

A NEW ENGLISH OIL TESTING APPARATUS.

A new apparatus for testing the explosive or non-explosive character of petroleum oils as they are used in lamps, has been devised in England, but notwithstanding it seems a good one, no patent has yet been taken out for it. It consists of an ordinary spirit-lamp with small flame, A.

A water vessel, B.

An oil cup, C, two inches of which descends into the water bath, and which is filled with oil up to the rim, which surrounds the oil cup about one inch from the top, and which forms a rest for the cup in the water vessel.

D shows the space which is left for the collection of vapor as it is given off by the oil. This cup is fitted with a brass cover, through which, in a nicely fitted brass slide, the thermometer is passed into the oil. In this cover there are also two small holes, E, and these are covered by two circular pieces of brass, which are raised or lowered simultaneously by a gentle pressure of the thumb, upon the brass lever, F.

When the oil is under the test the brass caps are supposed to be down to prevent escape of vapor. When it is intended to apply the flame for the flash, the lever is touched, and the two brass caps fly back. A "small flame" is applied to one of the openings, and if no flash is obtained, these openings are again covered up, and the small flame applied again at short intervals until the flash is obtained.

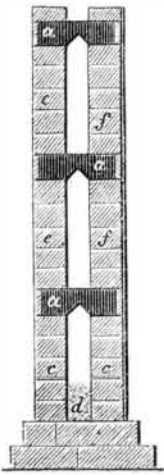
The apparatus appears to meet several objections brought against the present mode of testing. For instance, it may be used anywhere without the fear of the vapor being blown away; and the flash may be applied without the fear of heating the surface of the oil with the flame. It is not open to any of the objections raised against screen or cover, and the warning that "the flat rim be not covered with the liquid" can, in this case, be made no point of dispute.

In order to prove the correctness of any test, it is proposed to place a second thermometer in the water. Should this thermometer indicate the same temperature as the one inserted in the oil, both being correct, and the flash be then obtained, it is said that this demonstrates to a certainty that the real and true flashing point of the oil is that expressed by both thermometers. One objection certainly is met by this process of proving the test. In this case it cannot be said that any portion of the oil is raised by the latent heat of the water to a temperature higher than is indicated by the thermometer.

CONSTRUCTION OF HOLLOW WALLS.

An invention has been recently patented in England, having for its object an improved construction of hollow walls.

Our engraving is a vertical section of a wall built in this way. The wall ties are flat plates built into the vertical joints of the wall. The ties may be made of cast or wrought iron, zinc, or slate. They are made with notches on their lower edges to prevent water from flowing along them from the outer wall to the inner one. The width of the tie is somewhat more than the thickness of a brick, so that it bears upon the bricks both below and above it, and its length is such that it may be firmly imbedded in both the outer and inner wall. It also has perforated ends to allow the mortar to penetrate it. Walls constructed in this manner always keep dry on the inside and are excellent non-conductors of heat.



Faraday's Success as a Lecturer.

The *Chemical News* says of Faraday's success, as a lecturer, that it may be attributed to his careful attention to strict rules, of which the following were found among his notes:

Never to repeat a phrase.

Never to go back to amend.

If at a loss for a word, not to ch—ch—ch, or eh—eh—eh—, but to stop and wait for it. It soon comes, and the bad habits are broken, and fluency soon acquired.

Never doubt a correction given to me by another.

In addition to this strict attention to rules, Faraday took lessons in lecturing in 1823, and again in 1825 and 1826, before giving his first course of lectures in the institution.

DOMESTIC WATER FILTERS.

There are many situations where the blessing of good wells or running streams cannot be enjoyed, where the supply is bad, or the only resource is the roof and the eavestrough. Thanks to the persevering efforts of the inventor, no family need now suffer from the lack of pure and wholesome water; for the "Family Filter" is a ready and effective apparatus by which rain and other waters may be quickly purified, and the taste of the nicest spring imparted.

For a long time we have had at our country residence the "Kedzie Family Filter," and we regard it as an excellent device. In form and size it resembles an ordinary oak barrel, is

bound with iron bands, and contains filtering media of siliceous and carbon. The cistern or other water, poured in at the top, passes through the filter, and is drawn off, pure and limpid, from a faucet below. This filter is portable, durable, and satisfactory in every respect. Several different sizes are made. Patented 1864. Manufactured by Kedzie & Bunnell, Rochester, N. Y.

