a valuable one, however, for the planing of a sawed shingle not only improves its appearance but admits of a smooth application of paint with a moderate absorption of oil, and if not required to be painted, they admit of the water running freely off of them. Shingles sawed from straight-grained wood are but little inferior to rived ones. We have illustrated and described, in the SCIENTIFIC AMERICAN, beautiful automatic mechanism designed to effect this object. It so happens, also, that we have now in our office a model of a machine for this purpose; and we shall be most happy to exhibit it to the writer of the above notice, whenever it may suit his convenience to call on us. We shall also be happy to place at his disposal, for examination, the entire library of our office; also, the fourteen last volumes of our journal, which contain at least five thousand illustrations of different inventions. Moreover, we will cheerfully furnish this ostensible man-of-science with a "proof" of our weekly review of patents, for publication, providing we receive proper credit for the same. By adopting this feasible course he will thus be saved from further blundering on subjects in reference to which he appears to be a novice.

FAWKES' STEAM PLOW ABROAD.

Our able cotemporary in Dublin, the *Irish Country Gentleman's Newspaper*, of Oct. 1st, copied our article on the above plow, accompanied with an illustration, very neatly engraved, and in its subsequent issue of the 7th ult., a correspondent writes to the editor as follows:—

"SIR:—The agricultural interest must feel much indebted to you for your excellent wood-cut and description of Fawkes' steam plow in your last, which is likely to make such a change in farming; the American papers appearing confident of its plowing 40 acres a day. This ought to put our machinists on their mettle. Shame to see our transatlantic cousins showing us how to make reapers, baby-jumpers, sewing-machines, and all other articles for saving labor."

PLATINUM has a greyish-white color. In the state of fine powder it is grey, and without metallic luster; but the luster can be produced by friction. Platinum is the heaviest of all metals. (Specific gravity 21·5.) It is harder than copper, but not so malleable as gold and silver. It can be drawn into exceedingly fine wire. It cannot be melted by the heat of a furnace; but it can be fused by means of a blowpipe, supplied with oxygen gas, and directed upon the flame of a spirit-lamp. It can be welded at a white heat. It does not oxydize when heated in the air. Platinum dissolves in hot aqua regia, but not in any simple acid. The solution contains chloride of platinum. When pure alkalies or nitrate of potash is ignited with platinum, the metal is coroded. When brought, in the state of a fine, porous, spongy mass, into a mixture of oxygen and hydrogen gas, it becomes red hot, and inflames the gas.

FAIR OF THE AMERICAN INSTITUTE.

The late fair of the American Institute continued to be enriched by new machines almost to its close—some of them among the most interesting of all which were exhibited. We notice some of these, as well as others for which we could not find space heretofore.

KNITTING-MACHINE.

The article that attracts most attention of anything in the fair is, perhaps, Aiken's knitting-machine. This was illustrated on page 328, Vol. XIV., of the SCIENTIFIC AMERICAN, and we must refer those who would like to understand its operation to that illustration and accompanying description, The wonderful thing in relation to it, is the rapidity and perfection with which it works. The yarn is carried round in a circle, and numerous hooked needles catch it and form the looped knitting stitches with a velocity which renders rivalry by the nimblest fingers utterly hopeless. The exclamations of the old ladies who were standing about bore very flattering testimony to the satisfactory working of the machine. The inventor, J. B. Aiken, manufactures his machines for sale at Manchester, N. H.

CARVING-MACHINE.

Among the late accessions to the fair, was Huntoon's paten carving-machine, for carving spiral, fluted balusters, bedsteads, newells, &c. A piece of wood previously turned, is carried along lengthwise, and at the same time slowly rolled, beneath a rapidly revolving cutter with a semi-circular edge, which thus cuts a spiral channel winding around the shaft. Four balusters, or other articles to be fluted, are placed in the machine at once and are all cut at the same time. It does its work very handsomely. Wm. M. Cassidy is the agent, 74 State-street, Albany, N. Y.

WOOD-TURNER.

To see A. D. Waymoth make a wooden pill-box, and cut it from the end of a rough stick, in a small fraction of a minute, seems as much like magic as any of the operations of machinery. He brings up one tool, which turns the stick, another which hollows the box, and by pressing his foot upon a treadle another cutter, a little delicate affair, takes off the finished box from the stick. A similar operation forms the covers. Innumerable articles for toys and for other purposes are made by this plastic machine.

GAS RETORTS.

Another sample of clay retorts for gas-works besides those already noticed, was introduced near the close of the exhibition by the manufacturers, J H. Gautier & Co. The agents in this city are Many, Baldwin & Many, 49 John-street. As a retort costs about $30, and as clay for the material is destined to replace iron in this country. as it has in England, an enormous amount of money is to be expended for clay retorts, and we earnestly hope that our manufacturers will be able to compete in the market with those who import them from abroad.

In our next number we shall publish an elaborate description of clay retorts, giving some illustrations of articles in this line extensively imported by T. Parmelee, whose office is at No. 4 Irving-place, in this city.

INTERESTING EXPERIMENT.—Into a small retort place about an ounce of strong liquor of potash, that is, pure potash dissolved in water, together with about a drachm of phosphorus. Let the neck or beak of the retort dip into a saucer of water, say half an inch deep; now very gently heat the liquid in the retort with a spirit-lamp, until it boils. In a few minutes the retort will be filled with a white cloud, then the gas generated will begin to bubble at the end of the saucer; a minute more, each bubble as it issues from the boiling fluid will *spontaneously take fire* as it comes into the air, forming at the same time the philosopher's ring of phosphoric acid. Care is required in handling phosphorus; but my young chemical readers will, I think, not forego this wonderful experiment for the want of due attention, for, without proper care on their part, I must give up showing them wonders, even greater than this.—*Septimus Piesse.*

NO NITER IN THE DEAD SEA.—Mr. H. Poole, who was sent by the Foreign Office (English) to the Dead Sea, to search for niter, which was reported to occur there, has returned without success. The region of Sodom and Gomorrah will not furnish one of the most essential sinews of war, and the price of saltpeter is very likely to be kept up in spite of the peace.