Improved Shovel Plow.

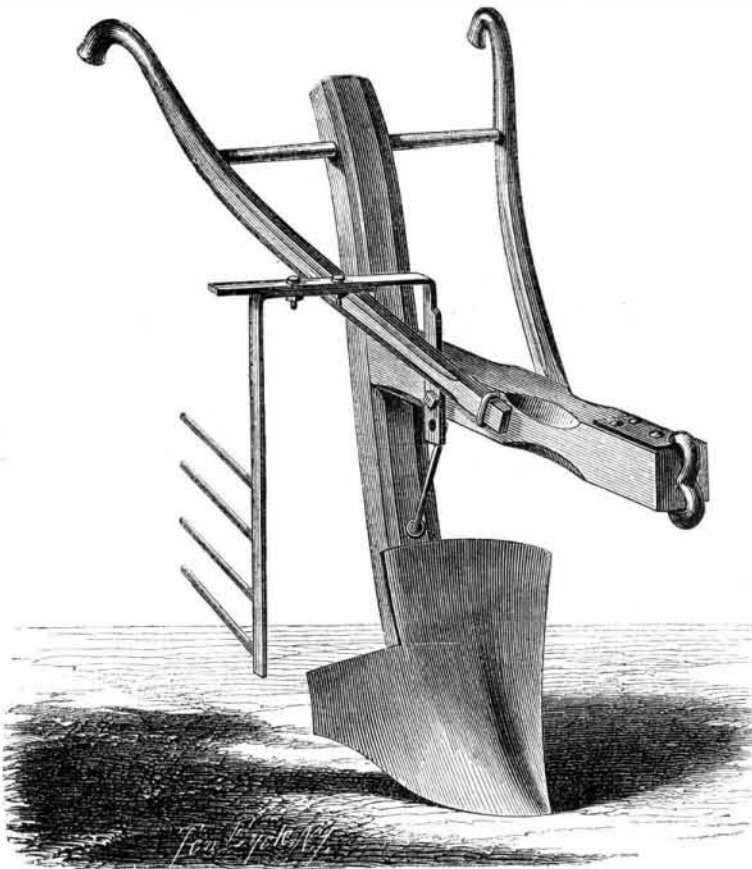
Past experience on the farm in the inconvenience which the device illustrated herewith is designed to obviate, would suffice to convince us of its value without the extraordinary number of testimonials from practical men, which the inventor has laid before us. There is no doubt that the inventor has succeeded in producing a decided improvement on the old form of the useful implement known as the shovel plow.

The whole form of the device is perfectly delineated in the engraving. The object of the device is to prevent the deposit of stones or heavy clods upon the young plants when cultivating, while the fine dirt shall be thrown up along the side of the hills, and thus approximate in effect, hand hoeing.

For this purpose he attaches an iron or steel arm to the beam of the plow, from which depends a grid, which, while it prevents the lateral throw of the large clods or stones, freely permits the passage of the fine loose earth. As the arm is jointed, as shown, the grid or guard may be laterally adjusted to suit the width of rows, etc.

The draft strain upon the lower part of the guard arm may be supported by a rod, one end of which hooks into a hole in the grid, and the other to the framework of the plow.

The guard-arm may also be adjusted to any height to suit any depth it may be desired to plow. The forward part of the descending bar should be sharpened so as to pass readily through grass, weeds, and other obstructions. The improve-



JENNINGS' SHOVEL PLOW GUARD.

ment may be attached either to single or double shovel plows with equal advantage and facility.

By the use of this improvement all injury to young and tender plants, by the falling thereon of heavy clods or stones, is obviated; and we should think that in many kinds of soils, there would be no need to follow it either with a hand hoe, or to straighten up plants.

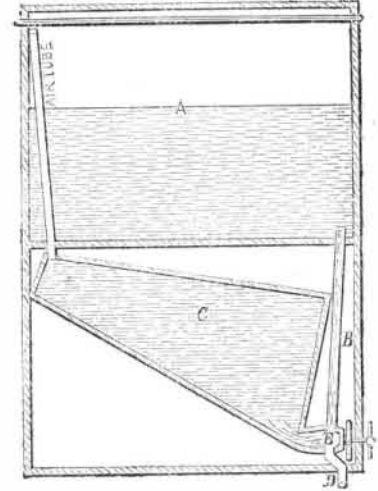
The device was patented August 24, 1869, through the Scientific American Patent Agency, by Gregory Jennings, of West Cairo, Ohio, whom address for further information.

NEW APPARATUS FOR MEASURING OIL.

A new apparatus for measuring oil, an engraving of which we give, has been recently patented in England, which seems ingenious and effective, while it is at the same time safe and cleanly. Our engraving is a section of this ingenious device. It consists of an upper cistern, beneath which are placed one or more measures of different capacity, according to the requirements of the shopkeeper. The measures are self-filling.

The measure is supplied by the inlet, B, which conducts the liquid to the measure, C, but when the handle of the tap, E, is turned, the inlet is shut off, and the liquid allowed to run out of the measure into the vessel placed for its reception. Now, when the measure is emptied, of course it must be filled again before another measure of liquid can be drawn from it; so, to prevent waiting for the measure refilling, or the chance of making a mistake by turning the tap before the measure is refilled, and thus giving short measure, two measures of equal capacity are placed together, and the taps connected by means of two cog wheels, so arranged that when one measure is emptying the other is filling, and as the outlet pipes of both measures are con-

ducted into one, another quantity can be measured as soon as the preceding one has run off, and can be continued as long as the supply is kept up in the cistern, which can be connected by means of a pipe to any cistern, cask, or reservoir, situated either in the same room or any place outside. Measures of any number or capacity can be fixed



to one machine. Each measure may be examined and adjusted, and the legal stamp affixed by the official sealer and stamper of weights and measures, and as the measures are all incased they cannot be tampered with, so that the purchaser may be sure of full measure, and the seller will not be liable to suffer by waste.

The advantages claimed for this instrument are accuracy, cleanliness, economy of space, and a saving of time in attending to customers; for instance, a person possessing a machine with half pint, pint, quart, and two quart measures, having customers in the shop requiring one of each quantity, their vessels can be put under the measures and will fill at one and the same time, and as the liquid will stop running as soon as the exact quantity has run out, the attendant has no need to watch it, but can be helping his customers to something else in the meantime.

Manufacture of Tracing Paper With Petroleum.

Mr. Häusel, architect at Neustadt, Grand Duchy of Hessen, being once in need of tracing paper in a small village, where none could be obtained, thought of using, as a substitute, ordinary writing paper saturated with petroleum by means of a brush. The effect was a surprising success. It did not take him more than four or five minutes to paint a sheet of writing paper with petroleum and to wipe it off till it was dry. He thus obtained an excellent tracing paper, on which he could write and print just as easily as if it had not been treated with petroleum. Also drawing paper, when impregnated with petroleum, becomes sufficiently transparent to be used for tracings. Since Mr. Häusel made this discovery, he has never used any manufactured tracing paper, but has always preferred to use petroleum paper, which he can make himself at any

time. He strongly recommends his method to all who can make use of it.

STEAM ENGINES AT THE AMERICAN INSTITUTE.

The Self-vindication of the judges on steam engines at the late fair of the American Institute, which appears in another column, is simply a reiteration of the apologies made in their published report for their very eccentric action in the awards of prizes. The committee seem to felicitate themselves upon the happy idea that our criticisms were based upon information obtained from interested parties. Unless the judges themselves wish to be understood as interested parties, we deny the impeachment. Our criticism has been based upon the report of the judges themselves; and our convictions are strengthened by the attempted vindication which they have felt compelled to make. They are entitled to a respectful hearing; but we are still of the opinion that the less they say upon the subject the better it will be for their reputation.

Mr. T. Lidstone writes to the *Builder* that having examined the gravestones of the family of Newcomen, the inventor of the steam engine which bears his name, he finds his name is spelled *Newcomin* instead of *Newcomen* as is the modern usage.

THE LECLANCHE BATTERY.—We would say to the numerous correspondents inquiring in regard to the Leclanche Battery, that we have given all the information we possess, and can answer no further inquiries in regard to it.

IT is stated that the action of the voltaic current for a month upon wine greatly improves it.